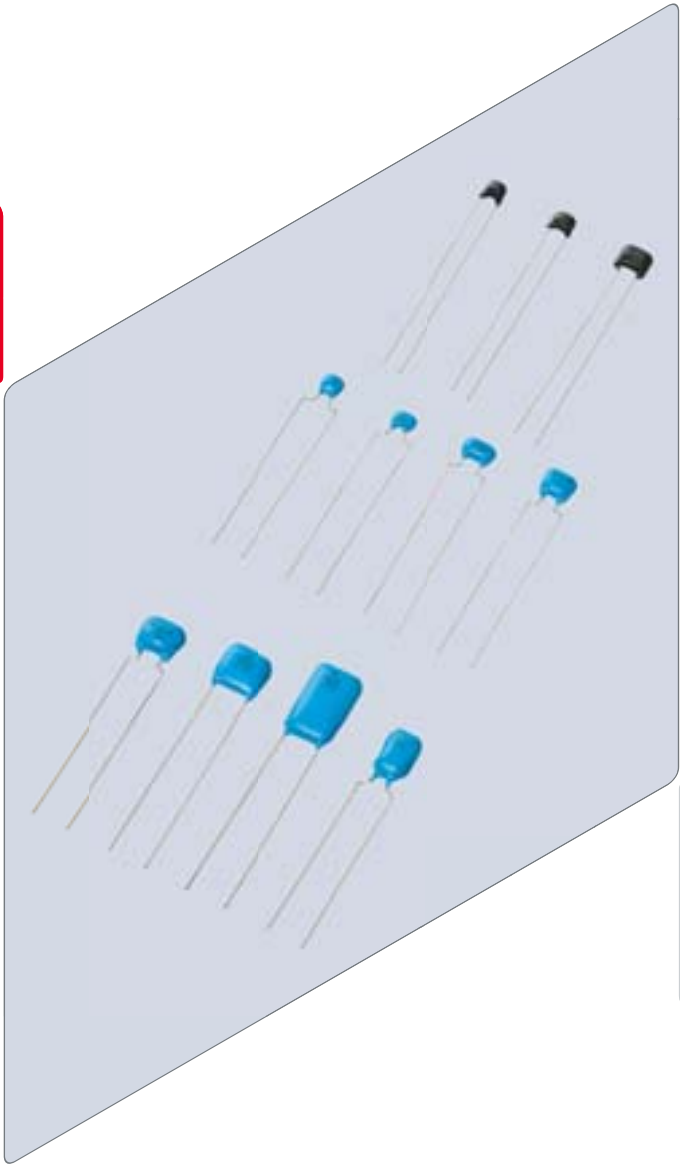


# Leaded MLCC





### **EU RoHS Compliant**

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our web page, "Murata's Approach for EU RoHS" (<https://www.murata.com/en-eu/support/compliance/rohs>).

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Product specifications are as of October 2019.

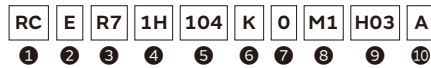
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Please check the MURATA website (<https://www.murata.com/>) if you cannot find a part number in this catalog.

● Part Numbering

Leaded MLCC

(Part Number)



① Product ID

② Series

Product ID	Series Code	
RC	E	Leaded MLCC for Automotive
RH	E	150°C Operation Leaded MLCC for Automotive
RH	S	200°C Operation Leaded MLCC for Automotive
RD	E	Leaded MLCC for General Purpose

③ Temperature Characteristics

Temperature Characteristic			Temperature Characteristics			Operating Temperature Range
Code	Public STD Code		Reference Temperature	Temperature Range	Capacitance Change or Temperature Coefficient	
5C	C0G	EIA	25°C	25 to 125°C	0±30ppm/°C	-55 to 125°C
				-55 to 25°C	0+30/-72ppm/°C	
5G	X8G	*1	25°C	25 to 150°C	0±30ppm/°C	-55 to 150°C
				-55 to 25°C	0+30/-72ppm/°C	
7G	CCG	*1	25°C	-55 to 25°C	0+30/-72ppm/°C	-55 to 200°C
				25 to 125°C	0±30ppm/°C	
				125 to 200°C	0+72/-30ppm/°C	
7J	UNJ	*1	25°C	-55 to 25°C	-750+120/-347ppm/°C	-55 to 200°C
				25 to 125°C	-750±120ppm/°C	
				125 to 200°C	-750+347/-120ppm/°C	
7U	U2J	EIA	25°C	25 to 125°C*2	-750±120ppm/°C	-55 to 125°C
				-55 to 25°C	-750+120/-347ppm/°C	
C7	X7S	EIA	25°C	-55 to 125°C	±22%	-55 to 125°C
D7	X7T	EIA	25°C	-55 to 125°C	+22%, -33%	-55 to 125°C
L8	X8L	*1	25°C	-55 to 150°C	+15%, -40%	-55 to 150°C
R7	X7R	EIA	25°C	-55 to 125°C	±15%	-55 to 125°C
Q9	X9Q	*1	25°C	-55 to 200°C	+15%, -70%	-55 to 200°C

\*1 Murata Temperature Characteristic Code.

\*2 Rated Voltage 100Vdc max: 25 to 85°C

④ Rated Voltage

Code	Rated Voltage
1E	DC25V
1H	DC50V
2A	DC100V
2D	DC200V
2E	DC250V
2W	DC450V
2H	DC500V
2J	DC630V
3A	DC1kV

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
C	±0.25pF
D	±0.5pF
J	±5%
K	±10%
M	±20%

⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R." In this case, all figures are significant digits.

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⑦ Dimensions (LxW)

Code	Dimensions (LxW)	
<b>0</b>	<b>RCE Series</b>	3.6×3.5mm max.
	<b>RHE Series</b>	
	<b>RHS Series</b>	3.9×3.5mm max.
	<b>RDE Series</b>	4.0×3.5mm max. or 5.0×3.5mm max. (Depends on Part Number List)
<b>1</b>	<b>RCE Series</b>	4.0×3.5mm max.
	<b>RHE Series</b>	
	<b>RHS Series</b>	4.2×3.5mm max.
	<b>RDE Series</b>	4.5×3.5mm max. or 5.0×3.5mm max. (Depends on Part Number List)
<b>2</b>	5.5×4.0mm max.	
<b>3</b>	5.5×5.0mm max.	
<b>4</b>	7.5×5.5mm max.	
<b>5</b>	7.5×7.5mm max. (DC630V, DC1kV : 7.5×8.0mm max.)	
<b>U</b>	7.5×12.5mm max. (DC630V, DC1kV : 7.5×13.0mm max.)	
<b>W</b>	5.5×7.5mm max.	

⑧ Lead Style

Code	Lead Style	Lead Spacing
<b>A2</b>	Straight Long	2.5mm
<b>B1</b>	Straight Long	5.0mm
<b>DB/DG</b>	Straight Taping	2.5mm
<b>E1</b>	Straight Taping	5.0mm
<b>K1</b>	Inside Crimp	5.0mm
<b>M1/M2</b>	Inside Crimp Taping	5.0mm
<b>P1</b>	Outside Crimp	2.5mm
<b>S1</b>	Outside Crimp Taping	2.5mm

⑨ Individual Specification Code

Expressed by three figures

⑩ Packaging

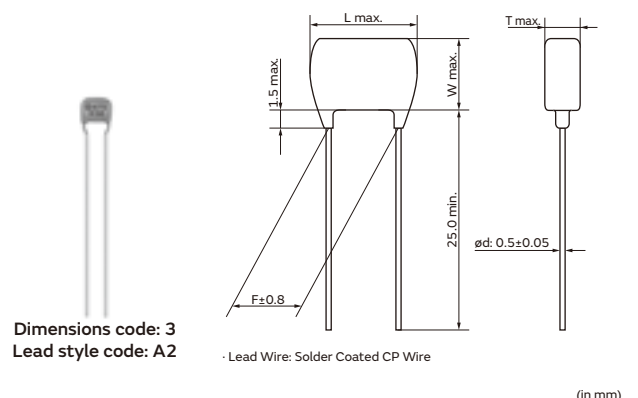
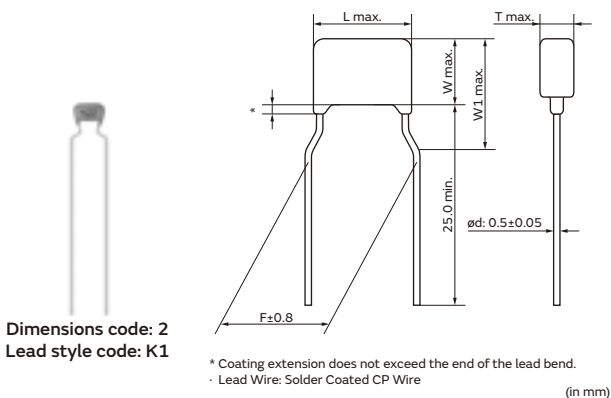
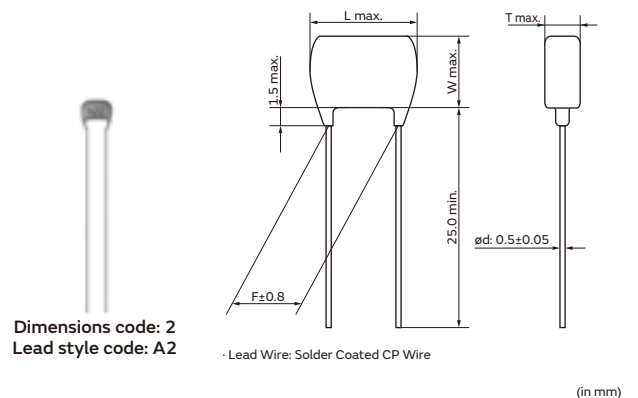
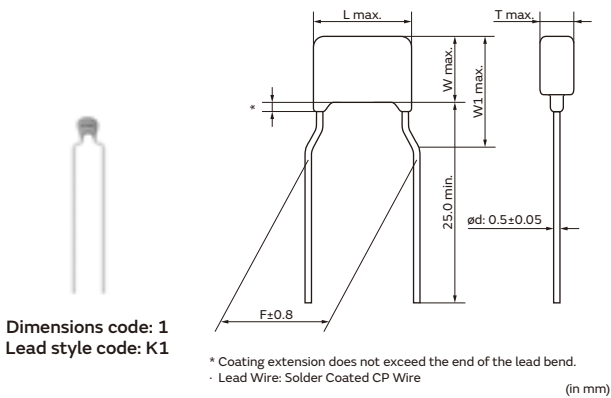
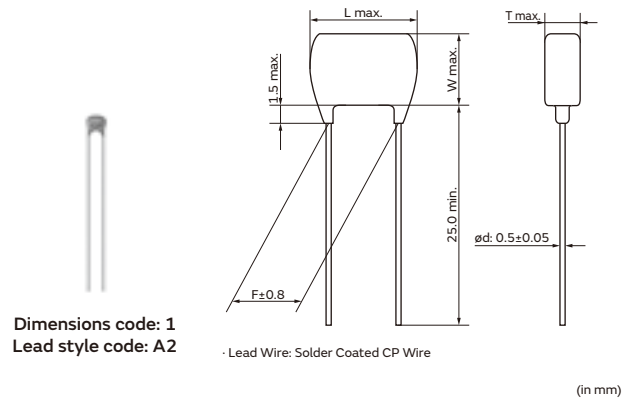
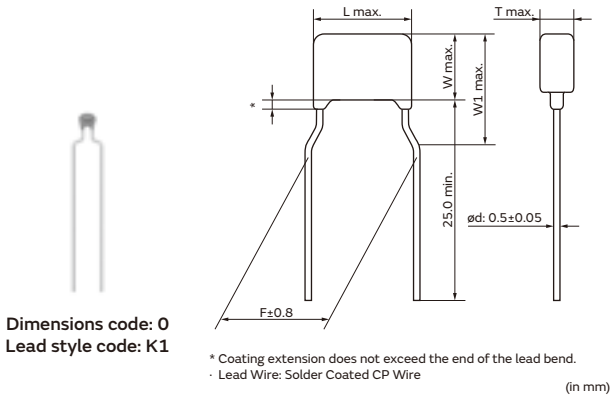
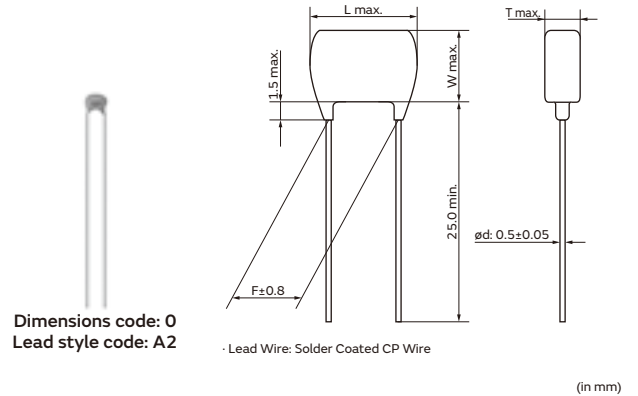
Code	Packaging
<b>A</b>	Ammo Pack
<b>B</b>	Bulk

# Leaded MLCC for Automotive

## RCE Series (DC25V-DC1kV)

### Features

1. Small size and large capacitance
2. Low ESR and ESL suitable for high frequency
3. Meet AEC-Q200, ISO7637-2 (surge test) requirement
4. Meet LF (Lead Free) and HF (Halogen Free)
5. Flow soldering and welding are available.  
(Re-flow soldering is not available.)
6. If copper wire is necessary at welding process, copper wire is available based on request.

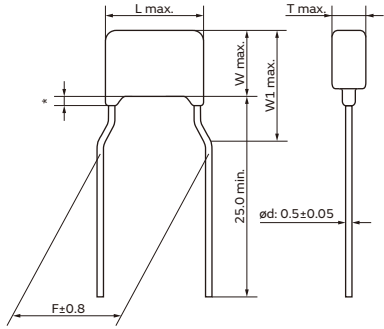


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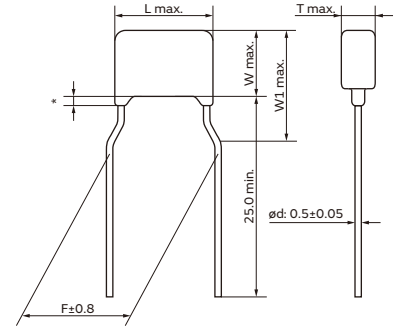
Dimensions code: 3  
 Lead style code: K1



\* Coating extension does not exceed the end of the lead bend.  
 · Lead Wire: Solder Coated CP Wire  
 (in mm)



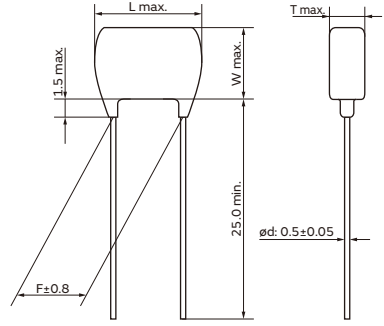
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 Lead style code: K1



\* Coating extension does not exceed the end of the lead bend.  
 · Lead Wire: Solder Coated CP Wire  
 (in mm)



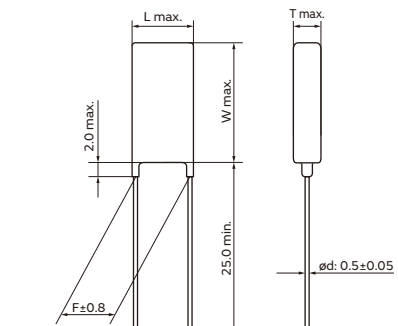
Dimensions code: 5  
 Lead style code: B1



· Lead Wire: Solder Coated CP Wire  
 (in mm)



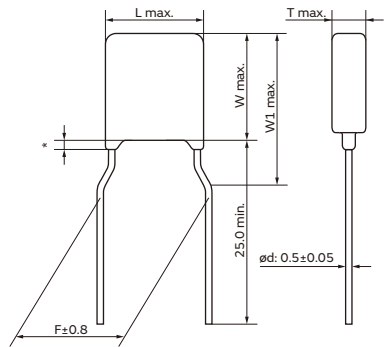
Dimensions code: U  
 Lead style code: B1



· Lead Wire: Solder Coated CP Wire  
 (in mm)



Dimensions code: W  
 Lead style code: K1



\* Coating extension does not exceed the end of the lead bend.  
 · Lead Wire: Solder Coated CP Wire  
 (in mm)

### Dimensions

Dimensions and Lead Style Code	Dimensions (mm)					
	L	W	W1	T	F	d
0A2/0DB	3.6	3.5	-	See the individual product specification	2.5	0.5
0K1/0M1	3.6	3.5	6.0		5.0	0.5
1A2/1DB	4.0	3.5	-		2.5	0.5
1K1/1M1	4.0	3.5	5.0		5.0	0.5
2A2/2DB	5.5	4.0	-		2.5	0.5
2K1/2M1	5.5	4.0	6.0		5.0	0.5
3A2/3DB	5.5	5.0	-		2.5	0.5
3K1/3M1	5.5	5.0	7.5		5.0	0.5
4K1/4M1	7.5	5.5	8.0		5.0	0.5
5B1/5E1	7.5	7.5*	-		5.0	0.5
UB1/UE1	7.7	12.5*	-		5.0	0.5
WK1/WM1	5.5	7.5	10.0		5.0	0.5

\*DC630V, DC1kV: W+0.5mm

## Marking

1

Dimensions Code	Rated Voltage	DC25V	DC50V				DC100V			DC250V	DC630V	DC1kV
	Temp. Char.	X7R	COG	X7S	X7R	COG	X7S	X7R	X7R, U2J, COG			
0				-			-		-	-	-	
1		224K	A 102J	105K	224K	A 102J	-	224K	U 102J (U2J)	-	-	
									102K (X7R)			
2									M 103 J4U (U2J)	M 472 J7U (U2J)	M 102 JAU (U2J)	
		M 475 K2C	M 563 J5A	M 475 K5C	M 105 K5C	M 103 J1A	-	M 105 K1C	M 473 K4C (X7R)	M 153 K7C (X7R)	M 102 KAC (X7R)	
									M 153 J4A (COG)	M 332 J7A (COG)	M 102 JAA (COG)	
3, 4, W		M 226 K2C	-	M 106 K5C	M 335 K5C	-	M 225 K1C	-	M 473 J4U (U2J)	M 103 J7U (U2J)	M 472 JAU (U2J)	
									M 224 K4C (X7R)	M 104 K7C (X7R)	M 333 KAC (X7R)	
5, U		-	-	-	-	-	-	-	-	M 333 J7U (U2J)	M 103 JAU (U2J)	
									M 474 K4C (X7R)	M 474 M7C (X7R)	M 104 KAC (X7R)	
Temperature Characteristics	Marked with code (COG char.: A, X7S/X7R char.: C, U2J char.: U) A part is omitted (Please refer to the marking example.)											
Nominal Capacitance	Under 100pF: Actual value 100pF and over: Marked with 3 figures											
Capacitance Tolerance	Marked with code A part is omitted (Please refer to the marking example.)											
Rated Voltage	Marked with code (DC25V: 2, DC50V: 5, DC100V: 1, DC250V: 4, DC630V: 7, DC1kV: A) A part is omitted (Please refer to the marking example.)											
Manufacturer's Identification	Marked with M A part is omitted (Please refer to the marking example.)											

## Temperature Compensating Type, COG/U2J Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C1H1R0C0□□H03□	COG (EIA)	50Vdc	1.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H1R0C0□□H03□	COG (EIA)	50Vdc	1.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H2R0C0□□H03□	COG (EIA)	50Vdc	2.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H2R0C0□□H03□	COG (EIA)	50Vdc	2.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H3R0C0□□H03□	COG (EIA)	50Vdc	3.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H3R0C0□□H03□	COG (EIA)	50Vdc	3.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H4R0C0□□H03□	COG (EIA)	50Vdc	4.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H4R0C0□□H03□	COG (EIA)	50Vdc	4.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H5R0C0□□H03□	COG (EIA)	50Vdc	5.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H5R0C0□□H03□	COG (EIA)	50Vdc	5.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C1H6R0D0□□H03□	COG (EIA)	50Vdc	6.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H6R0D0□□H03□	COG (EIA)	50Vdc	6.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H7R0D0□□H03□	COG (EIA)	50Vdc	7.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H7R0D0□□H03□	COG (EIA)	50Vdc	7.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H8R0D0□□H03□	COG (EIA)	50Vdc	8.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H8R0D0□□H03□	COG (EIA)	50Vdc	8.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H9R0D0□□H03□	COG (EIA)	50Vdc	9.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H9R0D0□□H03□	COG (EIA)	50Vdc	9.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H100J0□□H03□	COG (EIA)	50Vdc	10pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H100J0□□H03□	COG (EIA)	50Vdc	10pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H120J0□□H03□	COG (EIA)	50Vdc	12pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H120J0□□H03□	COG (EIA)	50Vdc	12pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H150J0□□H03□	COG (EIA)	50Vdc	15pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H150J0□□H03□	COG (EIA)	50Vdc	15pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H180J0□□H03□	COG (EIA)	50Vdc	18pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H180J0□□H03□	COG (EIA)	50Vdc	18pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H220J0□□H03□	COG (EIA)	50Vdc	22pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H220J0□□H03□	COG (EIA)	50Vdc	22pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H270J0□□H03□	COG (EIA)	50Vdc	27pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H270J0□□H03□	COG (EIA)	50Vdc	27pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H330J0□□H03□	COG (EIA)	50Vdc	33pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H330J0□□H03□	COG (EIA)	50Vdc	33pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H390J0□□H03□	COG (EIA)	50Vdc	39pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H390J0□□H03□	COG (EIA)	50Vdc	39pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H470J0□□H03□	COG (EIA)	50Vdc	47pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H470J0□□H03□	COG (EIA)	50Vdc	47pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H560J0□□H03□	COG (EIA)	50Vdc	56pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H560J0□□H03□	COG (EIA)	50Vdc	56pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H680J0□□H03□	COG (EIA)	50Vdc	68pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H680J0□□H03□	COG (EIA)	50Vdc	68pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H820J0□□H03□	COG (EIA)	50Vdc	82pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H820J0□□H03□	COG (EIA)	50Vdc	82pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H101J0□□H03□	COG (EIA)	50Vdc	100pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H101J0□□H03□	COG (EIA)	50Vdc	100pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H121J0□□H03□	COG (EIA)	50Vdc	120pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H121J0□□H03□	COG (EIA)	50Vdc	120pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H151J0□□H03□	COG (EIA)	50Vdc	150pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H151J0□□H03□	COG (EIA)	50Vdc	150pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H181J0□□H03□	COG (EIA)	50Vdc	180pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H181J0□□H03□	COG (EIA)	50Vdc	180pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H221J0□□H03□	COG (EIA)	50Vdc	220pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H221J0□□H03□	COG (EIA)	50Vdc	220pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H271J0□□H03□	COG (EIA)	50Vdc	270pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H271J0□□H03□	COG (EIA)	50Vdc	270pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H331J0□□H03□	COG (EIA)	50Vdc	330pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H331J0□□H03□	COG (EIA)	50Vdc	330pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H391J0□□H03□	COG (EIA)	50Vdc	390pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H391J0□□H03□	COG (EIA)	50Vdc	390pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H471J0□□H03□	COG (EIA)	50Vdc	470pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H471J0□□H03□	COG (EIA)	50Vdc	470pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H561J0□□H03□	COG (EIA)	50Vdc	560pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H561J0□□H03□	COG (EIA)	50Vdc	560pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H681J0□□H03□	COG (EIA)	50Vdc	680pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H681J0□□H03□	COG (EIA)	50Vdc	680pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H821J0□□H03□	COG (EIA)	50Vdc	820pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H821J0□□H03□	COG (EIA)	50Vdc	820pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H102J0□□H03□	COG (EIA)	50Vdc	1000pF±5%	3.6×3.5	2.5	2.5	A2	DB

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C1H102J0□□H03□	COG (EIA)	50Vdc	1000pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H122J0□□H03□	COG (EIA)	50Vdc	1200pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H122J0□□H03□	COG (EIA)	50Vdc	1200pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H152J0□□H03□	COG (EIA)	50Vdc	1500pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H152J0□□H03□	COG (EIA)	50Vdc	1500pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H182J0□□H03□	COG (EIA)	50Vdc	1800pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H182J0□□H03□	COG (EIA)	50Vdc	1800pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H222J0□□H03□	COG (EIA)	50Vdc	2200pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H222J0□□H03□	COG (EIA)	50Vdc	2200pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H272J0□□H03□	COG (EIA)	50Vdc	2700pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H272J0□□H03□	COG (EIA)	50Vdc	2700pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H332J0□□H03□	COG (EIA)	50Vdc	3300pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H332J0□□H03□	COG (EIA)	50Vdc	3300pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H392J0□□H03□	COG (EIA)	50Vdc	3900pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C1H392J0□□H03□	COG (EIA)	50Vdc	3900pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C1H472J1□□H03□	COG (EIA)	50Vdc	4700pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H472J1□□H03□	COG (EIA)	50Vdc	4700pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H562J1□□H03□	COG (EIA)	50Vdc	5600pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H562J1□□H03□	COG (EIA)	50Vdc	5600pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H682J1□□H03□	COG (EIA)	50Vdc	6800pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H682J1□□H03□	COG (EIA)	50Vdc	6800pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H822J1□□H03□	COG (EIA)	50Vdc	8200pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H822J1□□H03□	COG (EIA)	50Vdc	8200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H103J1□□H03□	COG (EIA)	50Vdc	10000pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H103J1□□H03□	COG (EIA)	50Vdc	10000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H123J1□□H03□	COG (EIA)	50Vdc	12000pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H123J1□□H03□	COG (EIA)	50Vdc	12000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H153J1□□H03□	COG (EIA)	50Vdc	15000pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H153J1□□H03□	COG (EIA)	50Vdc	15000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H183J1□□H03□	COG (EIA)	50Vdc	18000pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H183J1□□H03□	COG (EIA)	50Vdc	18000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H223J1□□H03□	COG (EIA)	50Vdc	22000pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C1H223J1□□H03□	COG (EIA)	50Vdc	22000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C1H273J2□□H03□	COG (EIA)	50Vdc	27000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H273J2□□H03□	COG (EIA)	50Vdc	27000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H333J2□□H03□	COG (EIA)	50Vdc	33000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H333J2□□H03□	COG (EIA)	50Vdc	33000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H393J2□□H03□	COG (EIA)	50Vdc	39000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H393J2□□H03□	COG (EIA)	50Vdc	39000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H473J2□□H03□	COG (EIA)	50Vdc	47000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H473J2□□H03□	COG (EIA)	50Vdc	47000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H563J2□□H03□	COG (EIA)	50Vdc	56000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H563J2□□H03□	COG (EIA)	50Vdc	56000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H683J2□□H03□	COG (EIA)	50Vdc	68000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H683J2□□H03□	COG (EIA)	50Vdc	68000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H823J2□□H03□	COG (EIA)	50Vdc	82000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H823J2□□H03□	COG (EIA)	50Vdc	82000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C1H104J2□□H03□	COG (EIA)	50Vdc	0.1μF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C1H104J2□□H03□	COG (EIA)	50Vdc	0.1μF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2A1R0C0□□H03□	COG (EIA)	100Vdc	1.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A1R0C0□□H03□	COG (EIA)	100Vdc	1.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A2R0C0□□H03□	COG (EIA)	100Vdc	2.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A2R0C0□□H03□	COG (EIA)	100Vdc	2.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A3R0C0□□H03□	COG (EIA)	100Vdc	3.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A3R0C0□□H03□	COG (EIA)	100Vdc	3.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A4R0C0□□H03□	COG (EIA)	100Vdc	4.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A4R0C0□□H03□	COG (EIA)	100Vdc	4.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C2A5R0C0□□H03□	COG (EIA)	100Vdc	5.0pF±0.25pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A5R0C0□□H03□	COG (EIA)	100Vdc	5.0pF±0.25pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A6R0D0□□H03□	COG (EIA)	100Vdc	6.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A6R0D0□□H03□	COG (EIA)	100Vdc	6.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A7R0D0□□H03□	COG (EIA)	100Vdc	7.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A7R0D0□□H03□	COG (EIA)	100Vdc	7.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A8R0D0□□H03□	COG (EIA)	100Vdc	8.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A8R0D0□□H03□	COG (EIA)	100Vdc	8.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A9R0D0□□H03□	COG (EIA)	100Vdc	9.0pF±0.5pF	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A9R0D0□□H03□	COG (EIA)	100Vdc	9.0pF±0.5pF	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A100J0□□H03□	COG (EIA)	100Vdc	10pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A100J0□□H03□	COG (EIA)	100Vdc	10pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A120J0□□H03□	COG (EIA)	100Vdc	12pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A120J0□□H03□	COG (EIA)	100Vdc	12pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A150J0□□H03□	COG (EIA)	100Vdc	15pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A150J0□□H03□	COG (EIA)	100Vdc	15pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A180J0□□H03□	COG (EIA)	100Vdc	18pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A180J0□□H03□	COG (EIA)	100Vdc	18pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A220J0□□H03□	COG (EIA)	100Vdc	22pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A220J0□□H03□	COG (EIA)	100Vdc	22pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A270J0□□H03□	COG (EIA)	100Vdc	27pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A270J0□□H03□	COG (EIA)	100Vdc	27pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A330J0□□H03□	COG (EIA)	100Vdc	33pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A330J0□□H03□	COG (EIA)	100Vdc	33pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A390J0□□H03□	COG (EIA)	100Vdc	39pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A390J0□□H03□	COG (EIA)	100Vdc	39pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A470J0□□H03□	COG (EIA)	100Vdc	47pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A470J0□□H03□	COG (EIA)	100Vdc	47pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A560J0□□H03□	COG (EIA)	100Vdc	56pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A560J0□□H03□	COG (EIA)	100Vdc	56pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A680J0□□H03□	COG (EIA)	100Vdc	68pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A680J0□□H03□	COG (EIA)	100Vdc	68pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A820J0□□H03□	COG (EIA)	100Vdc	82pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A820J0□□H03□	COG (EIA)	100Vdc	82pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A101J0□□H03□	COG (EIA)	100Vdc	100pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A101J0□□H03□	COG (EIA)	100Vdc	100pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A121J0□□H03□	COG (EIA)	100Vdc	120pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A121J0□□H03□	COG (EIA)	100Vdc	120pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A151J0□□H03□	COG (EIA)	100Vdc	150pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A151J0□□H03□	COG (EIA)	100Vdc	150pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A181J0□□H03□	COG (EIA)	100Vdc	180pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A181J0□□H03□	COG (EIA)	100Vdc	180pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A221J0□□H03□	COG (EIA)	100Vdc	220pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A221J0□□H03□	COG (EIA)	100Vdc	220pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A271J0□□H03□	COG (EIA)	100Vdc	270pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A271J0□□H03□	COG (EIA)	100Vdc	270pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A331J0□□H03□	COG (EIA)	100Vdc	330pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A331J0□□H03□	COG (EIA)	100Vdc	330pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A391J0□□H03□	COG (EIA)	100Vdc	390pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A391J0□□H03□	COG (EIA)	100Vdc	390pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A471J0□□H03□	COG (EIA)	100Vdc	470pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A471J0□□H03□	COG (EIA)	100Vdc	470pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A561J0□□H03□	COG (EIA)	100Vdc	560pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A561J0□□H03□	COG (EIA)	100Vdc	560pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A681J0□□H03□	COG (EIA)	100Vdc	680pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A681J0□□H03□	COG (EIA)	100Vdc	680pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A821J0□□H03□	COG (EIA)	100Vdc	820pF±5%	3.6×3.5	2.5	2.5	A2	DB

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C2A821J0□□H03□	COG (EIA)	100Vdc	820pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A102J0□□H03□	COG (EIA)	100Vdc	1000pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A102J0□□H03□	COG (EIA)	100Vdc	1000pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A122J0□□H03□	COG (EIA)	100Vdc	1200pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A122J0□□H03□	COG (EIA)	100Vdc	1200pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A152J0□□H03□	COG (EIA)	100Vdc	1500pF±5%	3.6×3.5	2.5	2.5	A2	DB
RCE5C2A152J0□□H03□	COG (EIA)	100Vdc	1500pF±5%	3.6×3.5	2.5	5.0	K1	M1
RCE5C2A182J1□□H03□	COG (EIA)	100Vdc	1800pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C2A182J1□□H03□	COG (EIA)	100Vdc	1800pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C2A222J1□□H03□	COG (EIA)	100Vdc	2200pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C2A222J1□□H03□	COG (EIA)	100Vdc	2200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C2A272J1□□H03□	COG (EIA)	100Vdc	2700pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C2A272J1□□H03□	COG (EIA)	100Vdc	2700pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C2A332J1□□H03□	COG (EIA)	100Vdc	3300pF±5%	4.0×3.5	2.5	2.5	A2	DB
RCE5C2A332J1□□H03□	COG (EIA)	100Vdc	3300pF±5%	4.0×3.5	2.5	5.0	K1	M1
RCE5C2A392J2□□H03□	COG (EIA)	100Vdc	3900pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C2A392J2□□H03□	COG (EIA)	100Vdc	3900pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2A472J2□□H03□	COG (EIA)	100Vdc	4700pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C2A472J2□□H03□	COG (EIA)	100Vdc	4700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2A562J2□□H03□	COG (EIA)	100Vdc	5600pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C2A562J2□□H03□	COG (EIA)	100Vdc	5600pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2A682J2□□H03□	COG (EIA)	100Vdc	6800pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C2A682J2□□H03□	COG (EIA)	100Vdc	6800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2A822J2□□H03□	COG (EIA)	100Vdc	8200pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C2A822J2□□H03□	COG (EIA)	100Vdc	8200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2A103J2□□H03□	COG (EIA)	100Vdc	10000pF±5%	5.5×4.0	3.15	2.5	A2	DB
RCE5C2A103J2□□H03□	COG (EIA)	100Vdc	10000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E100J2□□H03□	COG (EIA)	250Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E120J2□□H03□	COG (EIA)	250Vdc	12pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E150J2□□H03□	COG (EIA)	250Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E180J2□□H03□	COG (EIA)	250Vdc	18pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E220J2□□H03□	COG (EIA)	250Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E270J2□□H03□	COG (EIA)	250Vdc	27pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E330J2□□H03□	COG (EIA)	250Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E390J2□□H03□	COG (EIA)	250Vdc	39pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E470J2□□H03□	COG (EIA)	250Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E560J2□□H03□	COG (EIA)	250Vdc	56pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E680J2□□H03□	COG (EIA)	250Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E820J2□□H03□	COG (EIA)	250Vdc	82pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E101J2□□H03□	COG (EIA)	250Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E121J2□□H03□	COG (EIA)	250Vdc	120pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E151J2□□H03□	COG (EIA)	250Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E181J2□□H03□	COG (EIA)	250Vdc	180pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E221J2□□H03□	COG (EIA)	250Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E271J2□□H03□	COG (EIA)	250Vdc	270pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E331J2□□H03□	COG (EIA)	250Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E391J2□□H03□	COG (EIA)	250Vdc	390pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E471J2□□H03□	COG (EIA)	250Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E561J2□□H03□	COG (EIA)	250Vdc	560pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E681J2□□H03□	COG (EIA)	250Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E821J2□□H03□	COG (EIA)	250Vdc	820pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E102J2□□H03□	COG (EIA)	250Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E122J2□□H03□	COG (EIA)	250Vdc	1200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E152J2□□H03□	COG (EIA)	250Vdc	1500pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E182J2□□H03□	COG (EIA)	250Vdc	1800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E222J2□□H03□	COG (EIA)	250Vdc	2200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E272J2□□H03□	COG (EIA)	250Vdc	2700pF±5%	5.5×4.0	3.15	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C2E332J2□□H03□	COG (EIA)	250Vdc	3300pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E392J2□□H03□	COG (EIA)	250Vdc	3900pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E472J2□□H03□	COG (EIA)	250Vdc	4700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E562J2□□H03□	COG (EIA)	250Vdc	5600pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E682J2□□H03□	COG (EIA)	250Vdc	6800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E822J2□□H03□	COG (EIA)	250Vdc	8200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E103J2□□H03□	COG (EIA)	250Vdc	10000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E123J2□□H03□	COG (EIA)	250Vdc	12000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2E153J2□□H03□	COG (EIA)	250Vdc	15000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J100J2□□H03□	COG (EIA)	630Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J120J2□□H03□	COG (EIA)	630Vdc	12pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J150J2□□H03□	COG (EIA)	630Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J180J2□□H03□	COG (EIA)	630Vdc	18pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J220J2□□H03□	COG (EIA)	630Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J270J2□□H03□	COG (EIA)	630Vdc	27pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J330J2□□H03□	COG (EIA)	630Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J390J2□□H03□	COG (EIA)	630Vdc	39pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J470J2□□H03□	COG (EIA)	630Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J560J2□□H03□	COG (EIA)	630Vdc	56pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J680J2□□H03□	COG (EIA)	630Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J820J2□□H03□	COG (EIA)	630Vdc	82pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J101J2□□H03□	COG (EIA)	630Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J121J2□□H03□	COG (EIA)	630Vdc	120pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J151J2□□H03□	COG (EIA)	630Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J181J2□□H03□	COG (EIA)	630Vdc	180pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J221J2□□H03□	COG (EIA)	630Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J271J2□□H03□	COG (EIA)	630Vdc	270pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J331J2□□H03□	COG (EIA)	630Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J391J2□□H03□	COG (EIA)	630Vdc	390pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J471J2□□H03□	COG (EIA)	630Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J561J2□□H03□	COG (EIA)	630Vdc	560pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J681J2□□H03□	COG (EIA)	630Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J821J2□□H03□	COG (EIA)	630Vdc	820pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J102J2□□H03□	COG (EIA)	630Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J122J2□□H03□	COG (EIA)	630Vdc	1200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J152J2□□H03□	COG (EIA)	630Vdc	1500pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J182J2□□H03□	COG (EIA)	630Vdc	1800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J222J2□□H03□	COG (EIA)	630Vdc	2200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J272J2□□H03□	COG (EIA)	630Vdc	2700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C2J332J2□□H03□	COG (EIA)	630Vdc	3300pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A100J2□□H03□	COG (EIA)	1000Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A120J2□□H03□	COG (EIA)	1000Vdc	12pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A150J2□□H03□	COG (EIA)	1000Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A180J2□□H03□	COG (EIA)	1000Vdc	18pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A220J2□□H03□	COG (EIA)	1000Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A270J2□□H03□	COG (EIA)	1000Vdc	27pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A330J2□□H03□	COG (EIA)	1000Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A390J2□□H03□	COG (EIA)	1000Vdc	39pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A470J2□□H03□	COG (EIA)	1000Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A560J2□□H03□	COG (EIA)	1000Vdc	56pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A680J2□□H03□	COG (EIA)	1000Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A820J2□□H03□	COG (EIA)	1000Vdc	82pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A101J2□□H03□	COG (EIA)	1000Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A121J2□□H03□	COG (EIA)	1000Vdc	120pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A151J2□□H03□	COG (EIA)	1000Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A181J2□□H03□	COG (EIA)	1000Vdc	180pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A221J2□□H03□	COG (EIA)	1000Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE5C3A271J2□□H03□	COG (EIA)	1000Vdc	270pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A331J2□□H03□	COG (EIA)	1000Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A391J2□□H03□	COG (EIA)	1000Vdc	390pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A471J2□□H03□	COG (EIA)	1000Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A561J2□□H03□	COG (EIA)	1000Vdc	560pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A681J2□□H03□	COG (EIA)	1000Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A821J2□□H03□	COG (EIA)	1000Vdc	820pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE5C3A102J2□□H03□	COG (EIA)	1000Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2E101J1□□H03□	U2J (EIA)	250Vdc	100pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E151J1□□H03□	U2J (EIA)	250Vdc	150pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E221J1□□H03□	U2J (EIA)	250Vdc	220pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E331J1□□H03□	U2J (EIA)	250Vdc	330pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E471J1□□H03□	U2J (EIA)	250Vdc	470pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E681J1□□H03□	U2J (EIA)	250Vdc	680pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E102J1□□H03□	U2J (EIA)	250Vdc	1000pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E152J1□□H03□	U2J (EIA)	250Vdc	1500pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E222J1□□H03□	U2J (EIA)	250Vdc	2200pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E332J1□□H03□	U2J (EIA)	250Vdc	3300pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E472J1□□H03□	U2J (EIA)	250Vdc	4700pF±5%	4.0×3.5	3.15	5.0	K1	M1
RCE7U2E682J2□□H03□	U2J (EIA)	250Vdc	6800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2E103J2□□H03□	U2J (EIA)	250Vdc	10000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J100J2□□H03□	U2J (EIA)	630Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J150J2□□H03□	U2J (EIA)	630Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J220J2□□H03□	U2J (EIA)	630Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J330J2□□H03□	U2J (EIA)	630Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J470J2□□H03□	U2J (EIA)	630Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J680J2□□H03□	U2J (EIA)	630Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J101J2□□H03□	U2J (EIA)	630Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J151J2□□H03□	U2J (EIA)	630Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J221J2□□H03□	U2J (EIA)	630Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J331J2□□H03□	U2J (EIA)	630Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J471J2□□H03□	U2J (EIA)	630Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J681J2□□H03□	U2J (EIA)	630Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J102J2□□H03□	U2J (EIA)	630Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J152J2□□H03□	U2J (EIA)	630Vdc	1500pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J222J2□□H03□	U2J (EIA)	630Vdc	2200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J332J2□□H03□	U2J (EIA)	630Vdc	3300pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J472J2□□H03□	U2J (EIA)	630Vdc	4700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U2J682J3□□H03□	U2J (EIA)	630Vdc	6800pF±5%	5.5×5.0	4.0	5.0	K1	M1
RCE7U2J103J3□□H03□	U2J (EIA)	630Vdc	10000pF±5%	5.5×5.0	4.0	5.0	K1	M1
RCE7U2J153J4□□H03□	U2J (EIA)	630Vdc	15000pF±5%	7.5×5.5	4.0	5.0	K1	M1
RCE7U2J223J4□□H03□	U2J (EIA)	630Vdc	22000pF±5%	7.5×5.5	4.0	5.0	K1	M1
RCE7U2J333J5□□H03□	U2J (EIA)	630Vdc	33000pF±5%	7.5×8.0	4.0	5.0	B1	E1
RCE7U2J473J5□□H03□	U2J (EIA)	630Vdc	47000pF±5%	7.5×8.0	4.0	5.0	B1	E1
RCE7U2J943JU□□H03□	U2J (EIA)	630Vdc	94000pF±5%	7.7×13.0	4.0	5.0	B1	E1
RCE7U3A100J2□□H03□	U2J (EIA)	1000Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A150J2□□H03□	U2J (EIA)	1000Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A220J2□□H03□	U2J (EIA)	1000Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A330J2□□H03□	U2J (EIA)	1000Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A470J2□□H03□	U2J (EIA)	1000Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A680J2□□H03□	U2J (EIA)	1000Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A101J2□□H03□	U2J (EIA)	1000Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A151J2□□H03□	U2J (EIA)	1000Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A221J2□□H03□	U2J (EIA)	1000Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A331J2□□H03□	U2J (EIA)	1000Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A471J2□□H03□	U2J (EIA)	1000Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A681J2□□H03□	U2J (EIA)	1000Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCE7U3A102J2□□H03□	U2J (EIA)	1000Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RCE7U3A152J3□□H03□	U2J (EIA)	1000Vdc	1500pF±5%	5.5×5.0	4.0	5.0	K1	M1
RCE7U3A222J3□□H03□	U2J (EIA)	1000Vdc	2200pF±5%	5.5×5.0	4.0	5.0	K1	M1
RCE7U3A332J4□□H03□	U2J (EIA)	1000Vdc	3300pF±5%	7.5×5.5	4.0	5.0	K1	M1
RCE7U3A472J4□□H03□	U2J (EIA)	1000Vdc	4700pF±5%	7.5×5.5	4.0	5.0	K1	M1
RCE7U3A682J5□□H03□	U2J (EIA)	1000Vdc	6800pF±5%	7.5×8.0	4.0	5.0	B1	E1
RCE7U3A103J5□□H03□	U2J (EIA)	1000Vdc	10000pF±5%	7.5×8.0	4.0	5.0	B1	E1
RCE7U3A203JU□□H03□	U2J (EIA)	1000Vdc	20000pF±5%	7.7×13.0	4.0	5.0	B1	E1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

## High Dielectric Constant Type, X7R/X7S Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCER71E104K0□□H03□	X7R (EIA)	25Vdc	0.1μF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71E104K0□□H03□	X7R (EIA)	25Vdc	0.1μF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71E154K0□□H03□	X7R (EIA)	25Vdc	0.15μF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71E154K0□□H03□	X7R (EIA)	25Vdc	0.15μF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71E224K0□□H03□	X7R (EIA)	25Vdc	0.22μF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71E224K0□□H03□	X7R (EIA)	25Vdc	0.22μF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71E334K1□□H03□	X7R (EIA)	25Vdc	0.33μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71E334K1□□H03□	X7R (EIA)	25Vdc	0.33μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71E474K1□□H03□	X7R (EIA)	25Vdc	0.47μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71E474K1□□H03□	X7R (EIA)	25Vdc	0.47μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71E684K1□□H03□	X7R (EIA)	25Vdc	0.68μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71E684K1□□H03□	X7R (EIA)	25Vdc	0.68μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71E105K1□□H03□	X7R (EIA)	25Vdc	1.0μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71E105K1□□H03□	X7R (EIA)	25Vdc	1.0μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71E155K2□□H03□	X7R (EIA)	25Vdc	1.5μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71E155K2□□H03□	X7R (EIA)	25Vdc	1.5μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71E225K2□□H03□	X7R (EIA)	25Vdc	2.2μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71E225K2□□H03□	X7R (EIA)	25Vdc	2.2μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71E335K2□□H03□	X7R (EIA)	25Vdc	3.3μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71E335K2□□H03□	X7R (EIA)	25Vdc	3.3μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71E475K2□□H03□	X7R (EIA)	25Vdc	4.7μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71E475K2□□H03□	X7R (EIA)	25Vdc	4.7μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71E106K3□□H03□	X7R (EIA)	25Vdc	10μF±10%	5.5×5.0	4.0	2.5	A2	DB
RCER71E106K3□□H03□	X7R (EIA)	25Vdc	10μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER71E226MW□□H03□	X7R (EIA)	25Vdc	22μF±20%	5.5×7.5	4.0	5.0	K1	M1
RCER71H221K0□□H03□	X7R (EIA)	50Vdc	220pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H221K0□□H03□	X7R (EIA)	50Vdc	220pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H331K0□□H03□	X7R (EIA)	50Vdc	330pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H331K0□□H03□	X7R (EIA)	50Vdc	330pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H471K0□□H03□	X7R (EIA)	50Vdc	470pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H471K0□□H03□	X7R (EIA)	50Vdc	470pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H681K0□□H03□	X7R (EIA)	50Vdc	680pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H681K0□□H03□	X7R (EIA)	50Vdc	680pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H102K0□□H03□	X7R (EIA)	50Vdc	1000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H102K0□□H03□	X7R (EIA)	50Vdc	1000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H152K0□□H03□	X7R (EIA)	50Vdc	1500pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H152K0□□H03□	X7R (EIA)	50Vdc	1500pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H222K0□□H03□	X7R (EIA)	50Vdc	2200pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H222K0□□H03□	X7R (EIA)	50Vdc	2200pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H332K0□□H03□	X7R (EIA)	50Vdc	3300pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H332K0□□H03□	X7R (EIA)	50Vdc	3300pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H472K0□□H03□	X7R (EIA)	50Vdc	4700pF±10%	3.6×3.5	2.5	2.5	A2	DB

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCER71H472K0□□H03□	X7R (EIA)	50Vdc	4700pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H682K0□□H03□	X7R (EIA)	50Vdc	6800pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H682K0□□H03□	X7R (EIA)	50Vdc	6800pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H103K0□□H03□	X7R (EIA)	50Vdc	10000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H103K0□□H03□	X7R (EIA)	50Vdc	10000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H153K0□□H03□	X7R (EIA)	50Vdc	15000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H153K0□□H03□	X7R (EIA)	50Vdc	15000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H223K0□□H03□	X7R (EIA)	50Vdc	22000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H223K0□□H03□	X7R (EIA)	50Vdc	22000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H333K0□□H03□	X7R (EIA)	50Vdc	33000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H333K0□□H03□	X7R (EIA)	50Vdc	33000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H473K0□□H03□	X7R (EIA)	50Vdc	47000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H473K0□□H03□	X7R (EIA)	50Vdc	47000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H683K0□□H03□	X7R (EIA)	50Vdc	68000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H683K0□□H03□	X7R (EIA)	50Vdc	68000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H104K0□□H03□	X7R (EIA)	50Vdc	0.10μF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER71H104K0□□H03□	X7R (EIA)	50Vdc	0.10μF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER71H154K1□□H03□	X7R (EIA)	50Vdc	0.15μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71H154K1□□H03□	X7R (EIA)	50Vdc	0.15μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71H224K1□□H03□	X7R (EIA)	50Vdc	0.22μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71H224K1□□H03□	X7R (EIA)	50Vdc	0.22μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71H334K1□□H03□	X7R (EIA)	50Vdc	0.33μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71H334K1□□H03□	X7R (EIA)	50Vdc	0.33μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71H474K1□□H03□	X7R (EIA)	50Vdc	0.47μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER71H474K1□□H03□	X7R (EIA)	50Vdc	0.47μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71H684K2□□H03□	X7R (EIA)	50Vdc	0.68μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71H684K2□□H03□	X7R (EIA)	50Vdc	0.68μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCEC71H105K1□□H03□	X7S (EIA)	50Vdc	1.0μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCEC71H105K1□□H03□	X7S (EIA)	50Vdc	1.0μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER71H105K2□□H03□	X7R (EIA)	50Vdc	1.0μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71H105K2□□H03□	X7R (EIA)	50Vdc	1.0μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71H155K2□□H03□	X7R (EIA)	50Vdc	1.5μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71H155K2□□H03□	X7R (EIA)	50Vdc	1.5μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71H225K2□□H03□	X7R (EIA)	50Vdc	2.2μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER71H225K2□□H03□	X7R (EIA)	50Vdc	2.2μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71H335K3□□H03□	X7R (EIA)	50Vdc	3.3μF±10%	5.5×5.0	4.0	2.5	A2	DB
RCER71H335K3□□H03□	X7R (EIA)	50Vdc	3.3μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCEC71H475K2□□H03□	X7S (EIA)	50Vdc	4.7μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCEC71H475K2□□H03□	X7S (EIA)	50Vdc	4.7μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER71H475K3□□H03□	X7R (EIA)	50Vdc	4.7μF±10%	5.5×5.0	4.0	2.5	A2	DB
RCER71H475K3□□H03□	X7R (EIA)	50Vdc	4.7μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCEC71H106K3□□H03□	X7S (EIA)	50Vdc	10μF±10%	5.5×5.0	4.0	2.5	A2	DB
RCEC71H106K3□□H03□	X7S (EIA)	50Vdc	10μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER71H106MW□□H03□	X7R (EIA)	50Vdc	10μF±20%	5.5×7.5	4.0	5.0	K1	M1
RCEC71H226MW□□H03□	X7S (EIA)	50Vdc	22μF±20%	5.5×7.5	4.0	5.0	K1	M1
RCER72A221K0□□H03□	X7R (EIA)	100Vdc	220pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A221K0□□H03□	X7R (EIA)	100Vdc	220pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A331K0□□H03□	X7R (EIA)	100Vdc	330pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A331K0□□H03□	X7R (EIA)	100Vdc	330pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A471K0□□H03□	X7R (EIA)	100Vdc	470pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A471K0□□H03□	X7R (EIA)	100Vdc	470pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A681K0□□H03□	X7R (EIA)	100Vdc	680pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A681K0□□H03□	X7R (EIA)	100Vdc	680pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A102K0□□H03□	X7R (EIA)	100Vdc	1000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A102K0□□H03□	X7R (EIA)	100Vdc	1000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A152K0□□H03□	X7R (EIA)	100Vdc	1500pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A152K0□□H03□	X7R (EIA)	100Vdc	1500pF±10%	3.6×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCER72A222K0□□H03□	X7R (EIA)	100Vdc	2200pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A222K0□□H03□	X7R (EIA)	100Vdc	2200pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A332K0□□H03□	X7R (EIA)	100Vdc	3300pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A332K0□□H03□	X7R (EIA)	100Vdc	3300pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A472K0□□H03□	X7R (EIA)	100Vdc	4700pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A472K0□□H03□	X7R (EIA)	100Vdc	4700pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A682K0□□H03□	X7R (EIA)	100Vdc	6800pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A682K0□□H03□	X7R (EIA)	100Vdc	6800pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A103K0□□H03□	X7R (EIA)	100Vdc	10000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A103K0□□H03□	X7R (EIA)	100Vdc	10000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A153K0□□H03□	X7R (EIA)	100Vdc	15000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A153K0□□H03□	X7R (EIA)	100Vdc	15000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A223K0□□H03□	X7R (EIA)	100Vdc	22000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RCER72A223K0□□H03□	X7R (EIA)	100Vdc	22000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RCER72A333K1□□H03□	X7R (EIA)	100Vdc	33000pF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER72A333K1□□H03□	X7R (EIA)	100Vdc	33000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER72A473K1□□H03□	X7R (EIA)	100Vdc	47000pF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER72A473K1□□H03□	X7R (EIA)	100Vdc	47000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER72A683K1□□H03□	X7R (EIA)	100Vdc	68000pF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER72A683K1□□H03□	X7R (EIA)	100Vdc	68000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER72A104K1□□H03□	X7R (EIA)	100Vdc	0.10μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER72A104K1□□H03□	X7R (EIA)	100Vdc	0.10μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER72A154K2□□H03□	X7R (EIA)	100Vdc	0.15μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER72A154K2□□H03□	X7R (EIA)	100Vdc	0.15μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72A224K2□□H03□	X7R (EIA)	100Vdc	0.22μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER72A224K2□□H03□	X7R (EIA)	100Vdc	0.22μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72A334K1□□H03□	X7R (EIA)	100Vdc	0.33μF±10%	4.0×3.5	2.5	2.5	A2	DB
RCER72A334K1□□H03□	X7R (EIA)	100Vdc	0.33μF±10%	4.0×3.5	2.5	5.0	K1	M1
RCER72A474K2□□H03□	X7R (EIA)	100Vdc	0.47μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER72A474K2□□H03□	X7R (EIA)	100Vdc	0.47μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72A684K2□□H03□	X7R (EIA)	100Vdc	0.68μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER72A684K2□□H03□	X7R (EIA)	100Vdc	0.68μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72A105K2□□H03□	X7R (EIA)	100Vdc	1.0μF±10%	5.5×4.0	3.15	2.5	A2	DB
RCER72A105K2□□H03□	X7R (EIA)	100Vdc	1.0μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCEC72A155K3□□H03□	X7S (EIA)	100Vdc	1.5μF±10%	5.5×5.0	4.0	2.5	A2	DB
RCEC72A155K3□□H03□	X7S (EIA)	100Vdc	1.5μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCEC72A225K3□□H03□	X7S (EIA)	100Vdc	2.2μF±10%	5.5×5.0	4.0	2.5	A2	DB
RCEC72A225K3□□H03□	X7S (EIA)	100Vdc	2.2μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCEC72A475MW□□H03□	X7S (EIA)	100Vdc	4.7μF±20%	5.5×7.5	4.0	5.0	K1	M1
RCER72E102K1□□H03□	X7R (EIA)	250Vdc	1000pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E152K1□□H03□	X7R (EIA)	250Vdc	1500pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E222K1□□H03□	X7R (EIA)	250Vdc	2200pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E332K1□□H03□	X7R (EIA)	250Vdc	3300pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E472K1□□H03□	X7R (EIA)	250Vdc	4700pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E682K1□□H03□	X7R (EIA)	250Vdc	6800pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E103K1□□H03□	X7R (EIA)	250Vdc	10000pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E153K1□□H03□	X7R (EIA)	250Vdc	15000pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E223K1□□H03□	X7R (EIA)	250Vdc	22000pF±10%	4.0×3.5	3.15	5.0	K1	M1
RCER72E333K2□□H03□	X7R (EIA)	250Vdc	33000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72E473K2□□H03□	X7R (EIA)	250Vdc	47000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72E683K2□□H03□	X7R (EIA)	250Vdc	68000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72E104K2□□H03□	X7R (EIA)	250Vdc	0.10μF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72E154K3□□H03□	X7R (EIA)	250Vdc	0.15μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER72E224K3□□H03□	X7R (EIA)	250Vdc	0.22μF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER72E334K4□□H03□	X7R (EIA)	250Vdc	0.33μF±10%	7.5×5.5	4.0	5.0	K1	M1
RCER72E474K4□□H03□	X7R (EIA)	250Vdc	0.47μF±10%	7.5×5.5	4.0	5.0	K1	M1
RCER72E684K5□□H03□	X7R (EIA)	250Vdc	0.68μF±10%	7.5×7.5	4.0	5.0	B1	E1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RCER72E105K5□□H03□	X7R (EIA)	250Vdc	1.0μF±10%	7.5×7.5	4.0	5.0	B1	E1
RCER72E225MU□□H03□	X7R (EIA)	250Vdc	2.2μF±20%	7.5×12.5	4.0	5.0	B1	E1
RCER72J102K2□□H03□	X7R (EIA)	630Vdc	1000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J152K2□□H03□	X7R (EIA)	630Vdc	1500pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J222K2□□H03□	X7R (EIA)	630Vdc	2200pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J332K2□□H03□	X7R (EIA)	630Vdc	3300pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J472K2□□H03□	X7R (EIA)	630Vdc	4700pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J682K2□□H03□	X7R (EIA)	630Vdc	6800pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J103K2□□H03□	X7R (EIA)	630Vdc	10000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J153K2□□H03□	X7R (EIA)	630Vdc	15000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J223K2□□H03□	X7R (EIA)	630Vdc	22000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER72J333K3□□H03□	X7R (EIA)	630Vdc	33000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER72J473K3□□H03□	X7R (EIA)	630Vdc	47000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER72J683K4□□H03□	X7R (EIA)	630Vdc	68000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RCER72J104K4□□H03□	X7R (EIA)	630Vdc	0.10μF±10%	7.5×5.5	4.0	5.0	K1	M1
RCER72J154K5□□H03□	X7R (EIA)	630Vdc	0.15μF±10%	7.5×8.0	4.0	5.0	B1	E1
RCER72J224K5□□H03□	X7R (EIA)	630Vdc	0.22μF±10%	7.5×8.0	4.0	5.0	B1	E1
RCER72J474MU□□H03□	X7R (EIA)	630Vdc	0.47μF±20%	7.7×13.0	4.0	5.0	B1	E1
RCER73A102K2□□H03□	X7R (EIA)	1000Vdc	1000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A152K2□□H03□	X7R (EIA)	1000Vdc	1500pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A222K2□□H03□	X7R (EIA)	1000Vdc	2200pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A332K2□□H03□	X7R (EIA)	1000Vdc	3300pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A472K2□□H03□	X7R (EIA)	1000Vdc	4700pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A682K2□□H03□	X7R (EIA)	1000Vdc	6800pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A103K2□□H03□	X7R (EIA)	1000Vdc	10000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RCER73A153K3□□H03□	X7R (EIA)	1000Vdc	15000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER73A223K3□□H03□	X7R (EIA)	1000Vdc	22000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RCER73A333K4□□H03□	X7R (EIA)	1000Vdc	33000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RCER73A473K4□□H03□	X7R (EIA)	1000Vdc	47000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RCER73A683K5□□H03□	X7R (EIA)	1000Vdc	68000pF±10%	7.5×8.0	4.0	5.0	B1	E1
RCER73A104K5□□H03□	X7R (EIA)	1000Vdc	0.10μF±10%	7.5×8.0	4.0	5.0	B1	E1
RCER73A224MU□□H03□	X7R (EIA)	1000Vdc	0.22μF±20%	7.7×13.0	4.0	5.0	B1	E1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

# Temperature Compensating Type Specifications and Test Methods

1

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method															
1	Pre-and Post-Stress Electrical Test	-	-															
2	High Temperature Exposure (Storage)	The measured and observed characteristics should satisfy the specifications in the following table.	Sit the capacitor for 1000±12h at 150±3°C. Let sit for 24±2h at room condition*, then measure.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±3% or ±0.3pF (Whichever is larger)																
	Q	30pF ≤ C: Q ≥ 350 10pF ≤ C < 30pF: Q ≥ 275+5C/2 10pF > C: Q ≥ 200+10C  C: Nominal Capacitance (pF)																
	I.R.	More than 1000MΩ or 50MΩ · μF (Whichever is smaller)																
3	Temperature Cycling	The measured and observed characteristics should satisfy the specifications in the following table.	Perform the 1000 cycles according to the four heat treatments listed in the following table. Let sit for 24±2h at room condition*, then measure.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)																
	Q	30pF ≤ C: Q ≥ 350 10pF ≤ C < 30pF: Q ≥ 275+5C/2 10pF > C: Q ≥ 200+10C  C: Nominal Capacitance (pF)																
	I.R.	1000MΩ or 50MΩ · μF min. (Whichever is smaller)																
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Temp. (°C)</td> <td>-55+0/-3</td> <td>Room Temp.</td> <td>125+3/-0</td> <td>Room Temp.</td> </tr> <tr> <td>Time (min)</td> <td>15±3</td> <td>1</td> <td>15±3</td> <td>1</td> </tr> </tbody> </table>				Step	1	2	3	4	Temp. (°C)	-55+0/-3	Room Temp.	125+3/-0	Room Temp.	Time (min)	15±3	1	15±3	1
Step	1	2	3	4														
Temp. (°C)	-55+0/-3	Room Temp.	125+3/-0	Room Temp.														
Time (min)	15±3	1	15±3	1														
4	Moisture Resistance	The measured and observed characteristics should satisfy the specifications in the following table.	Apply the 24h heat (25 to 65°C) and humidity (80 to 98%) treatment shown below, 10 consecutive times. Let sit for 24±2h at room condition*, then measure.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)																
	Q	30pF ≤ C: Q ≥ 200 30pF > C: Q ≥ 100+10C/3  C: Nominal Capacitance (pF)																
	I.R.	500MΩ or 25MΩ · μF min. (Whichever is smaller)																
5	Biased Humidity	The measured and observed characteristics should satisfy the specifications in the following table.	Apply the rated voltage and DC1.3+0.2/-0V (add 100kΩ resistor) at 85±3°C and 80 to 85% humidity for 1000±12h. Remove and let sit for 24±2h at room condition*, then measure. The charge/discharge current is less than 50mA.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)																
	Q	30pF ≤ C: Q ≥ 200 30pF > C: Q ≥ 100+10C/3  C: Nominal Capacitance (pF)																
	I.R.	500MΩ or 25MΩ · μF min. (Whichever is smaller)																
6	Operational Life	The measured and observed characteristics should satisfy the specifications in the following table.	Apply the voltage shown in the table for 1000±12h at 125±3°C. Let sit for 24±2h at room condition*, then measure. The charge/discharge current is less than 50mA.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±3% or ±0.3pF (Whichever is larger)																
	Q	30pF ≤ C: Q ≥ 350 10pF ≤ C < 30pF: Q ≥ 275+5C/2 10pF > C: Q ≥ 200+10C  C: Nominal Capacitance (pF)																
	I.R.	1000MΩ or 50MΩ · μF min. (Whichever is smaller)																
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td>DC50V, DC100V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC250V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC630V, DC1kV</td> <td>120% of the rated voltage</td> </tr> </tbody> </table>				Rated Voltage	Test Voltage	DC50V, DC100V	200% of the rated voltage	DC250V	150% of the rated voltage	DC630V, DC1kV	120% of the rated voltage							
Rated Voltage	Test Voltage																	
DC50V, DC100V	200% of the rated voltage																	
DC250V	150% of the rated voltage																	
DC630V, DC1kV	120% of the rated voltage																	

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

Continued on the following page. ↗

## Temperature Compensating Type Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method
7	External Visual	No defects or abnormalities	Visual inspection
8	Physical Dimension	Within the specified dimensions	Using calipers and micrometers
9	Marking	To be easily legible	Visual inspection
10	Resistance to Solvents	Appearance	Per MIL-STD-202 Method 215 Solvent 1: 1 part (by volume) of isopropyl alcohol 3 parts (by volume) of mineral spirits Solvent 2: Terpene defluxer Solvent 3: 42 parts (by volume) of water 1 part (by volume) of propylene glycol monomethyl ether 1 part (by volume) of monoethanolamine
		Capacitance	
		Q	
		I.R.	
11	Mechanical Shock	Appearance	Three shocks in each direction should be applied along 3 mutually perpendicular axes of the test specimen (18 shocks). The specified test pulse should be Half-sine and should have a duration: 0.5ms, peak value: 1500G and velocity change: 4.7m/s.
		Capacitance	
		Q	
12	Vibration	Appearance	The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 2000Hz. The frequency range, from 10 to 2000Hz and return to 10Hz, should be traversed in approximately 20min. This motion should be applied for 12 items in each 3 mutually perpendicular directions (total of 36 times).
		Capacitance	
		Q	
13 , 1	Resistance to Soldering Heat (Non-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.	The lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 10±1s. Post-treatment Capacitor should be stored for 24±2h at room condition*.
	Appearance	No defects or abnormalities	
	Capacitance Change	Within ±2.5% or ±0.25pF (Whichever is larger)	
	Dielectric Strength (Between Terminals)	No defects	
13 , 2	Resistance to Soldering Heat (On-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.	First the capacitor should be stored at 120+0/-5°C for 60+0/-5s. Then, the lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 7.5+0/-1s. Post-treatment Capacitor should be stored for 24±2h at room condition*.
	Appearance	No defects or abnormalities	
	Capacitance Change	Within ±2.5% or ±0.25pF (Whichever is larger)	
	Dielectric Strength (Between Terminals)	No defects	
13 , 3	Resistance to Soldering Heat (soldering iron method)	The measured and observed characteristics should satisfy the specifications in the following table.	Test condition Temperature of iron-tip: 350±10°C Soldering time: 3.5±0.5s Soldering position Straight Lead: 1.5 to 2.0mm from the root of terminal. Crimp Lead: 1.5 to 2.0mm from the end of lead bend. Post-treatment Capacitor should be stored for 24±2h at room condition*.
	Appearance	No defects or abnormalities	
	Capacitance Change	Within ±2.5% or ±0.25pF (Whichever is larger)	
	Dielectric Strength (Between Terminals)	No defects	
14	Thermal Shock	The measured and observed characteristics should satisfy the specifications in the following table.	Perform the 300 cycles according to the two heat treatments listed in the following table (Maximum transfer time is 20s). Let sit for 24±2h at room condition*, then measure.
	Appearance	No defects or abnormalities	
	Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)	
	Q	30pF ≤ C: Q ≥ 350 10pF ≤ C < 30p: Q ≥ 275+5C/2 10pF > C: Q ≥ 200+10C C: Nominal Capacitance (pF)	
	I.R.	1000MΩ or 50MΩ · μF min. (Whichever is smaller)	

Step	1	2
Temp. (°C)	-55+0/-3	125+3/-0
Time (min)	15±3	15±3

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

## Temperature Compensating Type Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method	
15	ESD	Appearance	No defects or abnormalities	
		Capacitance	Within the specified tolerance	
		Q	$30\text{pF} \leq C: Q \geq 1000$ $30\text{pF} > C: Q \geq 400+20C$ C: Nominal Capacitance (pF)	
		I.R.	More than 10000MΩ or 500MΩ · μF (Whichever is smaller)	
16	Solderability	Lead wire should be soldered with uniform coating on the axial direction over 95% of the circumferential direction.	Should be placed into steam aging for 8h±15min. The terminal of capacitor is dipped into a solution of ethanol (JIS K 8101) and rosin (JIS K 5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body.	
17	Electrical Characterization	Appearance	No defects or abnormalities	
		Capacitance	Within the specified tolerance	
		Q	$30\text{pF} \leq C: Q \geq 1000$ $30\text{pF} > C: Q \geq 400+20C$ C: Nominal Capacitance (pF)	
		I.R.	Between Terminals 10000MΩ or 500MΩ · μF min. (Whichever is smaller)	
		Dielectric Strength	Between Terminals	No defects or abnormalities
			Body Insulation	No defects or abnormalities
18	Terminal Strength	Tensile Strength	Termination not to be broken or loosened	
		Bending Strength	Termination not to be broken or loosened	

Nominal Cap.	Frequency	Voltage
$C \leq 1000\text{pF}$	1±0.1MHz	AC0.5 to 5V (r.m.s.)
$10\mu\text{F} \geq C > 1000\text{pF}$	1±0.1kHz	AC1±0.2V (r.m.s.)
$C > 10\mu\text{F}$	120±24Hz	AC0.5±0.1V (r.m.s.)

Rated Voltage	Measuring Voltage
DC25V, DC50V, DC100V, DC250V	Rated Voltage
DC630V, DC1kV	DC500V

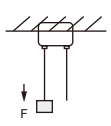
  

Rated Voltage	Test Voltage
DC50V, DC100V	300% of the rated voltage
DC250V	200% of the rated voltage
DC630V	150% of the rated voltage
DC1kV	130% of the rated voltage

Rated Voltage	Test Voltage
DC25V, DC50V, DC100V	250% of the rated voltage
DC250V	200% of the rated voltage
DC630V, DC1kV	DC1300V



Continued on the following page. ↗

## Temperature Compensating Type Specifications and Test Methods

1

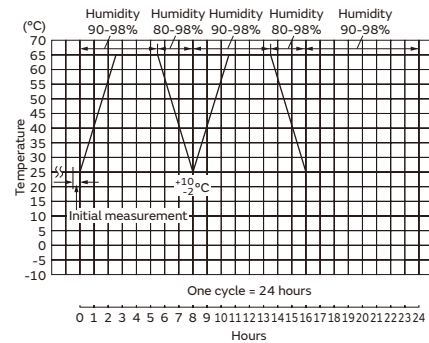
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No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method																		
19	Capacitance Temperature Characteristics	<table border="1"> <thead> <tr> <th>Char.</th> <th>Temperature Coefficient</th> </tr> </thead> <tbody> <tr> <td>COG</td> <td>25 to 125°C: 0±30ppm/°C -55 to 25°C: 0+30/-72ppm/°C</td> </tr> <tr> <td>U2J</td> <td>25 to 125°C: -750±120ppm/°C -55 to 25°C: -750+120/-347ppm/°C</td> </tr> </tbody> </table>	Char.	Temperature Coefficient	COG	25 to 125°C: 0±30ppm/°C -55 to 25°C: 0+30/-72ppm/°C	U2J	25 to 125°C: -750±120ppm/°C -55 to 25°C: -750+120/-347ppm/°C	<p>The capacitance change should be measured after 5min at each specified temperature step.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25±2</td> </tr> <tr> <td>2</td> <td>-55±3</td> </tr> <tr> <td>3</td> <td>25±2</td> </tr> <tr> <td>4</td> <td>125±3</td> </tr> <tr> <td>5</td> <td>25±2</td> </tr> </tbody> </table> <p>The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55 to +125°C) the capacitance should be within the specified tolerance for the temperature coefficient.                      The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.</p>	Step	Temperature (°C)	1	25±2	2	-55±3	3	25±2	4	125±3	5	25±2
Char.	Temperature Coefficient																				
COG	25 to 125°C: 0±30ppm/°C -55 to 25°C: 0+30/-72ppm/°C																				
U2J	25 to 125°C: -750±120ppm/°C -55 to 25°C: -750+120/-347ppm/°C																				
Step	Temperature (°C)																				
1	25±2																				
2	-55±3																				
3	25±2																				
4	125±3																				
5	25±2																				

## High Dielectric Constant Type Specifications and Test Methods

1

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method															
1	Pre-and Post-Stress Electrical Test	-	-															
2	High Temperature Exposure (Storage)	The measured and observed characteristics should satisfy the specifications in the following table.	Sit the capacitor for 1000±12h at 150±3°C. Let sit for 24±2h at room condition*, then measure. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±12.5%																
	D.F.	0.04 max.																
3	Temperature Cycling	The measured and observed characteristics should satisfy the specifications in the following table.	Perform the 1000 cycles according to the four heat treatments listed in the following table. Let sit for 24±2h at room condition*, then measure. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Temp. (°C)</td> <td>-55+0/-3</td> <td>Room Temp.</td> <td>125+3/-0</td> <td>Room Temp.</td> </tr> <tr> <td>Time (min)</td> <td>15±3</td> <td>1</td> <td>15±3</td> <td>1</td> </tr> </tbody> </table> •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*.	Step	1	2	3	4	Temp. (°C)	-55+0/-3	Room Temp.	125+3/-0	Room Temp.	Time (min)	15±3	1	15±3	1
	Step	1		2	3	4												
	Temp. (°C)	-55+0/-3		Room Temp.	125+3/-0	Room Temp.												
	Time (min)	15±3		1	15±3	1												
Appearance	No defects or abnormalities																	
Capacitance Change	Within ±12.5%																	
D.F.	0.05 max.																	
I.R.	1000MΩ or 50MΩ • μF min. (Whichever is smaller)																	
4	Moisture Resistance	The measured and observed characteristics should satisfy the specifications in the following table.	Apply the 24h heat (25 to 65°C) and humidity (80 to 98%) treatment shown below, 10 consecutive times. Let sit for 24±2h at room condition*, then measure. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±12.5%																
	D.F.	0.05 max.																
I.R.	500MΩ or 25MΩ • μF min. (Whichever is smaller)																	
5	Biased Humidity	The measured and observed characteristics should satisfy the specifications in the following table.	Apply the rated voltage and DC1.3+0.2/-0V (add 100kΩ resistor) at 85±3°C and 80 to 85% humidity for 1000±12h. Remove and let sit for 24±2h at room condition*, then measure. The charge/discharge current is less than 50mA. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*.															
	Appearance	No defects or abnormalities																
	Capacitance Change	Within ±12.5%																
	D.F.	0.05 max.																
I.R.	500MΩ or 25MΩ • μF min. (Whichever is smaller)																	



\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

Continued on the following page. ↗

## High Dielectric Constant Type Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method	
6	Operational Life	The measured and observed characteristics should satisfy the specifications in the following table.	Apply the voltage shown in the table for 1000±12h at 125±3°C. Let sit for 24±2h at room condition*, then measure. The charge/discharge current is less than 50mA. •Pretreatment Apply test voltage for 60±5min at test temperature. Remove and let sit for 24±2h at room condition*.	
	Appearance	No defects or abnormalities		
	Capacitance Change	Within ±12.5%		
	D.F.	0.04 max.		
	I.R.	1000MΩ or 50MΩ · μF min. (Whichever is smaller)		
7	External Visual	No defects or abnormalities	Visual inspection	
8	Physical Dimension	Within the specified dimensions	Using calipers and micrometers	
9	Marking	To be easily legible	Visual inspection	
10	Resistance to Solvents	Appearance	Per MIL-STD-202 Method 215 Solvent 1: 1 part (by volume) of isopropyl alcohol 3 parts (by volume) of mineral spirits Solvent 2: Terpene defluxer Solvent 3: 42 parts (by volume) of water 1 part (by volume) of propylene glycol monomethyl ether 1 part (by volume) of monoethanolamine	
		Capacitance		Within the specified tolerance
		D.F.		0.025 max.
		I.R.		Rated Voltage: DC25V, DC50V, DC100V More than 10000MΩ or 500MΩ · μF (Whichever is smaller) Rated Voltage: DC250V, DC500V, DC630V, DC1kV More than 10000MΩ or 100MΩ · μF (Whichever is smaller)
11	Mechanical Shock	Appearance	Three shocks in each direction should be applied along 3 mutually perpendicular axes of the test specimen (18 shocks). The specified test pulse should be Half-sine and should have a duration: 0.5ms, peak value: 1500G and velocity change: 4.7m/s.	
		Capacitance		Within the specified tolerance
		D.F.		0.025 max.
12	Vibration	Appearance	The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 2000Hz. The frequency range, from 10 to 2000Hz and return to 10Hz, should be traversed in approximately 20min. This motion should be applied for 12 items in each 3 mutually perpendicular directions (total of 36 times).	
		Capacitance		Within the specified tolerance
		D.F.		0.025 max.
13 , 1	Resistance to Soldering Heat (Non-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.	The lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 10±1s. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. Post-treatment Capacitor should be stored for 24±2h at room condition*.	
	Appearance	No defects or abnormalities		
	Capacitance Change	Within ±7.5%		
	Dielectric Strength (Between Terminals)	No defects		
13 , 2	Resistance to Soldering Heat (On-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.	First the capacitor should be stored at 120+0/-5°C for 60+0/-5s. Then, the lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 7.5+0/-1s. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. Post-treatment Capacitor should be stored for 24±2h at room condition*.	
	Appearance	No defects or abnormalities		
	Capacitance Change	Within ±7.5%		
	Dielectric Strength (Between Terminals)	No defects		

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

\*1: below parts are applicable in rated voltage×150%.

Char.	Rated Voltage	Capacitance	Dimensions
C7	1H	105	1
C7	1H	475	2
C7	1H	106	3
C7	1H	226	W
R7	2A	334	1
R7	2A	474-105	2
C7	2A	155-225	3
C7	2A	475	W

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## High Dielectric Constant Type Specifications and Test Methods

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No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method									
13 3	Resistance to Soldering Heat (Soldering Iron Method)	The measured and observed characteristics should satisfy the specifications in the following table.	Test condition Temperature of iron-tip: 350±10°C Soldering time: 3.5±0.5s. Soldering position Straight Lead: 1.5 to 2.0mm from the root of terminal. Crimp Lead: 1.5 to 2.0mm from the end of lead bend. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. Post-treatment Capacitor should be stored for 24±2h at room condition*.									
		Appearance		No defects or abnormalities								
		Capacitance Change		Within ±7.5%								
14	Thermal Shock	The measured and observed characteristics should satisfy the specifications in the following table.	Perform the 300 cycles according to the two heat treatments listed in the following table (Maximum transfer time is 20s). Let sit for 24±2h at room condition*, then measure. <table border="1" style="margin: 5px 0;"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>Temp. (°C)</td> <td>-55+0/-3</td> <td>125+3/-0</td> </tr> <tr> <td>Time (min)</td> <td>15±3</td> <td>15±3</td> </tr> </tbody> </table> •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*.	Step	1	2	Temp. (°C)	-55+0/-3	125+3/-0	Time (min)	15±3	15±3
		Step		1	2							
		Temp. (°C)		-55+0/-3	125+3/-0							
		Time (min)		15±3	15±3							
Appearance	No defects or abnormalities											
Capacitance Change	Within ±12.5%											
D.F.	0.05 max.											
I.R.	1000MΩ or 50MΩ · μF min. (Whichever is smaller)											
15	ESD	Appearance	No defects or abnormalities									
		Capacitance	Within the specified tolerance									
		D.F.	0.025 max.									
		I.R.	Rated Voltage: DC25V, DC50V, DC100V More than 10000MΩ or 500MΩ · μF (Whichever is smaller) Rated Voltage: DC250V, DC500V, DC630V, DC1kV More than 10000MΩ or 100MΩ · μF (Whichever is smaller)									
16	Solderability	Lead wire should be soldered with uniform coating on the axial direction over 95% of the circumferential direction.	Should be placed into steam aging for 8h±15min. The terminal of capacitor is dipped into a solution of ethanol (JIS K 8101) and rosin (JIS K 5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body.									
		Appearance	No defects or abnormalities									
17	Electrical Characterization	Capacitance	Within the specified tolerance									
		D.F.	0.025 max.									
		I.R.	Rated Voltage: DC25V, DC50V, DC100V More than 10000MΩ or 500MΩ · μF (Whichever is smaller) Rated Voltage: DC250V, DC500V, DC630V, DC1kV More than 10000MΩ or 100MΩ · μF (Whichever is smaller)	The insulation resistance should be measured with a DC voltage shown in the table at 25°C within 2min of charging. <table border="1" style="margin: 5px 0;"> <thead> <tr> <th>Rated Voltage</th> <th>Measuring Voltage</th> </tr> </thead> <tbody> <tr> <td>DC25V, DC50V, DC100V, DC250V</td> <td>Rated Voltage</td> </tr> <tr> <td>DC630V, DC1kV</td> <td>DC500V</td> </tr> </tbody> </table>	Rated Voltage	Measuring Voltage	DC25V, DC50V, DC100V, DC250V	Rated Voltage	DC630V, DC1kV	DC500V		
		Rated Voltage	Measuring Voltage									
		DC25V, DC50V, DC100V, DC250V	Rated Voltage									
		DC630V, DC1kV	DC500V									
Between Terminals	No defects or abnormalities	The capacitor should not be damaged when DC voltage shown in the table is applied between the terminations for 1 to 5s. (Charge/Discharge current ≤ 50mA) <table border="1" style="margin: 5px 0;"> <thead> <tr> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td>DC25V, DC50V, DC100V</td> <td>250% of the rated voltage</td> </tr> <tr> <td>DC250V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC630V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC1kV</td> <td>120% of the rated voltage</td> </tr> </tbody> </table>	Rated Voltage	Test Voltage	DC25V, DC50V, DC100V	250% of the rated voltage	DC250V	200% of the rated voltage	DC630V	150% of the rated voltage	DC1kV	120% of the rated voltage
Rated Voltage	Test Voltage											
DC25V, DC50V, DC100V	250% of the rated voltage											
DC250V	200% of the rated voltage											
DC630V	150% of the rated voltage											
DC1kV	120% of the rated voltage											
Body Insulation	No defects or abnormalities	The capacitor is placed in a container with metal balls of 1mm diameter so that each terminal, short-circuit is kept approximately 2mm from the balls, and 250% of the rated DC voltage shown in the table is impressed for 1 to 5s between capacitor terminals and metal balls. (Charge/Discharge current ≤ 50mA) <table border="1" style="margin: 5px 0;"> <thead> <tr> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td>DC25V, DC50V, DC100V</td> <td>250% of the rated voltage</td> </tr> <tr> <td>DC250V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC630V, DC1kV</td> <td>DC1300V</td> </tr> </tbody> </table>	Rated Voltage	Test Voltage	DC25V, DC50V, DC100V	250% of the rated voltage	DC250V	200% of the rated voltage	DC630V, DC1kV	DC1300V		
Rated Voltage	Test Voltage											
DC25V, DC50V, DC100V	250% of the rated voltage											
DC250V	200% of the rated voltage											
DC630V, DC1kV	DC1300V											

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

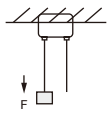
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## High Dielectric Constant Type Specifications and Test Methods

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No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method												
18	Terminal Strength	Tensile Strength Termination not to be broken or loosened	As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1s. 												
		Bending Strength Termination not to be broken or loosened	Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3s.												
19	Capacitance Temperature Characteristics	Char. X7R: Within ±15% Char. X7S: Within ±22%	<p>The capacitance change should be measured after 5min at each specified temperature step.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25±2</td> </tr> <tr> <td>2</td> <td>-55±3</td> </tr> <tr> <td>3</td> <td>25±2</td> </tr> <tr> <td>4</td> <td>125±3</td> </tr> <tr> <td>5</td> <td>25±2</td> </tr> </tbody> </table> <p>The ranges of capacitance change compared with the above 25°C value over the temperature ranges shown in the table should be within the specified ranges.</p> <p>•Pretreatment                      Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*.                      Perform the initial measurement.</p>	Step	Temperature (°C)	1	25±2	2	-55±3	3	25±2	4	125±3	5	25±2
Step	Temperature (°C)														
1	25±2														
2	-55±3														
3	25±2														
4	125±3														
5	25±2														

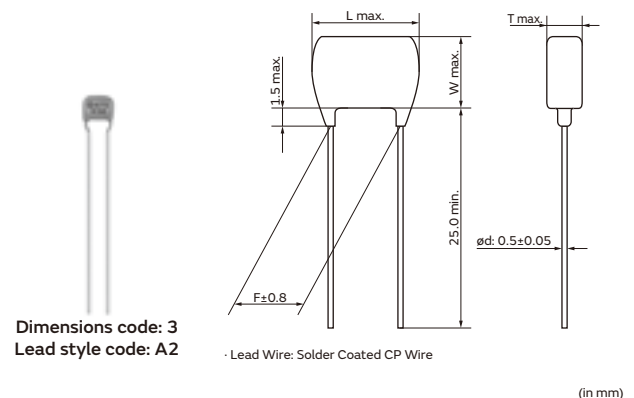
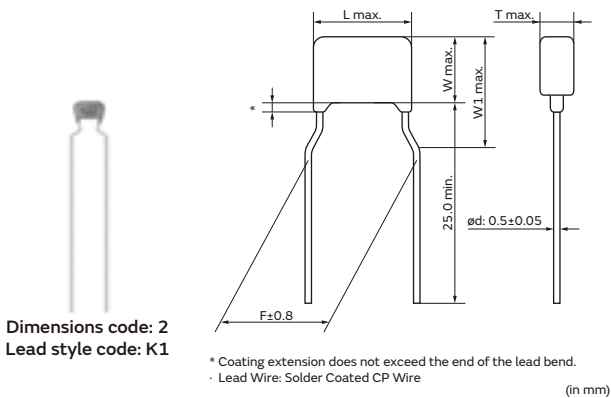
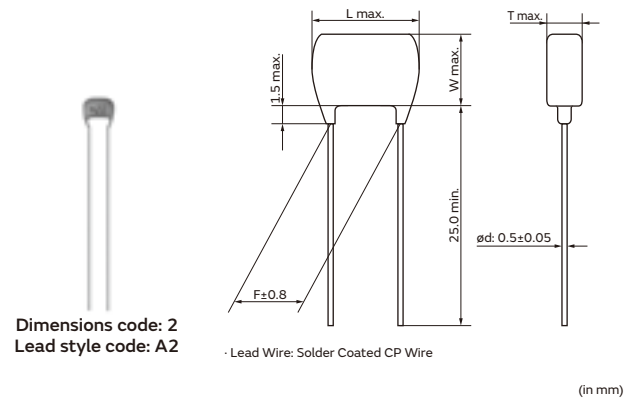
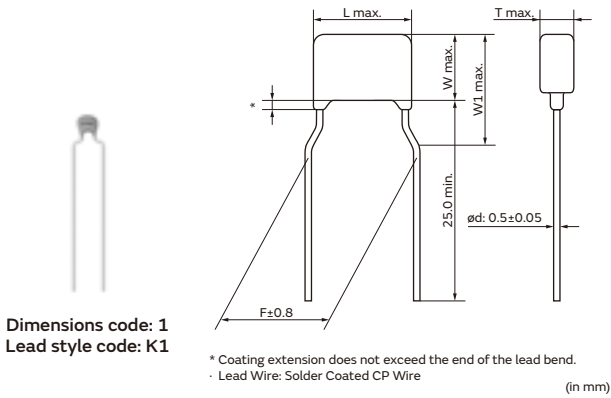
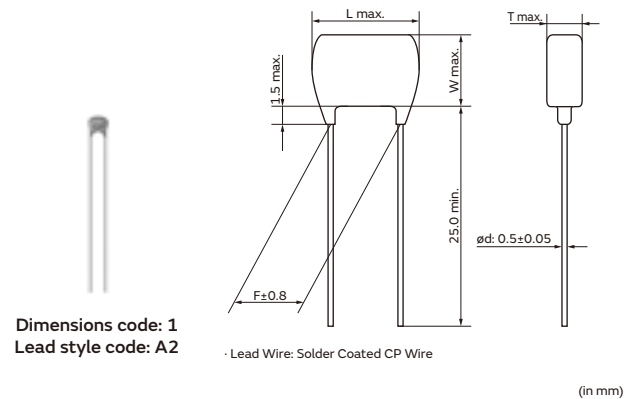
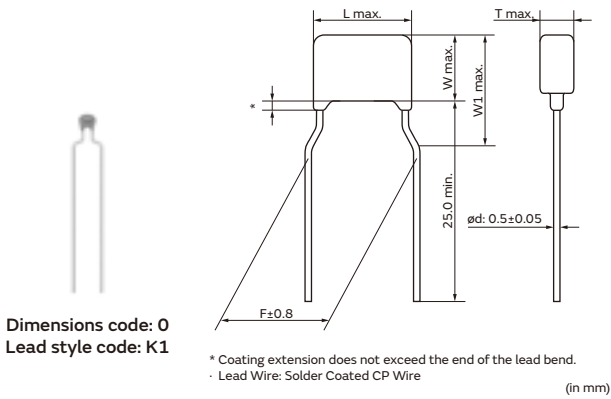
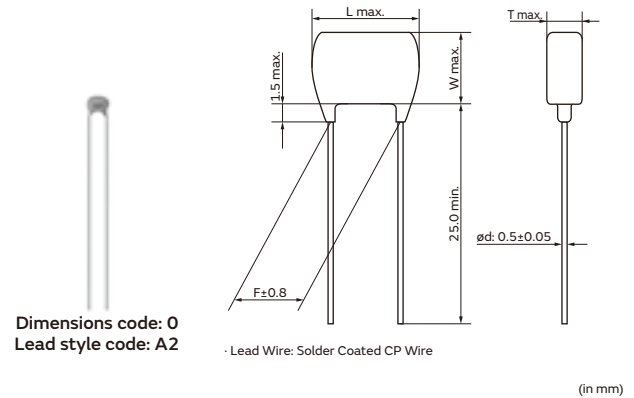
\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

# 150°C Operation Leaded MLCC for Automotive

## RHE Series (DC25V-DC100V)

### Features

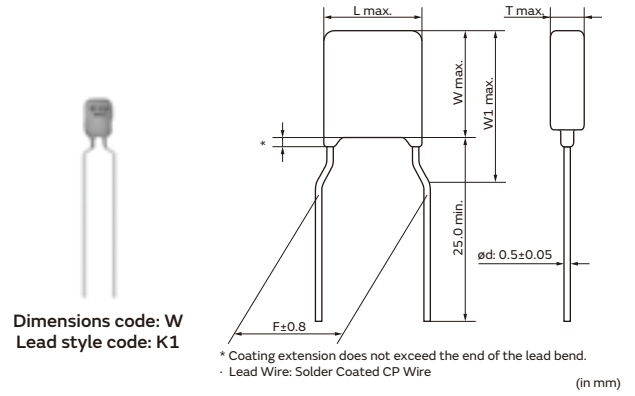
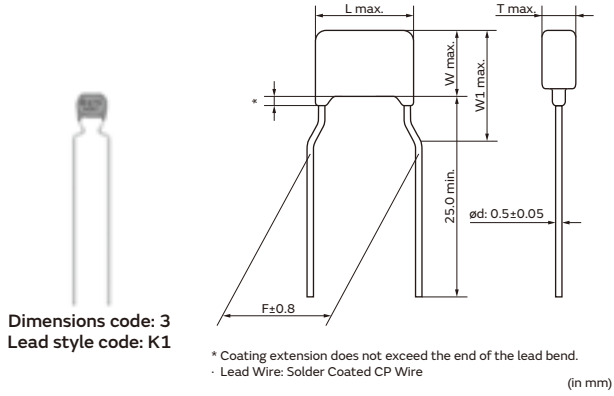
1. Small size and large capacitance
2. Low ESR and ESL suitable for high frequency
3. Applied maximum temperature up to 150°C  
 Note: Maximum accumulative time to 150°C is within 2000 hours.
4. Meet AEC-Q200, ISO7637-2 (surge test) requirement
5. Meet LF (Lead Free) and HF (Halogen Free)
6. Flow soldering and welding are available.  
 (Re-flow soldering is not available.)
7. If copper wire is necessary at welding process, copper wire is available based on request.



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2



**Dimensions**

Dimensions and Lead Style Code	Dimensions (mm)					
	L	W	W1	T	F	d
0A2/0DB	3.6	3.5	-	See the individual product specification	2.5	0.5
0K1/0M1	3.6	3.5	6.0		5.0	0.5
1A2/1DB	4.0	3.5	-		2.5	0.5
1K1/1M1	4.0	3.5	5.0		5.0	0.5
2A2/2DB	5.5	4.0	-		2.5	0.5
2K1/2M1	5.5	4.0	6.0		5.0	0.5
3A2/3DB	5.5	5.0	-		2.5	0.5
3K1/3M1	5.5	5.0	7.5		5.0	0.5
WK1/WM1	5.5	7.5	10.0		5.0	0.5

**Marking**

Dimensions Code	Type	Temperature Compensating Type	High Dielectric Constant Type	
	Rated Voltage	DC50V, DC100V	DC25V, DC50V	DC100V
	Temp. Char.	X8G	X8L	
0		8 102J	8 104K	8 103K
1				
2		—	M 105 K58	M 224 K18
3, W		—	M 335 K58	—
Temperature Characteristics		Marked with code (X8G, X8L char.: 8)		
Nominal Capacitance		Marked with 3 figures		
Capacitance Tolerance		Marked with code		
Rated Voltage		Marked with code (DC25V: 2, DC50V: 5, DC100V: 1) A part is omitted (Please refer to the marking example.)		
Manufacturer's Identification		Marked with M A part is omitted (Please refer to the marking example.)		

## Temperature Compensating Type, X8G Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHE5G1H101J0□□H03□	X8G (Murata)	50Vdc	100pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H101J0□□H03□	X8G (Murata)	50Vdc	100pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H121J0□□H03□	X8G (Murata)	50Vdc	120pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H121J0□□H03□	X8G (Murata)	50Vdc	120pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H151J0□□H03□	X8G (Murata)	50Vdc	150pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H151J0□□H03□	X8G (Murata)	50Vdc	150pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H181J0□□H03□	X8G (Murata)	50Vdc	180pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H181J0□□H03□	X8G (Murata)	50Vdc	180pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H221J0□□H03□	X8G (Murata)	50Vdc	220pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H221J0□□H03□	X8G (Murata)	50Vdc	220pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H271J0□□H03□	X8G (Murata)	50Vdc	270pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H271J0□□H03□	X8G (Murata)	50Vdc	270pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H331J0□□H03□	X8G (Murata)	50Vdc	330pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H331J0□□H03□	X8G (Murata)	50Vdc	330pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H391J0□□H03□	X8G (Murata)	50Vdc	390pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H391J0□□H03□	X8G (Murata)	50Vdc	390pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H471J0□□H03□	X8G (Murata)	50Vdc	470pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H471J0□□H03□	X8G (Murata)	50Vdc	470pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H561J0□□H03□	X8G (Murata)	50Vdc	560pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H561J0□□H03□	X8G (Murata)	50Vdc	560pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H681J0□□H03□	X8G (Murata)	50Vdc	680pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H681J0□□H03□	X8G (Murata)	50Vdc	680pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H821J0□□H03□	X8G (Murata)	50Vdc	820pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H821J0□□H03□	X8G (Murata)	50Vdc	820pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H102J0□□H03□	X8G (Murata)	50Vdc	1000pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H102J0□□H03□	X8G (Murata)	50Vdc	1000pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H122J0□□H03□	X8G (Murata)	50Vdc	1200pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H122J0□□H03□	X8G (Murata)	50Vdc	1200pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H152J0□□H03□	X8G (Murata)	50Vdc	1500pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H152J0□□H03□	X8G (Murata)	50Vdc	1500pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H182J0□□H03□	X8G (Murata)	50Vdc	1800pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H182J0□□H03□	X8G (Murata)	50Vdc	1800pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H222J0□□H03□	X8G (Murata)	50Vdc	2200pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H222J0□□H03□	X8G (Murata)	50Vdc	2200pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H272J0□□H03□	X8G (Murata)	50Vdc	2700pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H272J0□□H03□	X8G (Murata)	50Vdc	2700pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H332J0□□H03□	X8G (Murata)	50Vdc	3300pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H332J0□□H03□	X8G (Murata)	50Vdc	3300pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H392J0□□H03□	X8G (Murata)	50Vdc	3900pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G1H392J0□□H03□	X8G (Murata)	50Vdc	3900pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G1H472J1□□H03□	X8G (Murata)	50Vdc	4700pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G1H472J1□□H03□	X8G (Murata)	50Vdc	4700pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G1H562J1□□H03□	X8G (Murata)	50Vdc	5600pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G1H562J1□□H03□	X8G (Murata)	50Vdc	5600pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G1H682J1□□H03□	X8G (Murata)	50Vdc	6800pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G1H682J1□□H03□	X8G (Murata)	50Vdc	6800pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G1H822J1□□H03□	X8G (Murata)	50Vdc	8200pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G1H822J1□□H03□	X8G (Murata)	50Vdc	8200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G1H103J1□□H03□	X8G (Murata)	50Vdc	10000pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G1H103J1□□H03□	X8G (Murata)	50Vdc	10000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G2A101J0□□H03□	X8G (Murata)	100Vdc	100pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A101J0□□H03□	X8G (Murata)	100Vdc	100pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A121J0□□H03□	X8G (Murata)	100Vdc	120pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A121J0□□H03□	X8G (Murata)	100Vdc	120pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A151J0□□H03□	X8G (Murata)	100Vdc	150pF±5%	3.6×3.5	2.5	2.5	A2	DB

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHE5G2A151J0□□H03□	X8G (Murata)	100Vdc	150pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A181J0□□H03□	X8G (Murata)	100Vdc	180pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A181J0□□H03□	X8G (Murata)	100Vdc	180pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A221J0□□H03□	X8G (Murata)	100Vdc	220pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A221J0□□H03□	X8G (Murata)	100Vdc	220pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A271J0□□H03□	X8G (Murata)	100Vdc	270pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A271J0□□H03□	X8G (Murata)	100Vdc	270pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A331J0□□H03□	X8G (Murata)	100Vdc	330pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A331J0□□H03□	X8G (Murata)	100Vdc	330pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A391J0□□H03□	X8G (Murata)	100Vdc	390pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A391J0□□H03□	X8G (Murata)	100Vdc	390pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A471J0□□H03□	X8G (Murata)	100Vdc	470pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A471J0□□H03□	X8G (Murata)	100Vdc	470pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A561J0□□H03□	X8G (Murata)	100Vdc	560pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A561J0□□H03□	X8G (Murata)	100Vdc	560pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A681J0□□H03□	X8G (Murata)	100Vdc	680pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A681J0□□H03□	X8G (Murata)	100Vdc	680pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A821J0□□H03□	X8G (Murata)	100Vdc	820pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A821J0□□H03□	X8G (Murata)	100Vdc	820pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A102J0□□H03□	X8G (Murata)	100Vdc	1000pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A102J0□□H03□	X8G (Murata)	100Vdc	1000pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A122J0□□H03□	X8G (Murata)	100Vdc	1200pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A122J0□□H03□	X8G (Murata)	100Vdc	1200pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A152J0□□H03□	X8G (Murata)	100Vdc	1500pF±5%	3.6×3.5	2.5	2.5	A2	DB
RHE5G2A152J0□□H03□	X8G (Murata)	100Vdc	1500pF±5%	3.6×3.5	2.5	5.0	K1	M1
RHE5G2A182J1□□H03□	X8G (Murata)	100Vdc	1800pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G2A182J1□□H03□	X8G (Murata)	100Vdc	1800pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G2A222J1□□H03□	X8G (Murata)	100Vdc	2200pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G2A222J1□□H03□	X8G (Murata)	100Vdc	2200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G2A272J1□□H03□	X8G (Murata)	100Vdc	2700pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G2A272J1□□H03□	X8G (Murata)	100Vdc	2700pF±5%	4.0×3.5	2.5	5.0	K1	M1
RHE5G2A332J1□□H03□	X8G (Murata)	100Vdc	3300pF±5%	4.0×3.5	2.5	2.5	A2	DB
RHE5G2A332J1□□H03□	X8G (Murata)	100Vdc	3300pF±5%	4.0×3.5	2.5	5.0	K1	M1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

## High Dielectric Constant Type, X8L Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHEL81E104K0□□H03□	X8L (Murata)	25Vdc	0.1μF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81E104K0□□H03□	X8L (Murata)	25Vdc	0.1μF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81E154K0□□H03□	X8L (Murata)	25Vdc	0.15μF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81E154K0□□H03□	X8L (Murata)	25Vdc	0.15μF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81E224K0□□H03□	X8L (Murata)	25Vdc	0.22μF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81E224K0□□H03□	X8L (Murata)	25Vdc	0.22μF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81E334K1□□H03□	X8L (Murata)	25Vdc	0.33μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81E334K1□□H03□	X8L (Murata)	25Vdc	0.33μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81E474K1□□H03□	X8L (Murata)	25Vdc	0.47μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81E474K1□□H03□	X8L (Murata)	25Vdc	0.47μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81E684K1□□H03□	X8L (Murata)	25Vdc	0.68μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81E684K1□□H03□	X8L (Murata)	25Vdc	0.68μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81E105K1□□H03□	X8L (Murata)	25Vdc	1.0μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81E105K1□□H03□	X8L (Murata)	25Vdc	1.0μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81E155K2□□H03□	X8L (Murata)	25Vdc	1.5μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81E155K2□□H03□	X8L (Murata)	25Vdc	1.5μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81E225K2□□H03□	X8L (Murata)	25Vdc	2.2μF±10%	5.5×4.0	3.15	2.5	A2	DB

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHEL81E225K2□□H03□	X8L (Murata)	25Vdc	2.2μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81E335K2□□H03□	X8L (Murata)	25Vdc	3.3μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81E335K2□□H03□	X8L (Murata)	25Vdc	3.3μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81E475K2□□H03□	X8L (Murata)	25Vdc	4.7μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81E475K2□□H03□	X8L (Murata)	25Vdc	4.7μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81E106K3□□H03□	X8L (Murata)	25Vdc	10μF±10%	5.5×5.0	4.0	2.5	A2	DB
RHEL81E106K3□□H03□	X8L (Murata)	25Vdc	10μF±10%	5.5×5.0	4.0	5.0	K1	M1
RHEL81E226MW□□H03□	X8L (Murata)	25Vdc	22μF±20%	5.5×7.5	4.0	5.0	K1	M1
RHEL81H221K0□□H03□	X8L (Murata)	50Vdc	220pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H221K0□□H03□	X8L (Murata)	50Vdc	220pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H331K0□□H03□	X8L (Murata)	50Vdc	330pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H331K0□□H03□	X8L (Murata)	50Vdc	330pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H471K0□□H03□	X8L (Murata)	50Vdc	470pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H471K0□□H03□	X8L (Murata)	50Vdc	470pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H681K0□□H03□	X8L (Murata)	50Vdc	680pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H681K0□□H03□	X8L (Murata)	50Vdc	680pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H102K0□□H03□	X8L (Murata)	50Vdc	1000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H102K0□□H03□	X8L (Murata)	50Vdc	1000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H152K0□□H03□	X8L (Murata)	50Vdc	1500pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H152K0□□H03□	X8L (Murata)	50Vdc	1500pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H222K0□□H03□	X8L (Murata)	50Vdc	2200pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H222K0□□H03□	X8L (Murata)	50Vdc	2200pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H332K0□□H03□	X8L (Murata)	50Vdc	3300pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H332K0□□H03□	X8L (Murata)	50Vdc	3300pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H472K0□□H03□	X8L (Murata)	50Vdc	4700pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H472K0□□H03□	X8L (Murata)	50Vdc	4700pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H682K0□□H03□	X8L (Murata)	50Vdc	6800pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H682K0□□H03□	X8L (Murata)	50Vdc	6800pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H103K0□□H03□	X8L (Murata)	50Vdc	10000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H103K0□□H03□	X8L (Murata)	50Vdc	10000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H153K0□□H03□	X8L (Murata)	50Vdc	15000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H153K0□□H03□	X8L (Murata)	50Vdc	15000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H223K0□□H03□	X8L (Murata)	50Vdc	22000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H223K0□□H03□	X8L (Murata)	50Vdc	22000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H333K0□□H03□	X8L (Murata)	50Vdc	33000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H333K0□□H03□	X8L (Murata)	50Vdc	33000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H473K0□□H03□	X8L (Murata)	50Vdc	47000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H473K0□□H03□	X8L (Murata)	50Vdc	47000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H683K0□□H03□	X8L (Murata)	50Vdc	68000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H683K0□□H03□	X8L (Murata)	50Vdc	68000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H104K0□□H03□	X8L (Murata)	50Vdc	0.10μF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL81H104K0□□H03□	X8L (Murata)	50Vdc	0.10μF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL81H154K1□□H03□	X8L (Murata)	50Vdc	0.15μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81H154K1□□H03□	X8L (Murata)	50Vdc	0.15μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81H224K1□□H03□	X8L (Murata)	50Vdc	0.22μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81H224K1□□H03□	X8L (Murata)	50Vdc	0.22μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81H334K1□□H03□	X8L (Murata)	50Vdc	0.33μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL81H334K1□□H03□	X8L (Murata)	50Vdc	0.33μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL81H474K2□□H03□	X8L (Murata)	50Vdc	0.47μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81H474K2□□H03□	X8L (Murata)	50Vdc	0.47μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81H684K2□□H03□	X8L (Murata)	50Vdc	0.68μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81H684K2□□H03□	X8L (Murata)	50Vdc	0.68μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81H105K2□□H03□	X8L (Murata)	50Vdc	1.0μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81H105K2□□H03□	X8L (Murata)	50Vdc	1.0μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81H155K2□□H03□	X8L (Murata)	50Vdc	1.5μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL81H155K2□□H03□	X8L (Murata)	50Vdc	1.5μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81H225K2□□H03□	X8L (Murata)	50Vdc	2.2μF±10%	5.5×4.0	3.15	2.5	A2	DB

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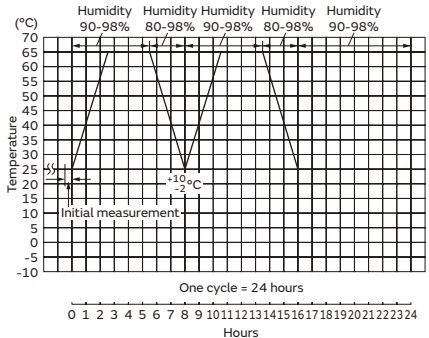
Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHEL81H225K2□□H03□	X8L (Murata)	50Vdc	2.2μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL81H335K3□□H03□	X8L (Murata)	50Vdc	3.3μF±10%	5.5×5.0	4.0	2.5	A2	DB
RHEL81H335K3□□H03□	X8L (Murata)	50Vdc	3.3μF±10%	5.5×5.0	4.0	5.0	K1	M1
RHEL81H475K3□□H03□	X8L (Murata)	50Vdc	4.7μF±10%	5.5×5.0	4.0	2.5	A2	DB
RHEL81H475K3□□H03□	X8L (Murata)	50Vdc	4.7μF±10%	5.5×5.0	4.0	5.0	K1	M1
RHEL81H106MW□□H03□	X8L (Murata)	50Vdc	10μF±20%	5.5×7.5	4.0	5.0	K1	M1
RHEL82A221K0□□H03□	X8L (Murata)	100Vdc	220pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A221K0□□H03□	X8L (Murata)	100Vdc	220pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A331K0□□H03□	X8L (Murata)	100Vdc	330pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A331K0□□H03□	X8L (Murata)	100Vdc	330pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A471K0□□H03□	X8L (Murata)	100Vdc	470pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A471K0□□H03□	X8L (Murata)	100Vdc	470pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A681K0□□H03□	X8L (Murata)	100Vdc	680pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A681K0□□H03□	X8L (Murata)	100Vdc	680pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A102K0□□H03□	X8L (Murata)	100Vdc	1000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A102K0□□H03□	X8L (Murata)	100Vdc	1000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A152K0□□H03□	X8L (Murata)	100Vdc	1500pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A152K0□□H03□	X8L (Murata)	100Vdc	1500pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A222K0□□H03□	X8L (Murata)	100Vdc	2200pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A222K0□□H03□	X8L (Murata)	100Vdc	2200pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A332K0□□H03□	X8L (Murata)	100Vdc	3300pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A332K0□□H03□	X8L (Murata)	100Vdc	3300pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A472K0□□H03□	X8L (Murata)	100Vdc	4700pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A472K0□□H03□	X8L (Murata)	100Vdc	4700pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A682K0□□H03□	X8L (Murata)	100Vdc	6800pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A682K0□□H03□	X8L (Murata)	100Vdc	6800pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A103K0□□H03□	X8L (Murata)	100Vdc	10000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A103K0□□H03□	X8L (Murata)	100Vdc	10000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A153K0□□H03□	X8L (Murata)	100Vdc	15000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A153K0□□H03□	X8L (Murata)	100Vdc	15000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A223K0□□H03□	X8L (Murata)	100Vdc	22000pF±10%	3.6×3.5	2.5	2.5	A2	DB
RHEL82A223K0□□H03□	X8L (Murata)	100Vdc	22000pF±10%	3.6×3.5	2.5	5.0	K1	M1
RHEL82A333K1□□H03□	X8L (Murata)	100Vdc	33000pF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL82A333K1□□H03□	X8L (Murata)	100Vdc	33000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL82A473K1□□H03□	X8L (Murata)	100Vdc	47000pF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL82A473K1□□H03□	X8L (Murata)	100Vdc	47000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL82A683K1□□H03□	X8L (Murata)	100Vdc	68000pF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL82A683K1□□H03□	X8L (Murata)	100Vdc	68000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL82A104K1□□H03□	X8L (Murata)	100Vdc	0.10μF±10%	4.0×3.5	2.5	2.5	A2	DB
RHEL82A104K1□□H03□	X8L (Murata)	100Vdc	0.10μF±10%	4.0×3.5	2.5	5.0	K1	M1
RHEL82A154K2□□H03□	X8L (Murata)	100Vdc	0.15μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL82A154K2□□H03□	X8L (Murata)	100Vdc	0.15μF±10%	5.5×4.0	3.15	5.0	K1	M1
RHEL82A224K2□□H03□	X8L (Murata)	100Vdc	0.22μF±10%	5.5×4.0	3.15	2.5	A2	DB
RHEL82A224K2□□H03□	X8L (Murata)	100Vdc	0.22μF±10%	5.5×4.0	3.15	5.0	K1	M1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

2



## Specifications and Test Methods

No.	AEC-Q200 Test Item	Specification		AEC-Q200 Test Method															
		Temperature Compensating Type (Char. X8G)	High Dielectric Constant Type (Char. X8L)																
1	Pre-and Post-Stress Electrical Test	-																	
2	High Temperature Exposure (Storage)	The measured and observed characteristics should satisfy the specifications in the following table.		Sit the capacitor for 1000±12h at 150±3°C. Let sit for 24±2h at room condition*, then measure. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*. (for Char. X8L)															
		Appearance	No defects or abnormalities																
		Capacitance Change	Within ±3% or ±0.3pF (Whichever is larger)		Within ±12.5%														
		Q/D.F.	Q ≥ 350		0.04 max.														
	I.R.	More than 1000MΩ or 50MΩ • μF (Whichever is smaller)																	
3	Temperature Cycling	The measured and observed characteristics should satisfy the specifications in the following table.		Perform the 1000 cycles according to the four heat treatments listed in the following table. Let sit for 24±2h at room condition*, then measure. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Temp. (°C)</td> <td>-55+0/-3</td> <td>Room Temp.</td> <td>150+3/-0</td> <td>Room Temp.</td> </tr> <tr> <td>Time (min)</td> <td>15±3</td> <td>1</td> <td>15±3</td> <td>1</td> </tr> </tbody> </table> •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*. (for Char. X8L)	Step	1	2	3	4	Temp. (°C)	-55+0/-3	Room Temp.	150+3/-0	Room Temp.	Time (min)	15±3	1	15±3	1
		Step	1		2	3	4												
		Temp. (°C)	-55+0/-3		Room Temp.	150+3/-0	Room Temp.												
		Time (min)	15±3		1	15±3	1												
Appearance	No defects or abnormalities except color change of outer coating																		
Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)	Within ±12.5%																	
	Q/D.F.	Q ≥ 350	0.05 max.																
	I.R.	1000MΩ or 50MΩ • μF min. (Whichever is smaller)																	
4	Moisture Resistance	The measured and observed characteristics should satisfy the specifications in the following table.		Apply the 24h heat (25 to 65°C) and humidity (80 to 98%) treatment shown below, 10 consecutive times. Let sit for 24±2h at room condition*, then measure. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*. (for Char. X8L) <div style="text-align: center;">  <p>Humidity 90-98% 80-98% 90-98% 80-98% 90-98%</p> <p>Temperature (°C) 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 -5 -10</p> <p>Initial measurement</p> <p>One cycle = 24 hours</p> <p>Hours 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24</p> </div>															
		Appearance	No defects or abnormalities																
		Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)		Within ±12.5%														
		Q/D.F.	Q ≥ 200		0.05 max.														
	I.R.	500MΩ or 25MΩ • μF min. (Whichever is smaller)																	
5	Biased Humidity	The measured and observed characteristics should satisfy the specifications in the following table.		Apply the rated voltage and DC1.3+0.2/-0V (add 100kΩ resistor) at 85±3°C and 80 to 85% humidity for 1000±12h. Remove and let sit for 24±2h at room condition*, then measure. The charge/discharge current is less than 50mA. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5min and then let sit for 24±2h at room condition*. (for Char. X8L)															
		Appearance	No defects or abnormalities																
		Capacitance Change	Within ±5% or ±0.5pF (Whichever is larger)		Within ±12.5%														
		Q/D.F.	Q ≥ 200		0.05 max.														
	I.R.	500MΩ or 25MΩ • μF min. (Whichever is smaller)																	
6	Operational Life	The measured and observed characteristics should satisfy the specifications in the following table.		Apply 150% of the rated voltage for 1000±12h at 150±3°C. Let sit for 24±2h at room condition*, then measure. The charge/discharge current is less than 50mA. •Pretreatment Apply test voltage for 60±5 min at test temperature. Remove and let sit for 24±2h at room condition*. (for Char. X8L)															
		Appearance	No defects or abnormalities except color change of outer coating																
		Capacitance Change	Within ±3% or ±0.3pF (Whichever is larger)		Within ±12.5%														
		Q/D.F.	Q ≥ 350		0.04 max.														
	I.R.	1000MΩ or 50MΩ • μF min. (Whichever is smaller)																	
7	External Visual	No defects or abnormalities		Visual inspection															
8	Physical Dimension	Within the specified dimensions		Using calipers and micrometers															
9	Marking	To be easily legible		Visual inspection															

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

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## Specifications and Test Methods

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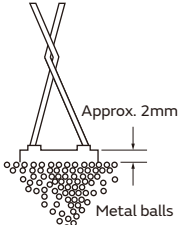
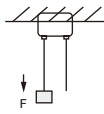
No.	AEC-Q200 Test Item	Specification		AEC-Q200 Test Method									
		Temperature Compensating Type (Char. X8G)	High Dielectric Constant Type (Char. X8L)										
10	Resistance to Solvents	Appearance	No defects or abnormalities		Per MIL-STD-202 Method 215 Solvent 1: 1 part (by volume) of isopropyl alcohol 3 parts (by volume) of mineral spirits Solvent 2: Terpene defluxer Solvent 3: 42 parts (by volume) of water 1 part (by volume) of propylene glycol monomethyl ether 1 part (by volume) of monoethanolamine								
		Capacitance	Within the specified tolerance										
		Q/D.F.	$Q \geq 1000$	0.025 max.									
		I.R.	More than 10000M $\Omega$ or 500M $\Omega$ · $\mu$ F (Whichever is smaller)										
11	Mechanical Shock	Appearance	No defects or abnormalities		Three shocks in each direction should be applied along 3 mutually perpendicular axes of the test specimen (18 shocks). The specified test pulse should be Half-sine and should have a duration: 0.5ms, peak value: 1500G and velocity change: 4.7m/s.								
		Capacitance	Within the specified tolerance										
		Q/D.F.	$Q \geq 1000$	0.025 max.									
12	Vibration	Appearance	No defects or abnormalities		The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 2000Hz. The frequency range, from 10 to 2000Hz and return to 10Hz, should be traversed in approximately 20min. This motion should be applied for 12 items in each 3 mutually perpendicular directions (total of 36 times).								
		Capacitance	Within the specified tolerance										
		Q/D.F.	$Q \geq 1000$	0.025 max.									
13 1	Resistance to Soldering Heat (Non-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.		The lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260 $\pm$ 5°C for 10 $\pm$ 1s. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24 $\pm$ 2h before initial measurement. (For Char. X8L) Post-treatment Capacitor should be stored for 24 $\pm$ 2h at room condition*.									
		Appearance	No defects or abnormalities										
		Capacitance Change	Within $\pm$ 2.5% or $\pm$ 0.25pF (Whichever is larger)		Within $\pm$ 7.5%								
		Dielectric Strength (Between Terminals)	No defects										
13 2	Resistance to Soldering Heat (On-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.		First the capacitor should be stored at 120+0/-5°C for 60+0/-5s. Then, the lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260 $\pm$ 5°C for 7.5+0/-1s. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24 $\pm$ 2h before initial measurement. (For Char. X8L) Post-treatment Capacitor should be stored for 24 $\pm$ 2h at room condition*.									
		Appearance	No defects or abnormalities										
		Capacitance Change	Within $\pm$ 2.5% or $\pm$ 0.25pF (Whichever is larger)		Within $\pm$ 7.5%								
		Dielectric Strength (Between Terminals)	No defects										
13 3	Resistance to Soldering Heat (Soldering Iron Method)	The measured and observed characteristics should satisfy the specifications in the following table.		Test condition Temperature of iron-tip: 350 $\pm$ 10°C Soldering time: 3.5 $\pm$ 0.5s. Soldering position Straight Lead: 1.5 to 2.0mm from the root of terminal. Crimp Lead: 1.5 to 2.0mm from the end of lead bend. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24 $\pm$ 2h before initial measurement. (For Char. X8L) Post-treatment Capacitor should be stored for 24 $\pm$ 2h at room condition*.									
		Appearance	No defects or abnormalities										
		Capacitance Change	Within $\pm$ 2.5% or $\pm$ 0.25pF (Whichever is larger)		Within $\pm$ 7.5%								
		Dielectric Strength (Between Terminals)	No defects										
14	Thermal Shock	The measured and observed characteristics should satisfy the specifications in the following table.		Perform the 300 cycles according to the two heat treatments listed in the following table (Maximum transfer time is 20s). Let sit for 24 $\pm$ 2h at room condition*, then measure. <table border="1" data-bbox="938 1787 1449 1861"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>Temp. (°C)</td> <td>-55+0/-3</td> <td>150+3/-0</td> </tr> <tr> <td>Time (min)</td> <td>15<math>\pm</math>3</td> <td>15<math>\pm</math>3</td> </tr> </tbody> </table> •Pretreatment Perform the heat treatment at 150+0/-10°C for 60 $\pm$ 5min and then let sit for 24 $\pm$ 2h at room condition*. (for Char. X8L)	Step	1	2	Temp. (°C)	-55+0/-3	150+3/-0	Time (min)	15 $\pm$ 3	15 $\pm$ 3
		Step	1		2								
		Temp. (°C)	-55+0/-3		150+3/-0								
		Time (min)	15 $\pm$ 3		15 $\pm$ 3								
		Appearance	No defects or abnormalities										
Capacitance Change	Within $\pm$ 5% or $\pm$ 0.5pF (Whichever is larger)	Within $\pm$ 12.5%											
Q/D.F.	$Q \geq 350$	0.05 max.											
I.R.	1000M $\Omega$ or 50M $\Omega$ · $\mu$ F min. (Whichever is smaller)												
15	ESD	Appearance	No defects or abnormalities		Per AEC-Q200-002								
		Capacitance	Within the specified tolerance										
		Q/D.F.	$Q \geq 1000$	0.025 max.									
		I.R.	More than 10000M $\Omega$ or 500M $\Omega$ · $\mu$ F (Whichever is smaller)										

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

Continued on the following page. ↗

## Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specification		AEC-Q200 Test Method																		
		Temperature Compensating Type (Char. X8G)	High Dielectric Constant Type (Char. X8L)																			
16	Solderability	Lead wire should be soldered with uniform coating on the axial direction over 95% of the circumferential direction.		The terminal of a capacitor is dipped into a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25%rosin in weight propotion) and then into molten solder (JIS-Z-3282) for 2±0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body.  Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder																		
17	Electrical Charac-terization	Appearance	No defects or abnormalities		Visual inspection																	
		Capacitance	Within the specified tolerance		The capacitance, Q/D.F. should be measured at 25°C at the frequency and voltage shown in the table. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Nominal Cap.</th> <th>Frequency</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>C ≤ 1000pF</td> <td>1±0.1MHz</td> <td>AC0.5 to 5V (r.m.s.)</td> </tr> <tr> <td>10μF ≥ C &gt; 1000pF</td> <td>1±0.1kHz</td> <td>AC1±0.2V (r.m.s.)</td> </tr> <tr> <td>C &gt; 10μF</td> <td>120±24Hz</td> <td>AC0.5±0.1V (r.m.s.)</td> </tr> </tbody> </table>	Nominal Cap.	Frequency	Voltage	C ≤ 1000pF	1±0.1MHz	AC0.5 to 5V (r.m.s.)	10μF ≥ C > 1000pF	1±0.1kHz	AC1±0.2V (r.m.s.)	C > 10μF	120±24Hz	AC0.5±0.1V (r.m.s.)					
		Nominal Cap.	Frequency	Voltage																		
		C ≤ 1000pF	1±0.1MHz	AC0.5 to 5V (r.m.s.)																		
		10μF ≥ C > 1000pF	1±0.1kHz	AC1±0.2V (r.m.s.)																		
C > 10μF	120±24Hz	AC0.5±0.1V (r.m.s.)																				
Q/D.F.	Q ≥ 1000	0.025 max.																				
Insulation Resistance (I.R.)	Room Temperature	10000MΩ or 500MΩ · μF min. (Whichever is smaller)		The insulation resistance should be measured at 25±3°C with a DC voltage not exceeding the rated voltage at normal temperature and humidity and within 2min of charging. (Charge/Discharge current ≤ 50mA.)																		
	High Temperature	100MΩ or 5MΩ · μF min. (Whichever is smaller)		The insulation resistance should be measured at 150±3°C with a DC voltage not exceeding the rated voltage at normal temperature and humidity and within 2min of charging. (Charge/Discharge current ≤ 50mA.)																		
Dielectric Strength	Between Terminals	No defects or abnormalities		The capacitor should not be damaged when DC voltage of 300% of the rated voltage (for Char. X8G) or DC voltage of 250% of the rated voltage (for Char. X8L) is applied between the terminations for 1 to 5s. (Charge/Discharge current ≤ 50mA.)																		
	Body Insulation	No defects or abnormalities		The capacitor is placed in a container with metal balls of 1mm diameter so that each terminal, short-circuit is kept approximately 2mm from the balls, and 250% of the rated DC voltage is impressed for 1 to 5s between capacitor terminals and metal balls. (Charge/Discharge current ≤ 50mA.) 																		
18	Terminal Strength	Tensile Strength	Termination not to be broken or loosened		As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1s. 																	
		Bending Strength	Termination not to be broken or loosened		Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3s.																	
19	Capacitance Temperature Characteristics	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Char.</th> <th>Temperature Coefficient</th> </tr> </thead> <tbody> <tr> <td rowspan="3">X8G</td> <td>25 to 150°C: 0±30ppm/°C</td> </tr> <tr> <td>-55 to 25°C: 0+30/-72ppm/°C</td> </tr> <tr> <td></td> </tr> </tbody> </table>	Char.	Temperature Coefficient	X8G	25 to 150°C: 0±30ppm/°C	-55 to 25°C: 0+30/-72ppm/°C		Within ±15% (Temp. Range: -55 to +125°C) Within +15/-40% (Temp. Range: +125 to +150°C)	The capacitance change should be measured after 5min at each specified temperature step. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25±2</td> </tr> <tr> <td>2</td> <td>-55±3</td> </tr> <tr> <td>3</td> <td>25±2</td> </tr> <tr> <td>4</td> <td>150±3</td> </tr> <tr> <td>5</td> <td>25±2</td> </tr> </tbody> </table> The temperature coefficient or the ranges of capacitance change is determined using the capacitance measured in step 3 as a reference. •Pretreatment Perform the heat treatment at 150+0/-10°C for 60±5 min and then let sit for 24±2h at room condition*. Perform the initial measurement. (for Char. X8L)	Step	Temperature (°C)	1	25±2	2	-55±3	3	25±2	4	150±3	5	25±2
Char.	Temperature Coefficient																					
X8G	25 to 150°C: 0±30ppm/°C																					
	-55 to 25°C: 0+30/-72ppm/°C																					
Step	Temperature (°C)																					
1	25±2																					
2	-55±3																					
3	25±2																					
4	150±3																					
5	25±2																					

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

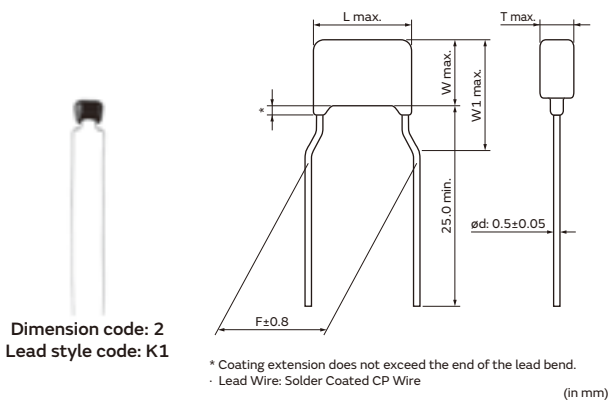
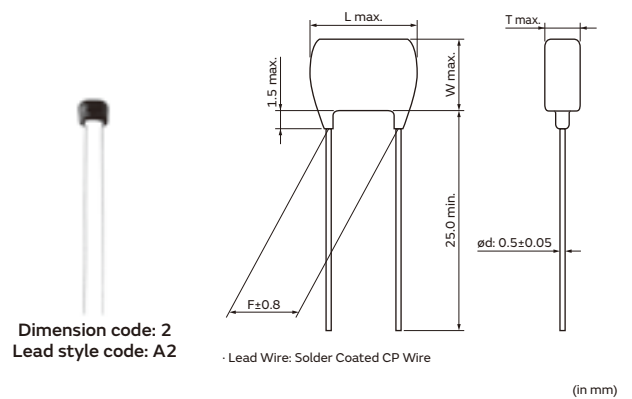
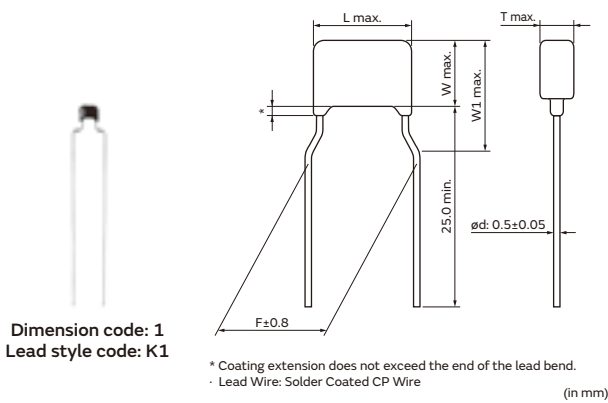
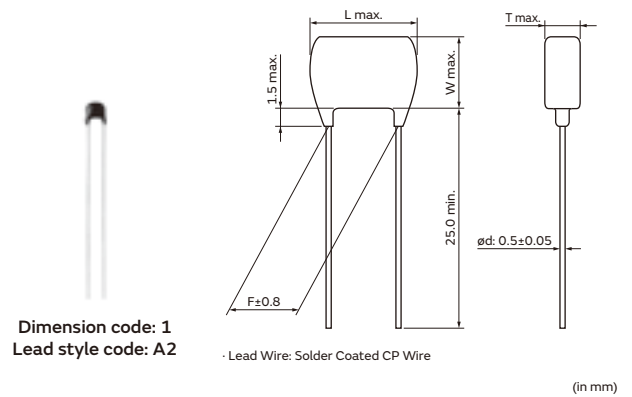
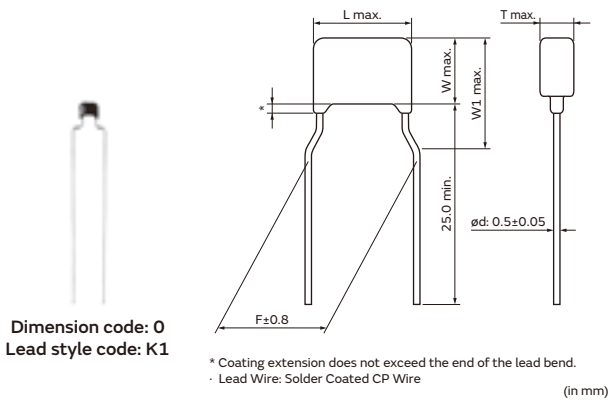
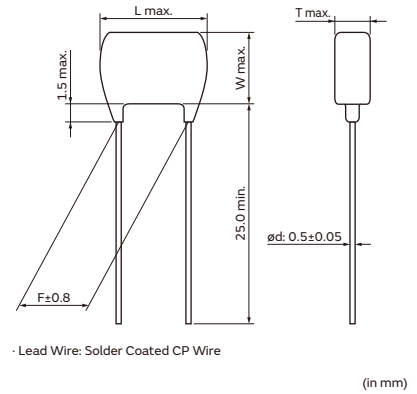
# 200°C Operation Leaded MLCC for Automotive

## RHS Series (DC100V-DC500V)

### Features

1. Small size and large capacitance
2. Low ESR and ESL suitable for high frequency
3. Applied maximum temperature up to 200°C  
 Note: Maximum accumulative time is within 2000 hours.
4. Meet AEC-Q200, ISO7637-2 (surge test) requirement
5. Meet LF (Lead Free) and HF (Halogen Free)
6. Flow soldering and welding are available.  
 (Re-flow soldering is not available.)
7. If copper wire is necessary at welding process, copper wire is available based on request.

3



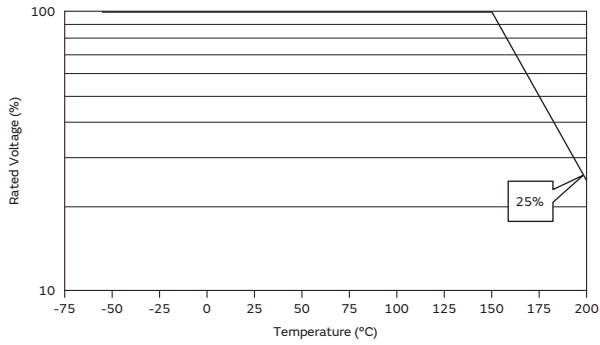
### Dimensions

Dimensions and Lead Style Code	Dimensions (mm)					
	L	W	W1	T	F	d
0A2/0DG	3.9	3.5	-	See the individual product specification	2.5	0.5
0K1/0M2	3.9	3.5	6.0		5.0	0.5
1A2/1DG	4.2	3.5	-		2.5	0.5
1K1/1M2	4.2	3.5	5.0		5.0	0.5
2A2/2DG	5.5	4.0	-		2.5	0.5
2K1/2M1	5.5	4.0	6.0		5.0	0.5

## Rated Voltage

When the product temperature exceeds 150°C, please use this product within the voltage and temperature derated conditions in the figure below.

Maximum operating temperature



## Marking

Dimension Code	Rated Voltage Temp. Char.	DC100V		DC200V	DC500V
		CCG	X9Q	UNJ	
0		4 101J	N 103K	—	—
1		—	—	2 101J	—
2		—	M 224 K1N	M 103 J62	M 101 J92
Temperature Characteristics		Marked with code (CCG Char.: 4, UNJ Char.: 2, X9Q Char.: N)			
Nominal Capacitance		Marked with 3 figures			
Capacitance Tolerance		Marked with code			
Rated Voltage		Marked with code (DC100V: 1, DC200V: 6, DC500V: 9) A part is omitted (Please refer to the marking example.)			
Manufacturer's Identification		Marked with M A part is omitted (Please refer to the marking example.)			

## Temperature Compensating Type, CCG/UNJ Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHS7G2A101J0□□H01□	CCG (Murata)	100Vdc	100pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A101J0□□H01□	CCG (Murata)	100Vdc	100pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A121J0□□H01□	CCG (Murata)	100Vdc	120pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A121J0□□H01□	CCG (Murata)	100Vdc	120pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A151J0□□H01□	CCG (Murata)	100Vdc	150pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A151J0□□H01□	CCG (Murata)	100Vdc	150pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A181J0□□H01□	CCG (Murata)	100Vdc	180pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A181J0□□H01□	CCG (Murata)	100Vdc	180pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A221J0□□H01□	CCG (Murata)	100Vdc	220pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A221J0□□H01□	CCG (Murata)	100Vdc	220pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A271J0□□H01□	CCG (Murata)	100Vdc	270pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A271J0□□H01□	CCG (Murata)	100Vdc	270pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A331J0□□H01□	CCG (Murata)	100Vdc	330pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A331J0□□H01□	CCG (Murata)	100Vdc	330pF±5%	3.9×3.5	2.6	5.0	K1	M2

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHS7G2A391J0□□H01□	CCG (Murata)	100Vdc	390pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A391J0□□H01□	CCG (Murata)	100Vdc	390pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A471J0□□H01□	CCG (Murata)	100Vdc	470pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A471J0□□H01□	CCG (Murata)	100Vdc	470pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A561J0□□H01□	CCG (Murata)	100Vdc	560pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A561J0□□H01□	CCG (Murata)	100Vdc	560pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A681J0□□H01□	CCG (Murata)	100Vdc	680pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A681J0□□H01□	CCG (Murata)	100Vdc	680pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A821J0□□H01□	CCG (Murata)	100Vdc	820pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A821J0□□H01□	CCG (Murata)	100Vdc	820pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A102J0□□H01□	CCG (Murata)	100Vdc	1000pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A102J0□□H01□	CCG (Murata)	100Vdc	1000pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A152J0□□H01□	CCG (Murata)	100Vdc	1500pF±5%	3.9×3.5	2.6	2.5	A2	DG
RHS7G2A152J0□□H01□	CCG (Murata)	100Vdc	1500pF±5%	3.9×3.5	2.6	5.0	K1	M2
RHS7G2A222J1□□H01□	CCG (Murata)	100Vdc	2200pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7G2A222J1□□H01□	CCG (Murata)	100Vdc	2200pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7G2A272J1□□H01□	CCG (Murata)	100Vdc	2700pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7G2A272J1□□H01□	CCG (Murata)	100Vdc	2700pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7G2A332J1□□H01□	CCG (Murata)	100Vdc	3300pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7G2A332J1□□H01□	CCG (Murata)	100Vdc	3300pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D101J1□□H01□	UNJ (Murata)	200Vdc	100pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D101J1□□H01□	UNJ (Murata)	200Vdc	100pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D151J1□□H01□	UNJ (Murata)	200Vdc	150pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D151J1□□H01□	UNJ (Murata)	200Vdc	150pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D221J1□□H01□	UNJ (Murata)	200Vdc	220pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D221J1□□H01□	UNJ (Murata)	200Vdc	220pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D331J1□□H01□	UNJ (Murata)	200Vdc	330pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D331J1□□H01□	UNJ (Murata)	200Vdc	330pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D471J1□□H01□	UNJ (Murata)	200Vdc	470pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D471J1□□H01□	UNJ (Murata)	200Vdc	470pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D681J1□□H01□	UNJ (Murata)	200Vdc	680pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D681J1□□H01□	UNJ (Murata)	200Vdc	680pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D102J1□□H01□	UNJ (Murata)	200Vdc	1000pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D102J1□□H01□	UNJ (Murata)	200Vdc	1000pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D152J1□□H01□	UNJ (Murata)	200Vdc	1500pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D152J1□□H01□	UNJ (Murata)	200Vdc	1500pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D222J1□□H01□	UNJ (Murata)	200Vdc	2200pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D222J1□□H01□	UNJ (Murata)	200Vdc	2200pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D332J1□□H01□	UNJ (Murata)	200Vdc	3300pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D332J1□□H01□	UNJ (Murata)	200Vdc	3300pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D472J1□□H01□	UNJ (Murata)	200Vdc	4700pF±5%	4.2×3.5	2.8	2.5	A2	DG
RHS7J2D472J1□□H01□	UNJ (Murata)	200Vdc	4700pF±5%	4.2×3.5	2.8	5.0	K1	M2
RHS7J2D682J2□□H01□	UNJ (Murata)	200Vdc	6800pF±5%	5.5×4.0	3.3	2.5	A2	DG
RHS7J2D682J2□□H01□	UNJ (Murata)	200Vdc	6800pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2D103J2□□H01□	UNJ (Murata)	200Vdc	10000pF±5%	5.5×4.0	3.3	2.5	A2	DG
RHS7J2D103J2□□H01□	UNJ (Murata)	200Vdc	10000pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H101J2□□H01□	UNJ (Murata)	500Vdc	100pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H151J2□□H01□	UNJ (Murata)	500Vdc	150pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H221J2□□H01□	UNJ (Murata)	500Vdc	220pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H331J2□□H01□	UNJ (Murata)	500Vdc	330pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H471J2□□H01□	UNJ (Murata)	500Vdc	470pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H681J2□□H01□	UNJ (Murata)	500Vdc	680pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H102J2□□H01□	UNJ (Murata)	500Vdc	1000pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H152J2□□H01□	UNJ (Murata)	500Vdc	1500pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H222J2□□H01□	UNJ (Murata)	500Vdc	2200pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H332J2□□H01□	UNJ (Murata)	500Vdc	3300pF±5%	5.5×4.0	3.3	5.0	K1	M2
RHS7J2H472J2□□H01□	UNJ (Murata)	500Vdc	4700pF±5%	5.5×4.0	3.3	5.0	K1	M2

3

## High Dielectric Constant Type, X9Q Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RHSQ92A472K0□□H01□	X9Q (Murata)	100Vdc	4700pF±10%	3.9×3.5	2.6	2.5	A2	DG
RHSQ92A472K0□□H01□	X9Q (Murata)	100Vdc	4700pF±10%	3.9×3.5	2.6	5.0	K1	M2
RHSQ92A682K0□□H01□	X9Q (Murata)	100Vdc	6800pF±10%	3.9×3.5	2.6	2.5	A2	DG
RHSQ92A682K0□□H01□	X9Q (Murata)	100Vdc	6800pF±10%	3.9×3.5	2.6	5.0	K1	M2
RHSQ92A103K0□□H01□	X9Q (Murata)	100Vdc	10000pF±10%	3.9×3.5	2.6	2.5	A2	DG
RHSQ92A103K0□□H01□	X9Q (Murata)	100Vdc	10000pF±10%	3.9×3.5	2.6	5.0	K1	M2
RHSQ92A153K0□□H01□	X9Q (Murata)	100Vdc	15000pF±10%	3.9×3.5	2.6	2.5	A2	DG
RHSQ92A153K0□□H01□	X9Q (Murata)	100Vdc	15000pF±10%	3.9×3.5	2.6	5.0	K1	M2
RHSQ92A223K0□□H01□	X9Q (Murata)	100Vdc	22000pF±10%	3.9×3.5	2.6	2.5	A2	DG
RHSQ92A223K0□□H01□	X9Q (Murata)	100Vdc	22000pF±10%	3.9×3.5	2.6	5.0	K1	M2
RHSQ92A333K1□□H01□	X9Q (Murata)	100Vdc	33000pF±10%	4.2×3.5	2.8	2.5	A2	DG
RHSQ92A333K1□□H01□	X9Q (Murata)	100Vdc	33000pF±10%	4.2×3.5	2.8	5.0	K1	M2
RHSQ92A473K1□□H01□	X9Q (Murata)	100Vdc	47000pF±10%	4.2×3.5	2.8	2.5	A2	DG
RHSQ92A473K1□□H01□	X9Q (Murata)	100Vdc	47000pF±10%	4.2×3.5	2.8	5.0	K1	M2
RHSQ92A683K1□□H01□	X9Q (Murata)	100Vdc	68000pF±10%	4.2×3.5	2.8	2.5	A2	DG
RHSQ92A683K1□□H01□	X9Q (Murata)	100Vdc	68000pF±10%	4.2×3.5	2.8	5.0	K1	M2
RHSQ92A104K1□□H01□	X9Q (Murata)	100Vdc	0.1μF±10%	4.2×3.5	2.8	2.5	A2	DG
RHSQ92A104K1□□H01□	X9Q (Murata)	100Vdc	0.1μF±10%	4.2×3.5	2.8	5.0	K1	M2
RHSQ92A154K2□□H01□	X9Q (Murata)	100Vdc	0.15μF±10%	5.5×4.0	3.3	2.5	A2	DG
RHSQ92A154K2□□H01□	X9Q (Murata)	100Vdc	0.15μF±10%	5.5×4.0	3.3	5.0	K1	M2
RHSQ92A224K2□□H01□	X9Q (Murata)	100Vdc	0.22μF±10%	5.5×4.0	3.3	2.5	A2	DG
RHSQ92A224K2□□H01□	X9Q (Murata)	100Vdc	0.22μF±10%	5.5×4.0	3.3	5.0	K1	M2

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

## Temperature Compensating Type Specifications and Test Methods

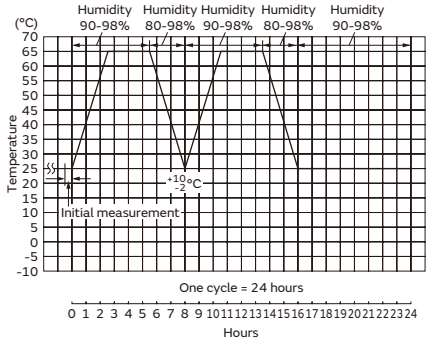
No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method
1	Pre-and Post-Stress Electrical Test	-	-
2	High Temperature Exposure (Storage)	Appearance	No defects or abnormalities except color change of outer coating
		Capacitance Change	Within $\pm 3\%$ or $\pm 0.3\text{pF}$ (Whichever is larger)
		Q	$Q \geq 350$
		I.R.	1000M $\Omega$ min.
3	Temperature Cycling	Appearance	No defects or abnormalities except color change of outer coating
		Capacitance Change	Within $\pm 5\%$ or $\pm 0.5\text{pF}$ (Whichever is larger)
		Q	$Q \geq 350$
		I.R.	1000M $\Omega$ min.
4	Moisture Resistance	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 5\%$ or $\pm 0.5\text{pF}$ (Whichever is larger)
		Q	$Q \geq 200$
		I.R.	500M $\Omega$ min.
5	Biased Humidity	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 5\%$ or $\pm 0.5\text{pF}$ (Whichever is larger)
		Q	$Q \geq 200$
		I.R.	500M $\Omega$ min.
6	Operational Life	Appearance	No defects or abnormalities except color change of outer coating
		Capacitance Change	Within $\pm 3\%$ or $\pm 0.3\text{pF}$ (Whichever is larger)
		Q	$Q \geq 350$
		I.R.	1000M $\Omega$ min.
7	External Visual	No defects or abnormalities	Visual inspection
8	Physical Dimension	Within the specified dimensions	Using calipers and micrometers
9	Marking	To be easily legible	Visual inspection
10	Resistance to Solvents	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		Q	$Q \geq 1000$
		I.R.	10000M $\Omega$ min.
11	Mechanical Shock	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		Q	$Q \geq 1000$

Sit the capacitor for 1000 $\pm$ 12h at 200 $\pm$ 5 $^{\circ}$ C. Let sit for 24 $\pm$ 2h at room condition\*, then measure.

Perform the 1000 cycles according to the four heat treatments listed in the following table. Let sit for 24 $\pm$ 2h at room condition\*, then measure.

Step	1	2	3	4
Temp. ( $^{\circ}$ C)	-55+0/-3	Room Temp.	200+5/-0	Room Temp.
Time (min)	15 $\pm$ 3	1	15 $\pm$ 3	1

Apply the 24h heat (25 to 65 $^{\circ}$ C) and humidity (80 to 98%) treatment shown below, 10 consecutive times. Let sit for 24 $\pm$ 2h at room condition\*, then measure.



Apply the rated voltage and DC1.3+0.2/-0 V (add 100k $\Omega$  resistor) at 85 $\pm$ 3 $^{\circ}$ C and 80 to 85% humidity for 1000 $\pm$ 12h. Remove and let sit for 24 $\pm$ 2h at room condition\*, then measure. The charge/discharge current is less than 50mA.

Apply 25% of the rated voltage for 1000 $\pm$ 12h at 200 $\pm$ 5 $^{\circ}$ C. Let sit for 24 $\pm$ 2h at room condition\*, then measure. The charge/discharge current is less than 50mA.

\* "room condition" Temperature: 15 to 35 $^{\circ}$ C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

Continued on the following page. ↗



## Temperature Compensating Type Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method
12	Vibration	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		Q	$Q \geq 1000$
13 1	Resistance to Soldering Heat (Non-Preheat)	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ (Whichever is larger)
		Dielectric Strength (Between Terminals)	No defects
13 2	Resistance to Soldering Heat (On-Preheat)	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ (Whichever is larger)
		Dielectric Strength (Between Terminals)	No defects
13 3	Resistance to Soldering Heat (soldering iron method)	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ (Whichever is larger)
		Dielectric Strength (Between Terminals)	No defects
14	Thermal Shock	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 5\%$ or $\pm 0.5\text{pF}$ (Whichever is larger)
		Q	$Q \geq 350$
		I.R.	1000MΩ min.
15	ESD	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		Q	$Q \geq 1000$
		I.R.	10000MΩ min.
16	Solderability	Lead wire should be soldered with uniform coating on the axial direction over 95% of the circumferential direction.	The terminal of a capacitor is dipped into a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion) and then into molten solder (JIS-Z-3282) for 2±0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body. Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu)

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

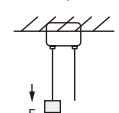
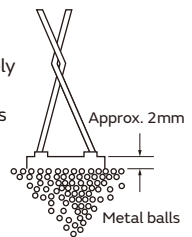
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## Temperature Compensating Type Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method																						
17	Electrical Characterization	Appearance	No defects or abnormalities	Visual inspection																					
		Capacitance	Within the specified tolerance	The capacitance, Q should be measured at 25°C at the frequency and voltage shown in the table.																					
		Q	$Q \geq 1000$																						
		<table border="1"> <thead> <tr> <th>Nominal Cap.</th> <th>Frequency</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td><math>C \leq 1000\text{pF}</math></td> <td><math>1 \pm 0.1\text{MHz}</math></td> <td>AC0.5 to 5V (r.m.s.)</td> </tr> <tr> <td><math>10\mu\text{F} \geq C &gt; 1000\text{pF}</math></td> <td><math>1 \pm 0.1\text{kHz}</math></td> <td>AC1±0.2V (r.m.s.)</td> </tr> <tr> <td><math>C &gt; 10\mu\text{F}</math></td> <td><math>120 \pm 24\text{Hz}</math></td> <td>AC0.5±0.1V (r.m.s.)</td> </tr> </tbody> </table>			Nominal Cap.	Frequency	Voltage	$C \leq 1000\text{pF}$	$1 \pm 0.1\text{MHz}$	AC0.5 to 5V (r.m.s.)	$10\mu\text{F} \geq C > 1000\text{pF}$	$1 \pm 0.1\text{kHz}$	AC1±0.2V (r.m.s.)	$C > 10\mu\text{F}$	$120 \pm 24\text{Hz}$	AC0.5±0.1V (r.m.s.)									
		Nominal Cap.	Frequency	Voltage																					
$C \leq 1000\text{pF}$	$1 \pm 0.1\text{MHz}$	AC0.5 to 5V (r.m.s.)																							
$10\mu\text{F} \geq C > 1000\text{pF}$	$1 \pm 0.1\text{kHz}$	AC1±0.2V (r.m.s.)																							
$C > 10\mu\text{F}$	$120 \pm 24\text{Hz}$	AC0.5±0.1V (r.m.s.)																							
I.R.	Room Temperature	10000MΩ min.	The insulation resistance should be measured at $25 \pm 3^\circ\text{C}$ with a DC voltage not exceeding the rated voltage at normal temperature and humidity and within 2min of charging. (Charge/Discharge current $\leq 50\text{mA}$ )																						
	High Temperature	20MΩ min.	The insulation resistance should be measured at $200 \pm 5^\circ\text{C}$ with a DC voltage not exceeding 25% of the rated voltage at normal temperature and humidity and within 2min of charging. (Charge/Discharge current $\leq 50\text{mA}$ )																						
Dielectric Strength	Between Terminals	No defects or abnormalities	The capacitor should not be damaged when voltage in table is applied between the terminations for 1 to 5s. (Charge/Discharge current $\leq 50\text{mA}$ )																						
	Body Insulation	No defects or abnormalities	The capacitor is placed in a container with metal balls of 1mm diameter so that each terminal, short-circuit, is kept approximately 2mm from the balls as shown in the figure, and voltage in table is impressed for 1 to 5s between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50\text{mA}$ )																						
18	Terminal Strength	Tensile Strength	Termination not to be broken or loosened	As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for $10 \pm 1\text{s}$ .																					
		Bending Strength		Each lead wire should be subjected to a force of 2.5N and then be bent $90^\circ$ at the point of egress in one direction. Each wire is then returned to the original position and bent $90^\circ$ in the opposite direction at the rate of one bend per 2 to 3s.																					
19	Capacitance Temperature Characteristics	Within the specified Tolerance <table border="1"> <thead> <tr> <th>Char.</th> <th>Temperature Coefficient</th> </tr> </thead> <tbody> <tr> <td rowspan="3">CCG</td> <td>-55 to 25°C: <math>0 + 30 / -72\text{ppm}/^\circ\text{C}</math></td> </tr> <tr> <td>25 to 125°C: <math>0 \pm 30\text{ppm}/^\circ\text{C}</math></td> </tr> <tr> <td>125 to 200°C: <math>0 + 72 / -30\text{ppm}/^\circ\text{C}</math></td> </tr> <tr> <td rowspan="3">UNJ</td> <td>-55 to 25°C: <math>-750 + 120 / -347\text{ppm}/^\circ\text{C}</math></td> </tr> <tr> <td>25 to 125°C: <math>-750 \pm 120\text{ppm}/^\circ\text{C}</math></td> </tr> <tr> <td>125 to 200°C: <math>-750 + 347 / -120\text{ppm}/^\circ\text{C}</math></td> </tr> </tbody> </table>	Char.	Temperature Coefficient	CCG	-55 to 25°C: $0 + 30 / -72\text{ppm}/^\circ\text{C}$	25 to 125°C: $0 \pm 30\text{ppm}/^\circ\text{C}$	125 to 200°C: $0 + 72 / -30\text{ppm}/^\circ\text{C}$	UNJ	-55 to 25°C: $-750 + 120 / -347\text{ppm}/^\circ\text{C}$	25 to 125°C: $-750 \pm 120\text{ppm}/^\circ\text{C}$	125 to 200°C: $-750 + 347 / -120\text{ppm}/^\circ\text{C}$	The capacitance change should be measured after 5min at each specified temperature step. <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>25 \pm 2</math></td> </tr> <tr> <td>2</td> <td><math>-55 \pm 3</math></td> </tr> <tr> <td>3</td> <td><math>25 \pm 2</math></td> </tr> <tr> <td>4</td> <td><math>200 \pm 5</math></td> </tr> <tr> <td>5</td> <td><math>25 \pm 2</math></td> </tr> </tbody> </table> The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 ( $-55$ to $+200^\circ\text{C}$ ) the capacitance should be within the specified tolerance for the temperature coefficient. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.	Step	Temperature (°C)	1	$25 \pm 2$	2	$-55 \pm 3$	3	$25 \pm 2$	4	$200 \pm 5$	5	$25 \pm 2$
Char.	Temperature Coefficient																								
CCG	-55 to 25°C: $0 + 30 / -72\text{ppm}/^\circ\text{C}$																								
	25 to 125°C: $0 \pm 30\text{ppm}/^\circ\text{C}$																								
	125 to 200°C: $0 + 72 / -30\text{ppm}/^\circ\text{C}$																								
UNJ	-55 to 25°C: $-750 + 120 / -347\text{ppm}/^\circ\text{C}$																								
	25 to 125°C: $-750 \pm 120\text{ppm}/^\circ\text{C}$																								
	125 to 200°C: $-750 + 347 / -120\text{ppm}/^\circ\text{C}$																								
Step	Temperature (°C)																								
1	$25 \pm 2$																								
2	$-55 \pm 3$																								
3	$25 \pm 2$																								
4	$200 \pm 5$																								
5	$25 \pm 2$																								

3



## High Dielectric Constant Type Specifications and Test Methods

No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method															
1	Pre-and Post-Stress Electrical Test	-	-															
2	High Temperature Exposure (Storage)	Appearance	No defects or abnormalities except color change of outer coating															
		Capacitance Change	Within $\pm 12.5\%$															
		D.F.	0.04 max.															
		I.R.	1000M $\Omega$ or 50M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)															
			Sit the capacitor for 1000 $\pm$ 12h at 200 $\pm$ 5°C. Let sit for 24 $\pm$ 2h at room condition*, then measure. •Pretreatment Perform the heat treatment at 150+0/-10°C for 1h and then let sit for 24 $\pm$ 2h at room condition*.															
3	Temperature Cycling	Appearance	No defects or abnormalities except color change of outer coating															
		Capacitance Change	Within $\pm 12.5\%$															
		D.F.	0.05 max.															
		I.R.	1000M $\Omega$ or 50M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)															
			Perform the 1000 cycles according to the four heat treatments listed in the following table. Let sit for 24 $\pm$ 2h at room condition*, then measure.															
			<table border="1"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Temp. (°C)</td> <td>-55+0/-3</td> <td>Room Temp.</td> <td>200+5/-0</td> <td>Room Temp.</td> </tr> <tr> <td>Time (min)</td> <td>15<math>\pm</math>3</td> <td>1</td> <td>15<math>\pm</math>3</td> <td>1</td> </tr> </tbody> </table>	Step	1	2	3	4	Temp. (°C)	-55+0/-3	Room Temp.	200+5/-0	Room Temp.	Time (min)	15 $\pm$ 3	1	15 $\pm$ 3	1
Step	1	2	3	4														
Temp. (°C)	-55+0/-3	Room Temp.	200+5/-0	Room Temp.														
Time (min)	15 $\pm$ 3	1	15 $\pm$ 3	1														
			•Pretreatment Perform the heat treatment at 150+0/-10°C for 1h and then let sit for 24 $\pm$ 2h at room condition*.															
4	Moisture Resistance	Appearance	No defects or abnormalities															
		Capacitance Change	Within $\pm 12.5\%$															
		D.F.	0.05 max.															
		I.R.	500M $\Omega$ or 25M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)															
			Apply the 24h heat (25 to 65°C) and humidity (80 to 98%) treatment shown below, 10 consecutive times. Let sit for 24 $\pm$ 2h at room condition*, then measure.															
			•Pretreatment Perform the heat treatment at 150+0/-10°C for 1h and then let sit for 24 $\pm$ 2h at room condition*.															
5	Biased Humidity	Appearance	No defects or abnormalities															
		Capacitance Change	Within $\pm 12.5\%$															
		D.F.	0.05 max.															
		I.R.	500M $\Omega$ or 25M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)															
			Apply the rated voltage and DC1.3+0.2/-0 V (add 100k $\Omega$ resistor) at 85 $\pm$ 3°C and 80 to 85% humidity for 1000 $\pm$ 12h. Remove and let sit for 24 $\pm$ 2h at room condition*, then measure. The charge/discharge current is less than 50mA. •Pretreatment Perform the heat treatment at 150+0/-10°C for 1h and then let sit for 24 $\pm$ 2h at room condition*.															
6	Operational Life	Appearance	No defects or abnormalities except color change of outer coating															
		Capacitance Change	Within $\pm 15\%$															
		D.F.	0.04 max.															
		I.R.	100M $\Omega$ or 5M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)															
			Apply 25% of the rated voltage for 1000 $\pm$ 12h at 200 $\pm$ 5°C. Let sit for 24 $\pm$ 2h at room condition*, then measure. The charge/discharge current is less than 50mA. •Pretreatment Apply test voltage for 60 $\pm$ 5min at test temperature. Remove and let sit for 24 $\pm$ 2h at room condition*.															
7	External Visual	No defects or abnormalities	Visual inspection															
8	Physical Dimension	Within the specified dimensions	Using calipers and micrometers															
9	Marking	To be easily legible	Visual inspection															
10	Resistance to Solvents	Appearance	No defects or abnormalities															
		Capacitance	Within the specified tolerance															
		D.F.	0.025 max.															
		I.R.	10000M $\Omega$ or 500M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)															
			Per MIL-STD-202 Method 215 Solvent 1: 1 part (by volume) of isopropyl alcohol 3 parts (by volume) of mineral spirits Solvent 2: Terpene defluxer Solvent 3: 42 parts (by volume) of water 1 part (by volume) of propylene glycol monomethyl ether 1 part (by volume) of monoethanolamine															

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

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## High Dielectric Constant Type Specifications and Test Methods

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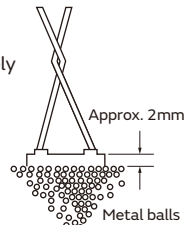
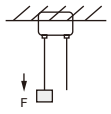
No.	AEC-Q200 Test Item	Specifications	AEC-Q200 Test Method
11	Mechanical Shock	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		D.F.	0.025 max.
12	Vibration	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		D.F.	0.025 max.
13 , 1	Resistance to Soldering Heat (Non-Preheat)	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 7.5\%$
		Dielectric Strength (Between Terminals)	No defects
13 , 2	Resistance to Soldering Heat (On-Preheat)	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 7.5\%$
		Dielectric Strength (Between Terminals)	No defects
13 , 3	Resistance to Soldering Heat (Soldering Iron Method)	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 7.5\%$
		Dielectric Strength (Between Terminals)	No defects
14	Thermal Shock	Appearance	No defects or abnormalities
		Capacitance Change	Within $\pm 12.5\%$
		D.F.	0.05 max.
		I.R.	1000M $\Omega$ or 50M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)
15	ESD	Appearance	No defects or abnormalities
		Capacitance	Within the specified tolerance
		D.F.	0.025 max.
		I.R.	10000M $\Omega$ or 500M $\Omega$ $\cdot$ $\mu$ F min. (Whichever is smaller)
16	Solderability	Lead wire should be soldered with uniform coating on the axial direction over 95% of the circumferential direction.	The terminal of a capacitor is dipped into a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion) and then into molten solder (JIS-Z-3282) for 2 $\pm$ 0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body.  Temp. of solder : 245 $\pm$ 5 $^{\circ}$ C Lead Free Solder (Sn-3.0Ag-0.5Cu)

\* "room condition" Temperature: 15 to 35 $^{\circ}$ C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

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## High Dielectric Constant Type Specifications and Test Methods

Continued from the preceding page. ↘

No.	AEC-Q200 Test Item	Specifications		AEC-Q200 Test Method													
17	Electrical Characterization	Appearance	No defects or abnormalities		Visual inspection												
		Capacitance	Within the specified tolerance		The capacitance, D.F. should be measured at 25°C at the frequency and voltage shown in the table. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Nominal Cap.</th> <th>Frequency</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td><math>C \leq 1000\text{pF}</math></td> <td>1±0.1MHz</td> <td>AC0.5 to 5V (r.m.s.)</td> </tr> <tr> <td><math>10\mu\text{F} \geq C &gt; 1000\text{pF}</math></td> <td>1±0.1kHz</td> <td>AC1±0.2V (r.m.s.)</td> </tr> <tr> <td><math>C &gt; 10\mu\text{F}</math></td> <td>120±24Hz</td> <td>AC0.5±0.1V (r.m.s.)</td> </tr> </tbody> </table>	Nominal Cap.	Frequency	Voltage	$C \leq 1000\text{pF}$	1±0.1MHz	AC0.5 to 5V (r.m.s.)	$10\mu\text{F} \geq C > 1000\text{pF}$	1±0.1kHz	AC1±0.2V (r.m.s.)	$C > 10\mu\text{F}$	120±24Hz	AC0.5±0.1V (r.m.s.)
		Nominal Cap.	Frequency	Voltage													
		$C \leq 1000\text{pF}$	1±0.1MHz	AC0.5 to 5V (r.m.s.)													
		$10\mu\text{F} \geq C > 1000\text{pF}$	1±0.1kHz	AC1±0.2V (r.m.s.)													
		$C > 10\mu\text{F}$	120±24Hz	AC0.5±0.1V (r.m.s.)													
D.F.	0.025 max.																
I.R.	Room Temperature	10000MΩ or 500MΩ · μF min. (Whichever is smaller)		The insulation resistance should be measured at 25±3°C with a DC voltage not exceeding the rated voltage at normal temperature and humidity and within 2min of charging. (Charge/Discharge current ≤ 50mA)													
	High Temperature	0.5MΩ or 0.1MΩ · μF min. (Whichever is smaller)		The insulation resistance should be measured at 200±5°C with a DC voltage not exceeding 25% of the rated voltage at normal temperature and humidity and within 2min of charging. (Charge/Discharge current ≤ 50mA)													
Dielectric Strength	Between Terminals	No defects or abnormalities		The capacitor should not be damaged when DC voltage of 250% of the rated voltage is applied between the terminations for 1 to 5s. (Charge/Discharge current ≤ 50mA.)													
	Body Insulation	No defects or abnormalities		The capacitor is placed in a container with metal balls of 1mm diameter so that each terminal, short-circuit, is kept approximately 2mm from the balls as shown in the figure, and 250% of the rated DC voltage is impressed for 1 to 5s between capacitor terminals and metal balls. (Charge/Discharge current ≤ 50mA.) 													
18	Terminal Strength	Tensile Strength	Termination not to be broken or loosened		As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1s. 												
		Bending Strength			Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3s.												
19	Capacitance Temperature Characteristics	Within the specified Tolerance -55 to 125°C: Within ±15% 125 to 200°C: Within+15/-70%		The capacitance change should be measured after 5min at each specified temperature step. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25±2</td> </tr> <tr> <td>2</td> <td>-55±3</td> </tr> <tr> <td>3</td> <td>25±2</td> </tr> <tr> <td>4</td> <td>200±5</td> </tr> <tr> <td>5</td> <td>25±2</td> </tr> </tbody> </table> The ranges of capacitance change compared with the above 25°C value over the temperature ranges shown in the table should be within the specified ranges. •Pretreatment Perform the heat treatment at 150+0/-10°C for 1h and then let sit for 24±2h at room condition*. Perform the initial measurement.	Step	Temperature (°C)	1	25±2	2	-55±3	3	25±2	4	200±5	5	25±2	
Step	Temperature (°C)																
1	25±2																
2	-55±3																
3	25±2																
4	200±5																
5	25±2																

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

# Leaded MLCC for General Purpose

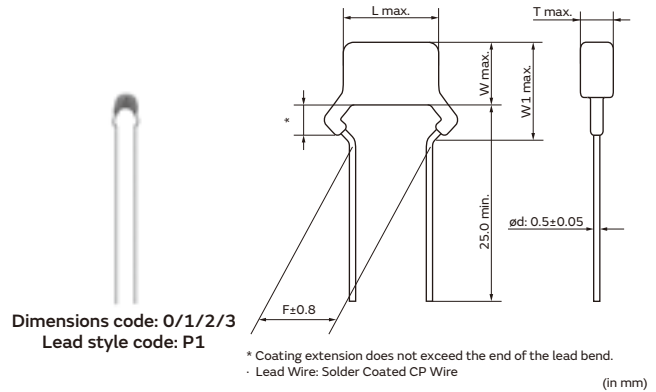
## RDE Series (DC25V-DC1kV)

### Features

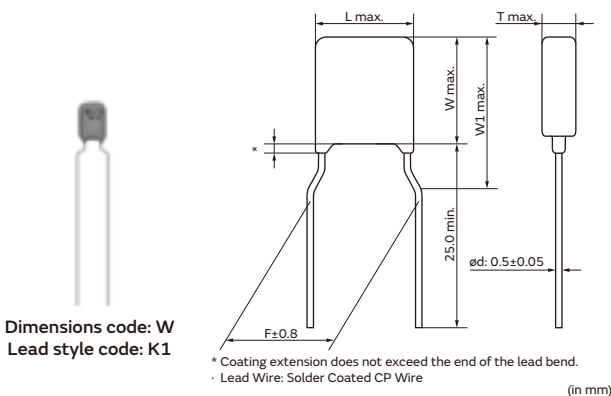
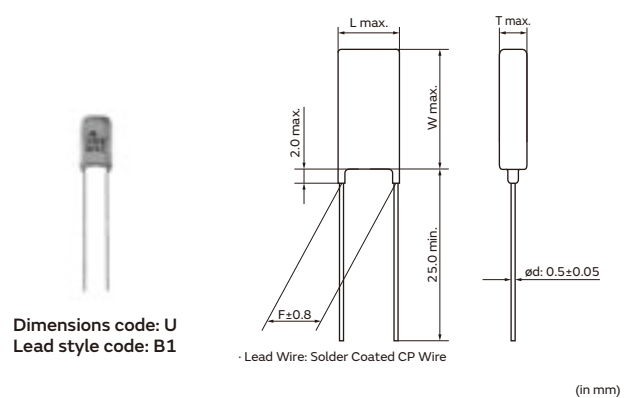
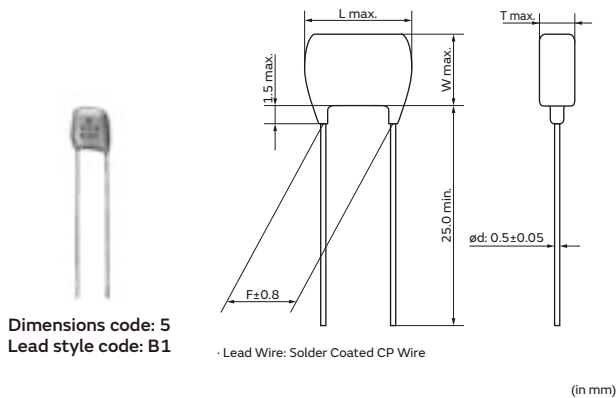
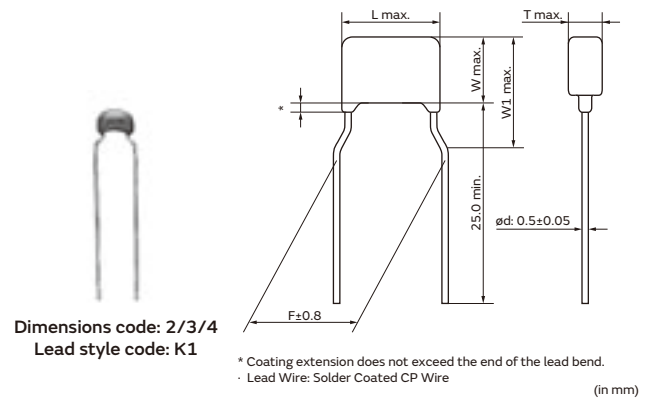
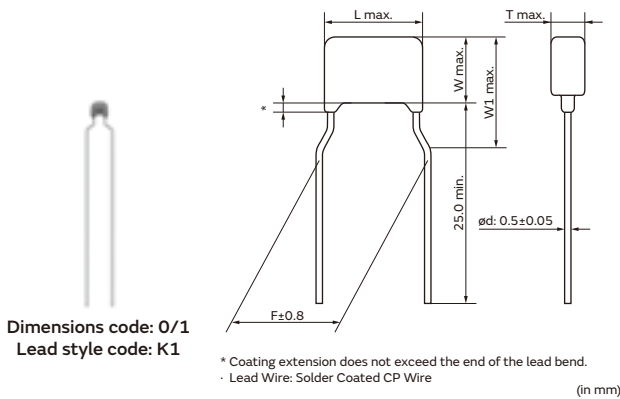
1. Small size and large capacitance
2. Low ESR characteristics for high frequency
3. Meet LF (Lead Free) and HF (Halogen Free)
4. Flow soldering is available, but re-flow soldering is not available.

### Applications

General electronic equipment  
 (Do not use for automotive-related power train and safety equipment.)



4




### Dimensions

Dimensions and Lead Style Code	Dimensions (mm)					
	L	W	W1	T	F	d
0P1/0S1	5.0	3.5	6.0	See the individual product specification	2.5	0.5
0K1/0M1	4.0	3.5	6.0		5.0	0.5
1P1/1S1	5.0	3.5	5.0		2.5	0.5
1K1/1M1	4.5	3.5	5.0		5.0	0.5
2P1/2S1	5.5	4.0	6.0		2.5	0.5
2K1/2M1	5.5	4.0	6.0		5.0	0.5
3P1/3S1	5.5	5.0	7.5		2.5	0.5
3K1/3M1	5.5	5.0	7.5		5.0	0.5
4K1/4M1	7.5	5.5	8.0		5.0	0.5
5B1/5E1	7.5	7.5*	-		5.0	0.5
UB1/UE1	7.7	12.5*	-		5.0	0.5
WK1/WM1	5.5	7.5	10.0		5.0	0.5

\*DC630V, DC1kV: W+0.5mm

**Marking**

Dimensions Code	Rated Voltage		DC25V			DC50V			DC100V			DC250V	DC500V	DC630V	DC1kV
	Temp. Char.		X7S	X7R	COG	X7S	X7R	COG	X7S	X7R	X7R, U2J, COG				
0				104K		-			-						
1	224K				A 102J			224K	A 102J		224K	U 102J (U2J)	103K (X7R)		
2	475 K2C			563 J5A	475 K5C	105 K5C	103 J1A		105 K1C		103 J4U (U2J)	473 K4C (X7R)	153 K9C (X7R)	472 J7U (U2J)	102 JAU (U2J)
														153 J4A (COG)	332 J7A (COG)
3, 4, W	226 K2C				226 K5C	335 K5C			225 K1C		473 J4U (U2J)	104 K9C (X7R)		103 J7U (U2J)	472 JAU (U2J)
											224 K4C (X7R)			104 K7C (X7R)	333 KAC (X7R)
5, U											474 K4C (X7R)	474 K9C (X7R)		333 J7U (U2J)	103 JAU (U2J)
														474 K7C (X7R)	104 KAC (X7R)
Temperature Characteristics	Marked with code (COG char.: A, X7S/X7R char.: C, U2J char.: U) A part is omitted (Please refer to the marking example.)														
Nominal Capacitance	Under 100pF: Actual value 100pF and over: Marked with 3 figures														
Capacitance Tolerance	Marked with code A part is omitted (Please refer to the marking example.)														
Rated Voltage	Marked with code (DC25V: 2, DC50V: 5, DC100V: 1, DC250V: 4, DC500V: 9, DC630V: 7, DC1kV: A) A part is omitted (Please refer to the marking example.)														
Manufacturer's Identification	Marked with  A part is omitted (Please refer to the marking example.)														



**Temperature Compensating Type, COG/U2J Characteristics**

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C1H1R0C0□□H03□	COG (EIA)	50Vdc	1.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H1R0C0□□H03□	COG (EIA)	50Vdc	1.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H2R0C0□□H03□	COG (EIA)	50Vdc	2.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H2R0C0□□H03□	COG (EIA)	50Vdc	2.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H3R0C0□□H03□	COG (EIA)	50Vdc	3.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H3R0C0□□H03□	COG (EIA)	50Vdc	3.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H4R0C0□□H03□	COG (EIA)	50Vdc	4.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H4R0C0□□H03□	COG (EIA)	50Vdc	4.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H5R0C0□□H03□	COG (EIA)	50Vdc	5.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H5R0C0□□H03□	COG (EIA)	50Vdc	5.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C1H6R0D0□□H03□	COG (EIA)	50Vdc	6.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H6R0D0□□H03□	COG (EIA)	50Vdc	6.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H7R0D0□□H03□	COG (EIA)	50Vdc	7.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H7R0D0□□H03□	COG (EIA)	50Vdc	7.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H8R0D0□□H03□	COG (EIA)	50Vdc	8.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H8R0D0□□H03□	COG (EIA)	50Vdc	8.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H9R0D0□□H03□	COG (EIA)	50Vdc	9.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H9R0D0□□H03□	COG (EIA)	50Vdc	9.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H100J0□□H03□	COG (EIA)	50Vdc	10pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H100J0□□H03□	COG (EIA)	50Vdc	10pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H120J0□□H03□	COG (EIA)	50Vdc	12pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H120J0□□H03□	COG (EIA)	50Vdc	12pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H150J0□□H03□	COG (EIA)	50Vdc	15pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H150J0□□H03□	COG (EIA)	50Vdc	15pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H180J0□□H03□	COG (EIA)	50Vdc	18pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H180J0□□H03□	COG (EIA)	50Vdc	18pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H220J0□□H03□	COG (EIA)	50Vdc	22pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H220J0□□H03□	COG (EIA)	50Vdc	22pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H270J0□□H03□	COG (EIA)	50Vdc	27pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H270J0□□H03□	COG (EIA)	50Vdc	27pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H330J0□□H03□	COG (EIA)	50Vdc	33pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H330J0□□H03□	COG (EIA)	50Vdc	33pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H390J0□□H03□	COG (EIA)	50Vdc	39pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H390J0□□H03□	COG (EIA)	50Vdc	39pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H470J0□□H03□	COG (EIA)	50Vdc	47pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H470J0□□H03□	COG (EIA)	50Vdc	47pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H560J0□□H03□	COG (EIA)	50Vdc	56pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H560J0□□H03□	COG (EIA)	50Vdc	56pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H680J0□□H03□	COG (EIA)	50Vdc	68pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H680J0□□H03□	COG (EIA)	50Vdc	68pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H820J0□□H03□	COG (EIA)	50Vdc	82pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H820J0□□H03□	COG (EIA)	50Vdc	82pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H101J0□□H03□	COG (EIA)	50Vdc	100pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H101J0□□H03□	COG (EIA)	50Vdc	100pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H121J0□□H03□	COG (EIA)	50Vdc	120pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H121J0□□H03□	COG (EIA)	50Vdc	120pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H151J0□□H03□	COG (EIA)	50Vdc	150pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H151J0□□H03□	COG (EIA)	50Vdc	150pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H181J0□□H03□	COG (EIA)	50Vdc	180pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H181J0□□H03□	COG (EIA)	50Vdc	180pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H221J0□□H03□	COG (EIA)	50Vdc	220pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H221J0□□H03□	COG (EIA)	50Vdc	220pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H271J0□□H03□	COG (EIA)	50Vdc	270pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H271J0□□H03□	COG (EIA)	50Vdc	270pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H331J0□□H03□	COG (EIA)	50Vdc	330pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H331J0□□H03□	COG (EIA)	50Vdc	330pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H391J0□□H03□	COG (EIA)	50Vdc	390pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H391J0□□H03□	COG (EIA)	50Vdc	390pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H471J0□□H03□	COG (EIA)	50Vdc	470pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H471J0□□H03□	COG (EIA)	50Vdc	470pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H561J0□□H03□	COG (EIA)	50Vdc	560pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H561J0□□H03□	COG (EIA)	50Vdc	560pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H681J0□□H03□	COG (EIA)	50Vdc	680pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H681J0□□H03□	COG (EIA)	50Vdc	680pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H821J0□□H03□	COG (EIA)	50Vdc	820pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H821J0□□H03□	COG (EIA)	50Vdc	820pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H102J0□□H03□	COG (EIA)	50Vdc	1000pF±5%	4.0×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C1H102J0□□H03□	COG (EIA)	50Vdc	1000pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H122J0□□H03□	COG (EIA)	50Vdc	1200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H122J0□□H03□	COG (EIA)	50Vdc	1200pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H152J0□□H03□	COG (EIA)	50Vdc	1500pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H152J0□□H03□	COG (EIA)	50Vdc	1500pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H182J0□□H03□	COG (EIA)	50Vdc	1800pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H182J0□□H03□	COG (EIA)	50Vdc	1800pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H222J0□□H03□	COG (EIA)	50Vdc	2200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H222J0□□H03□	COG (EIA)	50Vdc	2200pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H272J0□□H03□	COG (EIA)	50Vdc	2700pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H272J0□□H03□	COG (EIA)	50Vdc	2700pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H332J0□□H03□	COG (EIA)	50Vdc	3300pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H332J0□□H03□	COG (EIA)	50Vdc	3300pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H392J0□□H03□	COG (EIA)	50Vdc	3900pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C1H392J0□□H03□	COG (EIA)	50Vdc	3900pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C1H472J1□□H03□	COG (EIA)	50Vdc	4700pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H472J1□□H03□	COG (EIA)	50Vdc	4700pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H562J1□□H03□	COG (EIA)	50Vdc	5600pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H562J1□□H03□	COG (EIA)	50Vdc	5600pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H682J1□□H03□	COG (EIA)	50Vdc	6800pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H682J1□□H03□	COG (EIA)	50Vdc	6800pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H822J1□□H03□	COG (EIA)	50Vdc	8200pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H822J1□□H03□	COG (EIA)	50Vdc	8200pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H103J1□□H03□	COG (EIA)	50Vdc	10000pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H103J1□□H03□	COG (EIA)	50Vdc	10000pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H123J1□□H03□	COG (EIA)	50Vdc	12000pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H123J1□□H03□	COG (EIA)	50Vdc	12000pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H153J1□□H03□	COG (EIA)	50Vdc	15000pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H153J1□□H03□	COG (EIA)	50Vdc	15000pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H183J1□□H03□	COG (EIA)	50Vdc	18000pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H183J1□□H03□	COG (EIA)	50Vdc	18000pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H223J1□□H03□	COG (EIA)	50Vdc	22000pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C1H223J1□□H03□	COG (EIA)	50Vdc	22000pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C1H273J2□□H03□	COG (EIA)	50Vdc	27000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H273J2□□H03□	COG (EIA)	50Vdc	27000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H333J2□□H03□	COG (EIA)	50Vdc	33000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H333J2□□H03□	COG (EIA)	50Vdc	33000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H393J2□□H03□	COG (EIA)	50Vdc	39000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H393J2□□H03□	COG (EIA)	50Vdc	39000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H473J2□□H03□	COG (EIA)	50Vdc	47000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H473J2□□H03□	COG (EIA)	50Vdc	47000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H563J2□□H03□	COG (EIA)	50Vdc	56000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H563J2□□H03□	COG (EIA)	50Vdc	56000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H683J2□□H03□	COG (EIA)	50Vdc	68000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H683J2□□H03□	COG (EIA)	50Vdc	68000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H823J2□□H03□	COG (EIA)	50Vdc	82000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H823J2□□H03□	COG (EIA)	50Vdc	82000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C1H104J2□□H03□	COG (EIA)	50Vdc	0.1μF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C1H104J2□□H03□	COG (EIA)	50Vdc	0.1μF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A1R0C0□□H03□	COG (EIA)	100Vdc	1.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A1R0C0□□H03□	COG (EIA)	100Vdc	1.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A2R0C0□□H03□	COG (EIA)	100Vdc	2.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A2R0C0□□H03□	COG (EIA)	100Vdc	2.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A3R0C0□□H03□	COG (EIA)	100Vdc	3.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A3R0C0□□H03□	COG (EIA)	100Vdc	3.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A4R0C0□□H03□	COG (EIA)	100Vdc	4.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A4R0C0□□H03□	COG (EIA)	100Vdc	4.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C2A5R0C0□□H03□	COG (EIA)	100Vdc	5.0pF±0.25pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A5R0C0□□H03□	COG (EIA)	100Vdc	5.0pF±0.25pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A6R0D0□□H03□	COG (EIA)	100Vdc	6.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A6R0D0□□H03□	COG (EIA)	100Vdc	6.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A7R0D0□□H03□	COG (EIA)	100Vdc	7.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A7R0D0□□H03□	COG (EIA)	100Vdc	7.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A8R0D0□□H03□	COG (EIA)	100Vdc	8.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A8R0D0□□H03□	COG (EIA)	100Vdc	8.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A9R0D0□□H03□	COG (EIA)	100Vdc	9.0pF±0.5pF	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A9R0D0□□H03□	COG (EIA)	100Vdc	9.0pF±0.5pF	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A100J0□□H03□	COG (EIA)	100Vdc	10pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A100J0□□H03□	COG (EIA)	100Vdc	10pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A120J0□□H03□	COG (EIA)	100Vdc	12pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A120J0□□H03□	COG (EIA)	100Vdc	12pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A150J0□□H03□	COG (EIA)	100Vdc	15pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A150J0□□H03□	COG (EIA)	100Vdc	15pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A180J0□□H03□	COG (EIA)	100Vdc	18pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A180J0□□H03□	COG (EIA)	100Vdc	18pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A220J0□□H03□	COG (EIA)	100Vdc	22pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A220J0□□H03□	COG (EIA)	100Vdc	22pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A270J0□□H03□	COG (EIA)	100Vdc	27pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A270J0□□H03□	COG (EIA)	100Vdc	27pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A330J0□□H03□	COG (EIA)	100Vdc	33pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A330J0□□H03□	COG (EIA)	100Vdc	33pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A390J0□□H03□	COG (EIA)	100Vdc	39pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A390J0□□H03□	COG (EIA)	100Vdc	39pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A470J0□□H03□	COG (EIA)	100Vdc	47pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A470J0□□H03□	COG (EIA)	100Vdc	47pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A560J0□□H03□	COG (EIA)	100Vdc	56pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A560J0□□H03□	COG (EIA)	100Vdc	56pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A680J0□□H03□	COG (EIA)	100Vdc	68pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A680J0□□H03□	COG (EIA)	100Vdc	68pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A820J0□□H03□	COG (EIA)	100Vdc	82pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A820J0□□H03□	COG (EIA)	100Vdc	82pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A101J0□□H03□	COG (EIA)	100Vdc	100pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A101J0□□H03□	COG (EIA)	100Vdc	100pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A121J0□□H03□	COG (EIA)	100Vdc	120pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A121J0□□H03□	COG (EIA)	100Vdc	120pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A151J0□□H03□	COG (EIA)	100Vdc	150pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A151J0□□H03□	COG (EIA)	100Vdc	150pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A181J0□□H03□	COG (EIA)	100Vdc	180pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A181J0□□H03□	COG (EIA)	100Vdc	180pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A221J0□□H03□	COG (EIA)	100Vdc	220pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A221J0□□H03□	COG (EIA)	100Vdc	220pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A271J0□□H03□	COG (EIA)	100Vdc	270pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A271J0□□H03□	COG (EIA)	100Vdc	270pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A331J0□□H03□	COG (EIA)	100Vdc	330pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A331J0□□H03□	COG (EIA)	100Vdc	330pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A391J0□□H03□	COG (EIA)	100Vdc	390pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A391J0□□H03□	COG (EIA)	100Vdc	390pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A471J0□□H03□	COG (EIA)	100Vdc	470pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A471J0□□H03□	COG (EIA)	100Vdc	470pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A561J0□□H03□	COG (EIA)	100Vdc	560pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A561J0□□H03□	COG (EIA)	100Vdc	560pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A681J0□□H03□	COG (EIA)	100Vdc	680pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A681J0□□H03□	COG (EIA)	100Vdc	680pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A821J0□□H03□	COG (EIA)	100Vdc	820pF±5%	4.0×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C2A821J0□□H03□	COG (EIA)	100Vdc	820pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A102J0□□H03□	COG (EIA)	100Vdc	1000pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A102J0□□H03□	COG (EIA)	100Vdc	1000pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A122J0□□H03□	COG (EIA)	100Vdc	1200pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A122J0□□H03□	COG (EIA)	100Vdc	1200pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A152J0□□H03□	COG (EIA)	100Vdc	1500pF±5%	4.0×3.5	2.5	5.0	K1	M1
RDE5C2A152J0□□H03□	COG (EIA)	100Vdc	1500pF±5%	5.0×3.5	2.5	2.5	P1	S1
RDE5C2A182J1□□H03□	COG (EIA)	100Vdc	1800pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C2A182J1□□H03□	COG (EIA)	100Vdc	1800pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C2A222J1□□H03□	COG (EIA)	100Vdc	2200pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C2A222J1□□H03□	COG (EIA)	100Vdc	2200pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C2A272J1□□H03□	COG (EIA)	100Vdc	2700pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C2A272J1□□H03□	COG (EIA)	100Vdc	2700pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C2A332J1□□H03□	COG (EIA)	100Vdc	3300pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE5C2A332J1□□H03□	COG (EIA)	100Vdc	3300pF±5%	5.0×3.5	3.15	2.5	P1	S1
RDE5C2A392J2□□H03□	COG (EIA)	100Vdc	3900pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A392J2□□H03□	COG (EIA)	100Vdc	3900pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A472J2□□H03□	COG (EIA)	100Vdc	4700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A472J2□□H03□	COG (EIA)	100Vdc	4700pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A562J2□□H03□	COG (EIA)	100Vdc	5600pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A562J2□□H03□	COG (EIA)	100Vdc	5600pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A682J2□□H03□	COG (EIA)	100Vdc	6800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A682J2□□H03□	COG (EIA)	100Vdc	6800pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A822J2□□H03□	COG (EIA)	100Vdc	8200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A822J2□□H03□	COG (EIA)	100Vdc	8200pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A103J2□□H03□	COG (EIA)	100Vdc	10000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A103J2□□H03□	COG (EIA)	100Vdc	10000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A123J2□□H03□	COG (EIA)	100Vdc	12000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A123J2□□H03□	COG (EIA)	100Vdc	12000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A153J2□□H03□	COG (EIA)	100Vdc	15000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A153J2□□H03□	COG (EIA)	100Vdc	15000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A183J2□□H03□	COG (EIA)	100Vdc	18000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A183J2□□H03□	COG (EIA)	100Vdc	18000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2A223J2□□H03□	COG (EIA)	100Vdc	22000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2A223J2□□H03□	COG (EIA)	100Vdc	22000pF±5%	5.5×4.0	3.15	2.5	P1	S1
RDE5C2E100J2□□H03□	COG (EIA)	250Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E120J2□□H03□	COG (EIA)	250Vdc	12pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E150J2□□H03□	COG (EIA)	250Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E180J2□□H03□	COG (EIA)	250Vdc	18pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E220J2□□H03□	COG (EIA)	250Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E270J2□□H03□	COG (EIA)	250Vdc	27pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E330J2□□H03□	COG (EIA)	250Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E390J2□□H03□	COG (EIA)	250Vdc	39pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E470J2□□H03□	COG (EIA)	250Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E560J2□□H03□	COG (EIA)	250Vdc	56pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E680J2□□H03□	COG (EIA)	250Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E820J2□□H03□	COG (EIA)	250Vdc	82pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E101J2□□H03□	COG (EIA)	250Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E121J2□□H03□	COG (EIA)	250Vdc	120pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E151J2□□H03□	COG (EIA)	250Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E181J2□□H03□	COG (EIA)	250Vdc	180pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E221J2□□H03□	COG (EIA)	250Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E271J2□□H03□	COG (EIA)	250Vdc	270pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E331J2□□H03□	COG (EIA)	250Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E391J2□□H03□	COG (EIA)	250Vdc	390pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E471J2□□H03□	COG (EIA)	250Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E561J2□□H03□	COG (EIA)	250Vdc	560pF±5%	5.5×4.0	3.15	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C2E681J2□□H03□	COG (EIA)	250Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E821J2□□H03□	COG (EIA)	250Vdc	820pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E102J2□□H03□	COG (EIA)	250Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E122J2□□H03□	COG (EIA)	250Vdc	1200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E152J2□□H03□	COG (EIA)	250Vdc	1500pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E182J2□□H03□	COG (EIA)	250Vdc	1800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E222J2□□H03□	COG (EIA)	250Vdc	2200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E272J2□□H03□	COG (EIA)	250Vdc	2700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E332J2□□H03□	COG (EIA)	250Vdc	3300pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E392J2□□H03□	COG (EIA)	250Vdc	3900pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E472J2□□H03□	COG (EIA)	250Vdc	4700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E562J2□□H03□	COG (EIA)	250Vdc	5600pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E682J2□□H03□	COG (EIA)	250Vdc	6800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E822J2□□H03□	COG (EIA)	250Vdc	8200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E103J2□□H03□	COG (EIA)	250Vdc	10000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E123J2□□H03□	COG (EIA)	250Vdc	12000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2E153J2□□H03□	COG (EIA)	250Vdc	15000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J100J2□□H03□	COG (EIA)	630Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J120J2□□H03□	COG (EIA)	630Vdc	12pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J150J2□□H03□	COG (EIA)	630Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J180J2□□H03□	COG (EIA)	630Vdc	18pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J220J2□□H03□	COG (EIA)	630Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J270J2□□H03□	COG (EIA)	630Vdc	27pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J330J2□□H03□	COG (EIA)	630Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J390J2□□H03□	COG (EIA)	630Vdc	39pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J470J2□□H03□	COG (EIA)	630Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J560J2□□H03□	COG (EIA)	630Vdc	56pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J680J2□□H03□	COG (EIA)	630Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J820J2□□H03□	COG (EIA)	630Vdc	82pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J101J2□□H03□	COG (EIA)	630Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J121J2□□H03□	COG (EIA)	630Vdc	120pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J151J2□□H03□	COG (EIA)	630Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J181J2□□H03□	COG (EIA)	630Vdc	180pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J221J2□□H03□	COG (EIA)	630Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J271J2□□H03□	COG (EIA)	630Vdc	270pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J331J2□□H03□	COG (EIA)	630Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J391J2□□H03□	COG (EIA)	630Vdc	390pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J471J2□□H03□	COG (EIA)	630Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J561J2□□H03□	COG (EIA)	630Vdc	560pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J681J2□□H03□	COG (EIA)	630Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J821J2□□H03□	COG (EIA)	630Vdc	820pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J102J2□□H03□	COG (EIA)	630Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J122J2□□H03□	COG (EIA)	630Vdc	1200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J152J2□□H03□	COG (EIA)	630Vdc	1500pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J182J2□□H03□	COG (EIA)	630Vdc	1800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J222J2□□H03□	COG (EIA)	630Vdc	2200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J272J2□□H03□	COG (EIA)	630Vdc	2700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C2J332J2□□H03□	COG (EIA)	630Vdc	3300pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A100J2□□H03□	COG (EIA)	1000Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A120J2□□H03□	COG (EIA)	1000Vdc	12pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A150J2□□H03□	COG (EIA)	1000Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A180J2□□H03□	COG (EIA)	1000Vdc	18pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A220J2□□H03□	COG (EIA)	1000Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A270J2□□H03□	COG (EIA)	1000Vdc	27pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A330J2□□H03□	COG (EIA)	1000Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A390J2□□H03□	COG (EIA)	1000Vdc	39pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A470J2□□H03□	COG (EIA)	1000Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE5C3A560J2□□H03□	COG (EIA)	1000Vdc	56pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A680J2□□H03□	COG (EIA)	1000Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A820J2□□H03□	COG (EIA)	1000Vdc	82pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A101J2□□H03□	COG (EIA)	1000Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A121J2□□H03□	COG (EIA)	1000Vdc	120pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A151J2□□H03□	COG (EIA)	1000Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A181J2□□H03□	COG (EIA)	1000Vdc	180pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A221J2□□H03□	COG (EIA)	1000Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A271J2□□H03□	COG (EIA)	1000Vdc	270pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A331J2□□H03□	COG (EIA)	1000Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A391J2□□H03□	COG (EIA)	1000Vdc	390pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A471J2□□H03□	COG (EIA)	1000Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A561J2□□H03□	COG (EIA)	1000Vdc	560pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A681J2□□H03□	COG (EIA)	1000Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A821J2□□H03□	COG (EIA)	1000Vdc	820pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE5C3A102J2□□H03□	COG (EIA)	1000Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2E101J1□□H03□	U2J (EIA)	250Vdc	100pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E151J1□□H03□	U2J (EIA)	250Vdc	150pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E221J1□□H03□	U2J (EIA)	250Vdc	220pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E331J1□□H03□	U2J (EIA)	250Vdc	330pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E471J1□□H03□	U2J (EIA)	250Vdc	470pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E681J1□□H03□	U2J (EIA)	250Vdc	680pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E102J1□□H03□	U2J (EIA)	250Vdc	1000pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E152J1□□H03□	U2J (EIA)	250Vdc	1500pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E222J1□□H03□	U2J (EIA)	250Vdc	2200pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E332J1□□H03□	U2J (EIA)	250Vdc	3300pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E472J1□□H03□	U2J (EIA)	250Vdc	4700pF±5%	4.5×3.5	3.15	5.0	K1	M1
RDE7U2E682J2□□H03□	U2J (EIA)	250Vdc	6800pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2E103J2□□H03□	U2J (EIA)	250Vdc	10000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2E153J2□□H03□	U2J (EIA)	250Vdc	15000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2E223J2□□H03□	U2J (EIA)	250Vdc	22000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2E333J3□□H03□	U2J (EIA)	250Vdc	33000pF±5%	5.5×5.0	4.0	5.0	K1	M1
RDE7U2E473J3□□H03□	U2J (EIA)	250Vdc	47000pF±5%	5.5×5.0	4.0	5.0	K1	M1
RDE7U2J100J2□□H03□	U2J (EIA)	630Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J150J2□□H03□	U2J (EIA)	630Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J220J2□□H03□	U2J (EIA)	630Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J330J2□□H03□	U2J (EIA)	630Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J470J2□□H03□	U2J (EIA)	630Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J680J2□□H03□	U2J (EIA)	630Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J101J2□□H03□	U2J (EIA)	630Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J151J2□□H03□	U2J (EIA)	630Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J221J2□□H03□	U2J (EIA)	630Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J331J2□□H03□	U2J (EIA)	630Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J471J2□□H03□	U2J (EIA)	630Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J681J2□□H03□	U2J (EIA)	630Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J102J2□□H03□	U2J (EIA)	630Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J152J2□□H03□	U2J (EIA)	630Vdc	1500pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J222J2□□H03□	U2J (EIA)	630Vdc	2200pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J332J2□□H03□	U2J (EIA)	630Vdc	3300pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J472J2□□H03□	U2J (EIA)	630Vdc	4700pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U2J682J3□□H03□	U2J (EIA)	630Vdc	6800pF±5%	5.5×5.0	4.0	5.0	K1	M1
RDE7U2J103J3□□H03□	U2J (EIA)	630Vdc	10000pF±5%	5.5×5.0	4.0	5.0	K1	M1
RDE7U2J153J4□□H03□	U2J (EIA)	630Vdc	15000pF±5%	7.5×5.5	4.0	5.0	K1	M1
RDE7U2J223J4□□H03□	U2J (EIA)	630Vdc	22000pF±5%	7.5×5.5	4.0	5.0	K1	M1
RDE7U2J333J5□□H03□	U2J (EIA)	630Vdc	33000pF±5%	7.5×8.0	4.0	5.0	B1	E1
RDE7U2J473J5□□H03□	U2J (EIA)	630Vdc	47000pF±5%	7.5×8.0	4.0	5.0	B1	E1
RDE7U2J943JU□□H03□	U2J (EIA)	630Vdc	94000pF±5%	7.7×13.0	4.0	5.0	B1	E1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDE7U3A100J2□□H03□	U2J (EIA)	1000Vdc	10pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A150J2□□H03□	U2J (EIA)	1000Vdc	15pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A220J2□□H03□	U2J (EIA)	1000Vdc	22pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A330J2□□H03□	U2J (EIA)	1000Vdc	33pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A470J2□□H03□	U2J (EIA)	1000Vdc	47pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A680J2□□H03□	U2J (EIA)	1000Vdc	68pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A101J2□□H03□	U2J (EIA)	1000Vdc	100pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A151J2□□H03□	U2J (EIA)	1000Vdc	150pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A221J2□□H03□	U2J (EIA)	1000Vdc	220pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A331J2□□H03□	U2J (EIA)	1000Vdc	330pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A471J2□□H03□	U2J (EIA)	1000Vdc	470pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A681J2□□H03□	U2J (EIA)	1000Vdc	680pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A102J2□□H03□	U2J (EIA)	1000Vdc	1000pF±5%	5.5×4.0	3.15	5.0	K1	M1
RDE7U3A152J3□□H03□	U2J (EIA)	1000Vdc	1500pF±5%	5.5×5.0	4.0	5.0	K1	M1
RDE7U3A222J3□□H03□	U2J (EIA)	1000Vdc	2200pF±5%	5.5×5.0	4.0	5.0	K1	M1
RDE7U3A332J4□□H03□	U2J (EIA)	1000Vdc	3300pF±5%	7.5×5.5	4.0	5.0	K1	M1
RDE7U3A472J4□□H03□	U2J (EIA)	1000Vdc	4700pF±5%	7.5×5.5	4.0	5.0	K1	M1
RDE7U3A682J5□□H03□	U2J (EIA)	1000Vdc	6800pF±5%	7.5×8.0	4.0	5.0	B1	E1
RDE7U3A103J5□□H03□	U2J (EIA)	1000Vdc	10000pF±5%	7.5×8.0	4.0	5.0	B1	E1
RDE7U3A203JU□□H03□	U2J (EIA)	1000Vdc	20000pF±5%	7.7×13.0	4.0	5.0	B1	E1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

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## High Dielectric Constant Type, X7R/X7S Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDER71E104K0□□H03□	X7R (EIA)	25Vdc	0.1μF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71E104K0□□H03□	X7R (EIA)	25Vdc	0.1μF±10%	5.0×3.5	2.5	2.5	P1	S1
RDEC71E224K0□□H03□	X7S (EIA)	25Vdc	0.22μF±10%	4.0×3.5	2.5	5.0	K1	M1
RDEC71E224K0□□H03□	X7S (EIA)	25Vdc	0.22μF±10%	5.0×3.5	2.5	2.5	P1	S1
RDEC71E474K0□□H03□	X7S (EIA)	25Vdc	0.47μF±10%	4.0×3.5	2.5	5.0	K1	M1
RDEC71E474K0□□H03□	X7S (EIA)	25Vdc	0.47μF±10%	5.0×3.5	2.5	2.5	P1	S1
RDEC71E105K0□□H03□	X7S (EIA)	25Vdc	1.0μF±10%	4.0×3.5	2.5	5.0	K1	M1
RDEC71E105K0□□H03□	X7S (EIA)	25Vdc	1.0μF±10%	5.0×3.5	2.5	2.5	P1	S1
RDEC71E225K1□□H03□	X7S (EIA)	25Vdc	2.2μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDEC71E225K1□□H03□	X7S (EIA)	25Vdc	2.2μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDEC71E475K2□□H03□	X7S (EIA)	25Vdc	4.7μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDEC71E475K2□□H03□	X7S (EIA)	25Vdc	4.7μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDEC71E106K2□□H03□	X7S (EIA)	25Vdc	10μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDEC71E106K2□□H03□	X7S (EIA)	25Vdc	10μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDEC71E226K3□□H03□	X7S (EIA)	25Vdc	22μF±10%	5.5×5.0	4.0	2.5	P1	S1
RDEC71E226K3□□H03□	X7S (EIA)	25Vdc	22μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDEC71E476MW□□H03□	X7S (EIA)	25Vdc	47μF±20%	5.5×7.5	4.0	5.0	K1	M1
RDER71H221K0□□H03□	X7R (EIA)	50Vdc	220pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H221K0□□H03□	X7R (EIA)	50Vdc	220pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H331K0□□H03□	X7R (EIA)	50Vdc	330pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H331K0□□H03□	X7R (EIA)	50Vdc	330pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H471K0□□H03□	X7R (EIA)	50Vdc	470pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H471K0□□H03□	X7R (EIA)	50Vdc	470pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H681K0□□H03□	X7R (EIA)	50Vdc	680pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H681K0□□H03□	X7R (EIA)	50Vdc	680pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H102K0□□H03□	X7R (EIA)	50Vdc	1000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H102K0□□H03□	X7R (EIA)	50Vdc	1000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H152K0□□H03□	X7R (EIA)	50Vdc	1500pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H152K0□□H03□	X7R (EIA)	50Vdc	1500pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H222K0□□H03□	X7R (EIA)	50Vdc	2200pF±10%	4.0×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDER71H222K0□□H03□	X7R (EIA)	50Vdc	2200pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H332K0□□H03□	X7R (EIA)	50Vdc	3300pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H332K0□□H03□	X7R (EIA)	50Vdc	3300pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H472K0□□H03□	X7R (EIA)	50Vdc	4700pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H472K0□□H03□	X7R (EIA)	50Vdc	4700pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H682K0□□H03□	X7R (EIA)	50Vdc	6800pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H682K0□□H03□	X7R (EIA)	50Vdc	6800pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H103K0□□H03□	X7R (EIA)	50Vdc	10000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H103K0□□H03□	X7R (EIA)	50Vdc	10000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H153K0□□H03□	X7R (EIA)	50Vdc	15000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H153K0□□H03□	X7R (EIA)	50Vdc	15000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H223K0□□H03□	X7R (EIA)	50Vdc	22000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H223K0□□H03□	X7R (EIA)	50Vdc	22000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H333K0□□H03□	X7R (EIA)	50Vdc	33000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H333K0□□H03□	X7R (EIA)	50Vdc	33000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H473K0□□H03□	X7R (EIA)	50Vdc	47000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H473K0□□H03□	X7R (EIA)	50Vdc	47000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H683K0□□H03□	X7R (EIA)	50Vdc	68000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H683K0□□H03□	X7R (EIA)	50Vdc	68000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H104K0□□H03□	X7R (EIA)	50Vdc	0.1μF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER71H104K0□□H03□	X7R (EIA)	50Vdc	0.1μF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER71H154K1□□H03□	X7R (EIA)	50Vdc	0.15μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER71H154K1□□H03□	X7R (EIA)	50Vdc	0.15μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER71H224K1□□H03□	X7R (EIA)	50Vdc	0.22μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER71H224K1□□H03□	X7R (EIA)	50Vdc	0.22μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER71H334K1□□H03□	X7R (EIA)	50Vdc	0.33μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER71H334K1□□H03□	X7R (EIA)	50Vdc	0.33μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER71H474K1□□H03□	X7R (EIA)	50Vdc	0.47μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER71H474K1□□H03□	X7R (EIA)	50Vdc	0.47μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER71H684K2□□H03□	X7R (EIA)	50Vdc	0.68μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER71H684K2□□H03□	X7R (EIA)	50Vdc	0.68μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDEC71H105K1□□H03□	X7S (EIA)	50Vdc	1.0μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDEC71H105K1□□H03□	X7S (EIA)	50Vdc	1.0μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER71H105K2□□H03□	X7R (EIA)	50Vdc	1.0μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER71H105K2□□H03□	X7R (EIA)	50Vdc	1.0μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER71H155K2□□H03□	X7R (EIA)	50Vdc	1.5μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER71H155K2□□H03□	X7R (EIA)	50Vdc	1.5μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER71H225K2□□H03□	X7R (EIA)	50Vdc	2.2μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER71H225K2□□H03□	X7R (EIA)	50Vdc	2.2μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER71H335K3□□H03□	X7R (EIA)	50Vdc	3.3μF±10%	5.5×5.0	4.0	2.5	P1	S1
RDER71H335K3□□H03□	X7R (EIA)	50Vdc	3.3μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDEC71H475K2□□H03□	X7S (EIA)	50Vdc	4.7μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDEC71H475K2□□H03□	X7S (EIA)	50Vdc	4.7μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDEC71H106K3□□H03□	X7S (EIA)	50Vdc	10μF±10%	5.5×5.0	4.0	2.5	P1	S1
RDEC71H106K3□□H03□	X7S (EIA)	50Vdc	10μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDEC71H226MW□□H03□	X7S (EIA)	50Vdc	22μF±20%	5.5×7.5	4.0	5.0	K1	M1
RDER72A221K0□□H03□	X7R (EIA)	100Vdc	220pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A221K0□□H03□	X7R (EIA)	100Vdc	220pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A331K0□□H03□	X7R (EIA)	100Vdc	330pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A331K0□□H03□	X7R (EIA)	100Vdc	330pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A471K0□□H03□	X7R (EIA)	100Vdc	470pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A471K0□□H03□	X7R (EIA)	100Vdc	470pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A681K0□□H03□	X7R (EIA)	100Vdc	680pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A681K0□□H03□	X7R (EIA)	100Vdc	680pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A102K0□□H03□	X7R (EIA)	100Vdc	1000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A102K0□□H03□	X7R (EIA)	100Vdc	1000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A152K0□□H03□	X7R (EIA)	100Vdc	1500pF±10%	4.0×3.5	2.5	5.0	K1	M1

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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDER72A152K0□□H03□	X7R (EIA)	100Vdc	1500pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A222K0□□H03□	X7R (EIA)	100Vdc	2200pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A222K0□□H03□	X7R (EIA)	100Vdc	2200pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A332K0□□H03□	X7R (EIA)	100Vdc	3300pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A332K0□□H03□	X7R (EIA)	100Vdc	3300pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A472K0□□H03□	X7R (EIA)	100Vdc	4700pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A472K0□□H03□	X7R (EIA)	100Vdc	4700pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A682K0□□H03□	X7R (EIA)	100Vdc	6800pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A682K0□□H03□	X7R (EIA)	100Vdc	6800pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A103K0□□H03□	X7R (EIA)	100Vdc	10000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A103K0□□H03□	X7R (EIA)	100Vdc	10000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A153K0□□H03□	X7R (EIA)	100Vdc	15000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A153K0□□H03□	X7R (EIA)	100Vdc	15000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A223K0□□H03□	X7R (EIA)	100Vdc	22000pF±10%	4.0×3.5	2.5	5.0	K1	M1
RDER72A223K0□□H03□	X7R (EIA)	100Vdc	22000pF±10%	5.0×3.5	2.5	2.5	P1	S1
RDER72A333K1□□H03□	X7R (EIA)	100Vdc	33000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A333K1□□H03□	X7R (EIA)	100Vdc	33000pF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A473K1□□H03□	X7R (EIA)	100Vdc	47000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A473K1□□H03□	X7R (EIA)	100Vdc	47000pF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A683K1□□H03□	X7R (EIA)	100Vdc	68000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A683K1□□H03□	X7R (EIA)	100Vdc	68000pF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A104K1□□H03□	X7R (EIA)	100Vdc	0.1μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A104K1□□H03□	X7R (EIA)	100Vdc	0.1μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A154K2□□H03□	X7R (EIA)	100Vdc	0.15μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER72A154K2□□H03□	X7R (EIA)	100Vdc	0.15μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72A224K1□□H03□	X7R (EIA)	100Vdc	0.22μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A224K1□□H03□	X7R (EIA)	100Vdc	0.22μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A334K1□□H03□	X7R (EIA)	100Vdc	0.33μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A334K1□□H03□	X7R (EIA)	100Vdc	0.33μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A474K1□□H03□	X7R (EIA)	100Vdc	0.47μF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72A474K1□□H03□	X7R (EIA)	100Vdc	0.47μF±10%	5.0×3.5	3.15	2.5	P1	S1
RDER72A684K2□□H03□	X7R (EIA)	100Vdc	0.68μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER72A684K2□□H03□	X7R (EIA)	100Vdc	0.68μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72A105K2□□H03□	X7R (EIA)	100Vdc	1.0μF±10%	5.5×4.0	3.15	2.5	P1	S1
RDER72A105K2□□H03□	X7R (EIA)	100Vdc	1.0μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDEC72A155K3□□H03□	X7S (EIA)	100Vdc	1.5μF±10%	5.5×5.0	4.0	2.5	P1	S1
RDEC72A155K3□□H03□	X7S (EIA)	100Vdc	1.5μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDEC72A225K3□□H03□	X7S (EIA)	100Vdc	2.2μF±10%	5.5×5.0	4.0	2.5	P1	S1
RDEC72A225K3□□H03□	X7S (EIA)	100Vdc	2.2μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDEC72A475MW□□H03□	X7S (EIA)	100Vdc	4.7μF±20%	5.5×7.5	4.0	5.0	K1	M1
RDER72E102K1□□H03□	X7R (EIA)	250Vdc	1000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E152K1□□H03□	X7R (EIA)	250Vdc	1500pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E222K1□□H03□	X7R (EIA)	250Vdc	2200pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E332K1□□H03□	X7R (EIA)	250Vdc	3300pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E472K1□□H03□	X7R (EIA)	250Vdc	4700pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E682K1□□H03□	X7R (EIA)	250Vdc	6800pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E103K1□□H03□	X7R (EIA)	250Vdc	10000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E153K1□□H03□	X7R (EIA)	250Vdc	15000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E223K1□□H03□	X7R (EIA)	250Vdc	22000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72E333K2□□H03□	X7R (EIA)	250Vdc	33000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72E473K2□□H03□	X7R (EIA)	250Vdc	47000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72E683K2□□H03□	X7R (EIA)	250Vdc	68000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72E104K2□□H03□	X7R (EIA)	250Vdc	0.10μF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72E154K3□□H03□	X7R (EIA)	250Vdc	0.15μF±10%	5.5×5.0	3.15	5.0	K1	M1
RDER72E224K3□□H03□	X7R (EIA)	250Vdc	0.22μF±10%	5.5×5.0	3.15	5.0	K1	M1
RDER72E334K4□□H03□	X7R (EIA)	250Vdc	0.33μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER72E474K4□□H03□	X7R (EIA)	250Vdc	0.47μF±10%	7.5×5.5	4.0	5.0	K1	M1

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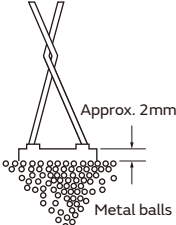


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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDER72E684K5□□H03□	X7R (EIA)	250Vdc	0.68μF±10%	7.5×7.5	4.0	5.0	B1	E1
RDER72E105K5□□H03□	X7R (EIA)	250Vdc	1.0μF±10%	7.5×7.5	4.0	5.0	B1	E1
RDER72E225MU□□H03□	X7R (EIA)	250Vdc	2.2μF±20%	7.7×12.5	4.0	5.0	B1	E1
RDER72H102K1□□H03□	X7R (EIA)	500Vdc	1000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H152K1□□H03□	X7R (EIA)	500Vdc	1500pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H222K1□□H03□	X7R (EIA)	500Vdc	2200pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H332K1□□H03□	X7R (EIA)	500Vdc	3300pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H472K1□□H03□	X7R (EIA)	500Vdc	4700pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H682K1□□H03□	X7R (EIA)	500Vdc	6800pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H103K1□□H03□	X7R (EIA)	500Vdc	10000pF±10%	4.5×3.5	3.15	5.0	K1	M1
RDER72H153K2□□H03□	X7R (EIA)	500Vdc	15000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72H223K2□□H03□	X7R (EIA)	500Vdc	22000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72H333K2□□H03□	X7R (EIA)	500Vdc	33000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72H473K2□□H03□	X7R (EIA)	500Vdc	47000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72H683K3□□H03□	X7R (EIA)	500Vdc	68000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDER72H104K3□□H03□	X7R (EIA)	500Vdc	0.1μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDER72H154K4□□H03□	X7R (EIA)	500Vdc	0.15μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER72H224K4□□H03□	X7R (EIA)	500Vdc	0.22μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER72H334K5□□H03□	X7R (EIA)	500Vdc	0.33μF±10%	7.5×7.5	4.0	5.0	B1	E1
RDER72H474K5□□H03□	X7R (EIA)	500Vdc	0.47μF±10%	7.5×7.5	4.0	5.0	B1	E1
RDER72H684MU□□H03□	X7R (EIA)	500Vdc	0.68μF±20%	7.7×12.5	4.0	5.0	B1	E1
RDER72H105MU□□H03□	X7R (EIA)	500Vdc	1.0μF±20%	7.7×12.5	4.0	5.0	B1	E1
RDER72J102K2□□H03□	X7R (EIA)	630Vdc	1000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J152K2□□H03□	X7R (EIA)	630Vdc	1500pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J222K2□□H03□	X7R (EIA)	630Vdc	2200pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J332K2□□H03□	X7R (EIA)	630Vdc	3300pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J472K2□□H03□	X7R (EIA)	630Vdc	4700pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J682K2□□H03□	X7R (EIA)	630Vdc	6800pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J103K2□□H03□	X7R (EIA)	630Vdc	10000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J153K2□□H03□	X7R (EIA)	630Vdc	15000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J223K2□□H03□	X7R (EIA)	630Vdc	22000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER72J333K3□□H03□	X7R (EIA)	630Vdc	33000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDER72J473K3□□H03□	X7R (EIA)	630Vdc	47000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDER72J683K4□□H03□	X7R (EIA)	630Vdc	68000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER72J104K4□□H03□	X7R (EIA)	630Vdc	0.10μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER72J154K5□□H03□	X7R (EIA)	630Vdc	0.15μF±10%	7.5×8.0	4.0	5.0	B1	E1
RDER72J224K5□□H03□	X7R (EIA)	630Vdc	0.22μF±10%	7.5×8.0	4.0	5.0	B1	E1
RDER72J474MU□□H03□	X7R (EIA)	630Vdc	0.47μF±20%	7.7×13.0	4.0	5.0	B1	E1
RDER73A471K2□□H03□	X7R (EIA)	1000Vdc	470pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A681K2□□H03□	X7R (EIA)	1000Vdc	680pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A102K2□□H03□	X7R (EIA)	1000Vdc	1000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A152K2□□H03□	X7R (EIA)	1000Vdc	1500pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A222K2□□H03□	X7R (EIA)	1000Vdc	2200pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A332K2□□H03□	X7R (EIA)	1000Vdc	3300pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A472K2□□H03□	X7R (EIA)	1000Vdc	4700pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A682K2□□H03□	X7R (EIA)	1000Vdc	6800pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A103K2□□H03□	X7R (EIA)	1000Vdc	10000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDER73A153K3□□H03□	X7R (EIA)	1000Vdc	15000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDER73A223K3□□H03□	X7R (EIA)	1000Vdc	22000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDER73A333K4□□H03□	X7R (EIA)	1000Vdc	33000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER73A473K4□□H03□	X7R (EIA)	1000Vdc	47000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RDER73A683K5□□H03□	X7R (EIA)	1000Vdc	68000pF±10%	7.5×8.0	4.0	5.0	B1	E1
RDER73A104K5□□H03□	X7R (EIA)	1000Vdc	0.10μF±10%	7.5×8.0	4.0	5.0	B1	E1
RDER73A224MU□□H03□	X7R (EIA)	1000Vdc	0.22μF±20%	7.7×13.0	4.0	5.0	B1	E1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)

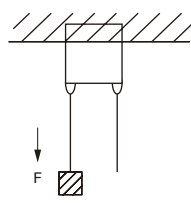
## Specifications and Test Methods

No.	Item	Specifications		Test Method																					
		Temperature Compensating Type	High Dielectric Constant Type																						
1	Operating Temperature Range	-55 to +125°C	Char. X7R, X7S: -55 to +125°C	-																					
2	Appearance	No defects or abnormalities		Visual inspection																					
3	Dimension and Marking	See previous pages		Visual inspection, Vernier Caliper																					
4	Dielectric Strength	Between Terminals	No defects or abnormalities	<p>The capacitors should not be damaged when test voltages of Table are applied between the terminals for 1 to 5s. (Charge/Discharge current <math>\leq</math> 50mA)</p> <table border="1"> <thead> <tr> <th></th> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Temperature Compensating Type</td> <td>DC50V, DC100V</td> <td>300% of the rated voltage</td> </tr> <tr> <td>DC250V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC630V</td> <td>150% of the rated voltage</td> </tr> <tr> <td rowspan="3">High Dielectric Constant Type</td> <td>DC1kV</td> <td>130% of the rated voltage</td> </tr> <tr> <td>DC25V, DC50V, DC100V</td> <td>250% of the rated voltage</td> </tr> <tr> <td>DC250V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC500V, DC630V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC1kV</td> <td>120% of the rated voltage</td> </tr> </tbody> </table>		Rated Voltage	Test Voltage	Temperature Compensating Type	DC50V, DC100V	300% of the rated voltage	DC250V	200% of the rated voltage	DC630V	150% of the rated voltage	High Dielectric Constant Type	DC1kV	130% of the rated voltage	DC25V, DC50V, DC100V	250% of the rated voltage	DC250V	200% of the rated voltage	DC500V, DC630V	150% of the rated voltage	DC1kV	120% of the rated voltage
			Rated Voltage	Test Voltage																					
Temperature Compensating Type	DC50V, DC100V	300% of the rated voltage																							
	DC250V	200% of the rated voltage																							
	DC630V	150% of the rated voltage																							
High Dielectric Constant Type	DC1kV	130% of the rated voltage																							
	DC25V, DC50V, DC100V	250% of the rated voltage																							
	DC250V	200% of the rated voltage																							
DC500V, DC630V	150% of the rated voltage																								
DC1kV	120% of the rated voltage																								
Body Insulation	No defects or abnormalities	<p>The capacitor is placed in a container with metal balls of 1mm diameter so that each terminal, short-circuited, is kept approximately 2mm from the balls as shown in the figure, for 1 to 5s between capacitor terminals and metal balls. (Charge/Discharge current <math>\leq</math> 50mA)</p>  <table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td>DC25V, DC50V, DC100V</td> <td>250% of the rated voltage</td> </tr> <tr> <td>DC250V, DC500V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC630V, DC1kV</td> <td>DC1300V</td> </tr> </tbody> </table>	Rated Voltage	Test Voltage	DC25V, DC50V, DC100V	250% of the rated voltage	DC250V, DC500V	200% of the rated voltage	DC630V, DC1kV	DC1300V															
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5	Insulation Resistance	Between Terminals	<table border="1"> <thead> <tr> <th>Temperature Compensating Type</th> <th>High Dielectric Constant Type</th> </tr> </thead> <tbody> <tr> <td>More than 10000M or 500M<math>\Omega</math> <math>\cdot</math> <math>\mu</math>F (Whichever is smaller)</td> <td>                     Rated voltage:                      DC25V, DC50V, DC100V                      More than 10000M or 500M<math>\Omega</math> <math>\cdot</math> <math>\mu</math>F (Whichever is smaller)                      Rated voltage:                      DC250V, DC500V, DC630V, DC1kV                      More than 10000M or 100M<math>\Omega</math> <math>\cdot</math> <math>\mu</math>F (Whichever is smaller)                 </td> </tr> </tbody> </table>	Temperature Compensating Type	High Dielectric Constant Type	More than 10000M or 500M $\Omega$ $\cdot$ $\mu$ F (Whichever is smaller)	Rated voltage: DC25V, DC50V, DC100V More than 10000M or 500M $\Omega$ $\cdot$ $\mu$ F (Whichever is smaller) Rated voltage: DC250V, DC500V, DC630V, DC1kV More than 10000M or 100M $\Omega$ $\cdot$ $\mu$ F (Whichever is smaller)	<p>The insulation resistance should be measured with a DC voltage not exceeding the rated voltage (DC500V in case of rated voltage: DC500V, DC630V, DC1kV) at normal temperature and humidity and within 2min of charging. (Charge/Discharge current <math>\leq</math> 50mA)</p>																	
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6	Capacitance	Within the specified tolerance		The capacitance, Q/D.F. should be measured at 25°C at the frequency and voltage shown in the table.																					
7	Q/Dissipation Factor (D.F.)	30pF min.: $Q \geq 1000$ 30pF max.: $Q \geq 400+20C$ C: Nominal capacitance (pF)	Char. X7R: 0.025 max. Char. X7S: 0.125 max.	<table border="1"> <thead> <tr> <th>Nominal Cap.</th> <th>Frequency</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td><math>C \leq 1000\text{pF}</math></td> <td><math>1 \pm 0.1\text{MHz}</math></td> <td>AC0.5 to 5V (r.m.s.)</td> </tr> <tr> <td><math>10\mu\text{F} \geq C &gt; 1000\text{pF}</math></td> <td><math>1 \pm 0.1\text{kHz}</math></td> <td>AC1<math>\pm</math>0.2V (r.m.s.)</td> </tr> <tr> <td><math>C &gt; 10\mu\text{F}</math></td> <td><math>120 \pm 24\text{Hz}</math></td> <td>AC0.5<math>\pm</math>0.1V (r.m.s.)</td> </tr> </tbody> </table>	Nominal Cap.	Frequency	Voltage	$C \leq 1000\text{pF}$	$1 \pm 0.1\text{MHz}$	AC0.5 to 5V (r.m.s.)	$10\mu\text{F} \geq C > 1000\text{pF}$	$1 \pm 0.1\text{kHz}$	AC1 $\pm$ 0.2V (r.m.s.)	$C > 10\mu\text{F}$	$120 \pm 24\text{Hz}$	AC0.5 $\pm$ 0.1V (r.m.s.)									
Nominal Cap.	Frequency	Voltage																							
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## Specifications and Test Methods

Continued from the preceding page. ↘

No.	Item	Specifications		Test Method																											
		Temperature Compensating Type	High Dielectric Constant Type																												
8	Capacitance Temperature Characteristics	<table border="1"> <thead> <tr> <th>Char.</th> <th>Temperature Coefficient</th> </tr> </thead> <tbody> <tr> <td rowspan="2">COG</td> <td>25 to 125°C : 0±30ppm/°C</td> </tr> <tr> <td>-55 to 25°C : 0+30/-72ppm/°C</td> </tr> <tr> <td rowspan="3">U2J</td> <td>25 to 125°C : -750±120ppm/°C</td> </tr> <tr> <td>-55 to 25°C : -750±120/-347ppm/°C</td> </tr> <tr> <td></td> </tr> </tbody> </table>	Char.	Temperature Coefficient	COG	25 to 125°C : 0±30ppm/°C	-55 to 25°C : 0+30/-72ppm/°C	U2J	25 to 125°C : -750±120ppm/°C	-55 to 25°C : -750±120/-347ppm/°C		<table border="1"> <thead> <tr> <th>Char.</th> <th>Capacitance Change</th> </tr> </thead> <tbody> <tr> <td>X7R</td> <td>Within ± 15%</td> </tr> <tr> <td>X7S</td> <td>Within ± 22%</td> </tr> </tbody> </table>	Char.	Capacitance Change	X7R	Within ± 15%	X7S	Within ± 22%	<p>The capacitance change should be measured after 5 min at each specified temperature stage. The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55 to +125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25±2</td> </tr> <tr> <td>2</td> <td>-55±3</td> </tr> <tr> <td>3</td> <td>25±2</td> </tr> <tr> <td>4</td> <td>125±3</td> </tr> <tr> <td>5</td> <td>25±2</td> </tr> </tbody> </table> <p>• Pretreatment (for high dielectric constant type)                      Perform a heat treatment at 150+0/-10°C for 1h, and then let sit at room temperature for 24±2h.</p>	Step	Temperature (°C)	1	25±2	2	-55±3	3	25±2	4	125±3	5	25±2
		Char.	Temperature Coefficient																												
COG	25 to 125°C : 0±30ppm/°C																														
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2	-55±3																														
3	25±2																														
4	125±3																														
5	25±2																														
9	Terminal Strength	Termination not to be broken or loosened		<p>As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1s.</p> 																											
	Bending Strength	Termination not to be broken or loosened		<p>Each lead wire should be subjected to a force of 2.5N and then bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3s.</p>																											
10	Vibration Resistance	Appearance	No defects or abnormalities		<p>The capacitor should be firmly soldered to the supporting lead wire and vibrated at a frequency range of 10 to 55Hz, 1.5mm in total amplitude, with about a 1 minute rate of vibration change from 10 to 55Hz and back to 10Hz. Apply for a total of 6h, 2h each in 3 mutually perpendicular directions.</p>																										
		Capacitance	Within the specified tolerance																												
		Q/D.F.	30pF min.: $Q \geq 1000$ 30pF max.: $Q \geq 400+20C$ C: Nominal capacitance (pF)	Char. X7R: 0.025 max. Char. X7S: 0.125 max.																											
11	Solderability of Leads	Lead wire should be soldered with uniform coating on the axial direction over 3/4 of the circumferential direction.		<p>The terminal of a capacitor is dipped into a 25% ethanol (JIS-K-8101) solution of rosin (JIS-K-5902) and then into molten solder for 2±0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body.                      Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>																											
12 , 1	Resistance to Soldering Heat (Non-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.		<p>The lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 10±1s.                      Pre-treatment                      Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. (For Char. X7R, X7S)                      Post-treatment                      Capacitor should be stored for 24±2h at room condition*.</p>																											
	Appearance	No defects or abnormalities																													
	Capacitance Change	Within ±2.5% or ±0.25pF (Whichever is larger)	Char. X7R: Within ±7.5% Char. X7S: Within ±10%																												
	Dielectric Strength (Between Terminals)	No defects																													

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

Continued on the following page. ↗

## Specifications and Test Methods

Continued from the preceding page. ↘

No.	Item	Specifications		Test Method																
		Temperature Compensating Type	High Dielectric Constant Type																	
12 2	<b>Resistance to Soldering Heat (On-Preheat)</b>	The measured and observed characteristics should satisfy the specifications in the following table.		First the capacitor should be stored at 120+0/-5°C for 60+0/-5s. Then, the lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 7.5+0/-1s. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. (For Char. X7R, X7S) Post-treatment Capacitor should be stored for 24±2h at room condition*.																
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	Capacitance Change	Within ±2.5% or ±0.25pF (Whichever is larger)	Char. X7R: Within ±7.5% Char. X7S: Within ±10%																	
	Dielectric Strength (Between Terminals)	No defects																		
12 3	<b>Resistance to Soldering Heat (Soldering Iron Method)</b>	The measured and observed characteristics should satisfy the specifications in the following table.		Test condition Temperature of iron-tip: 350±10°C Soldering time: 3.5±0.5s. Soldering position Straight Lead: 1.5 to 2.0mm from the root of terminal. Crimp Lead: 1.5 to 2.0mm from the end of lead bend. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. (For Char. X7R, X7S) Post-treatment Capacitor should be stored for 24±2h at room condition*.																
	Appearance	No defects or abnormalities																		
	Capacitance Change	Within ±2.5% or ±0.25pF (Whichever is larger)	Char. X7R: Within ±7.5% Char. X7S: Within ±10%																	
	Dielectric Strength (Between Terminals)	No defects																		
13	Temperature Cycle	Appearance	No defects or abnormalities		The capacitor should be subjected to 5 temperature cycles. Set for 24±2h at room temperature, then measure. <table border="1" style="margin: 10px 0;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Min. Operating Temp. ±3</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room Temp.</td> <td>3 max.</td> </tr> <tr> <td>3</td> <td>Max. Operating Temp. ±3</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room Temp.</td> <td>3 max.</td> </tr> </tbody> </table> • Pretreatment (for high dielectric constant type) Perform a heat treatment at 150+0/-10°C for 1h, and then let sit at room temperature for 24±2h.	Step	Temperature (°C)	Time (min)	1	Min. Operating Temp. ±3	30±3	2	Room Temp.	3 max.	3	Max. Operating Temp. ±3	30±3	4	Room Temp.	3 max.
		Step	Temperature (°C)	Time (min)																
		1	Min. Operating Temp. ±3	30±3																
		2	Room Temp.	3 max.																
		3	Max. Operating Temp. ±3	30±3																
4	Room Temp.	3 max.																		
Capacitance Change	Within ±5% or ±0.5pF (whichever is larger)	Char. X7R, X7S: Within ±12.5%																		
Q/D.F.	30pF min.: Q ≥ 350 10pF to 30pF: Q ≥ 275+5C/2 10pF max.: Q ≥ 200+10C C: Nominal capacitance (pF)	Char. X7R: 0.05 max. Char. X7S: 0.2 max.																		
Insulation Resistance	1000MΩ, 50MΩ • μF min. (whichever is smaller)																			
Dielectric Strength (Between Terminals)	No defects or abnormalities																			
14	Humidity (Steady State)	Appearance	No defects or abnormalities		Set the capacitor at 40±2°C and relative humidity of 90 to 95% for 500 <sup>±2</sup> <sub>0</sub> h. Remove and set for 24±2h at room temperature, then measure. • Pretreatment (for high dielectric constant type) Perform a heat treatment at 150+0/-10°C for 1h, and then let sit at room temperature for 24±2h.															
		Capacitance Change	Within ±5% or ±0.5pF (whichever is larger)	Char. X7R, X7S: Within ±12.5%																
		Q/D.F.	30pF min.: Q ≥ 350 10pF to 30pF: Q ≥ 275+5C/2 10pF max.: Q ≥ 200+10C C: Nominal capacitance (pF)	Char. X7R: 0.05 max. Char. X7S: 0.2 max.																
		Insulation Resistance	1000MΩ, 50MΩ • μF min. (whichever is smaller)																	
15	Humidity Load	Appearance	No defects or abnormalities		Apply the rated voltage for 500 <sup>±2</sup> <sub>0</sub> h at 40±2°C and in 90 to 95% humidity. Remove and set for 24±2h at room temperature, then measure. (Charge/Discharge current ≤ 50mA) • Pretreatment (for high dielectric constant type) Perform a heat treatment at 150+0/-10°C for 1h, and then let sit at room temperature for 24±2h.															
		Capacitance Change	Within ±5% or ±0.5pF (whichever is larger)	Char. X7R, X7S: Within ±12.5%																
		Q/D.F.	30pF min.: Q ≥ 200 30pF max.: Q ≥ 100+10C/3 C: Nominal capacitance (pF)	Char. X7R: 0.05 max. Char. X7S: 0.2 max.																
		Insulation Resistance	500MΩ or 25MΩ • μF min. (whichever is smaller)																	

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

Continued on the following page. ↗

## Specifications and Test Methods

Continued from the preceding page. ↘

No.	Item	Specifications		Test Method																
		Temperature Compensating Type	High Dielectric Constant Type																	
16	High Temperature Load	Appearance	No defects or abnormalities		Apply voltage in Table for $1000 \pm 48$ h at the maximum operating temperature $\pm 3^\circ\text{C}$ . Remove and set for $24 \pm 2$ h at room temperature, then measure. (Charge/Discharge current $\leq 50\text{mA}$ ) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th></th> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Temperature Compensating Type</td> <td>DC50V, DC100V, DC250V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC630V, DC1kV</td> <td>120% of the rated voltage</td> </tr> <tr> <td rowspan="3">High Dielectric Constant Type</td> <td>DC25V, DC50V, DC100V, DC250V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC500V, DC630V</td> <td>120% of the rated voltage</td> </tr> <tr> <td>DC1kV</td> <td>110% of the rated voltage</td> </tr> </tbody> </table>		Rated Voltage	Test Voltage	Temperature Compensating Type	DC50V, DC100V, DC250V	150% of the rated voltage	DC630V, DC1kV	120% of the rated voltage	High Dielectric Constant Type	DC25V, DC50V, DC100V, DC250V	150% of the rated voltage	DC500V, DC630V	120% of the rated voltage	DC1kV	110% of the rated voltage
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	DC1kV	110% of the rated voltage																		
Capacitance Change	Within $\pm 3\%$ or $\pm 0.3\text{pF}$ (whichever is larger)	Char. X7R, X7S: Within $\pm 12.5\%$																		
Q/D.F.	30pF min.: $Q \geq 350$ 10pF to 30pF: $Q \geq 275 + 5C/2$ 10pF max.: $Q \geq 200 + 10C$ C: Nominal capacitance (pF)	Char. X7R: 0.04 max. Char. X7S: 0.2 max.																		
Insulation Resistance	1000M $\Omega$ , 50M $\Omega \cdot \mu\text{F}$ min. (whichever is smaller)			<ul style="list-style-type: none"> <li>• Pretreatment (for high dielectric constant type)</li> </ul> Apply test voltage for 1h at test temperature. Remove and set for $24 \pm 2$ h at room temperature.																
17	Solvent Resistance	Appearance	No defects or abnormalities		The capacitor should be fully immersed, unagitated, in reagent at 20 to $25^\circ\text{C}$ for $30 \pm 5$ s and then removed gently. Marking on the surface of the capacitor should immediately be visually examined. Reagent: <ul style="list-style-type: none"> <li>• Isopropyl alcohol</li> </ul>															
		Marking	Legible																	

# Leaded MLCC for General Purpose

## RDE Series Large Capacitance and High Allowable Ripple Current (DC250V-DC630V)

### Features

- Higher capacitance with DC-Bias; approximately 40% higher than X7R under loaded rated voltage.
- Meet LF (Lead Free) and HF (Halogen Free)
- Allowable higher ripple current
- Reduces acoustic noise  
 Approximately 15dB reduction in comparison to leaded X7R characteristics parts.  
 Approximately 30dB reduction in comparison to SMD X7R characteristics part because the contact area is smaller than a SMD.

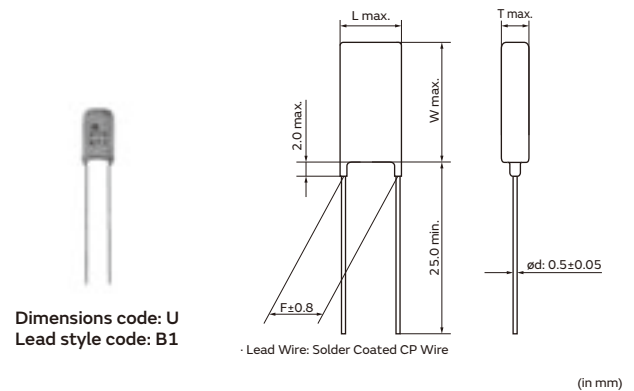
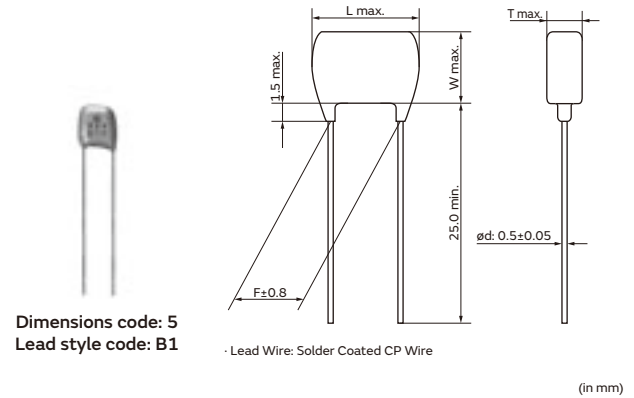
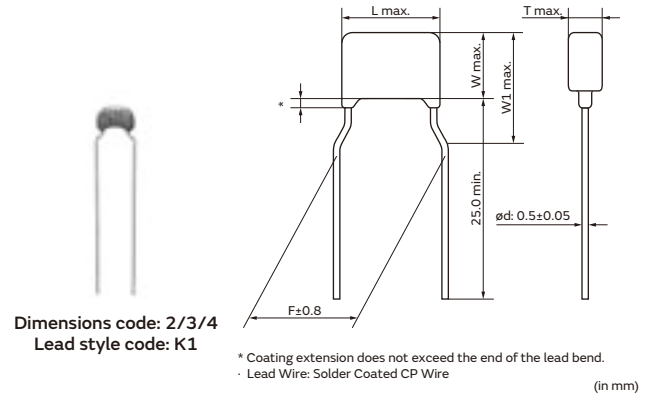
### Applications

- DC smoothing capacitor for LED bulb
- PFC capacitor for general use SMPS
- Replace Al-E capacitor for long-life equipment

### Dimensions

Dimensions and Lead Style Code	DC Rated Voltage	Dimensions (mm)					
		L	W	W1	T	F	d
<b>2K1/2M1</b>	250V/450V/630V	5.5	4.0	6.0	See the individual product specification	5.0	0.5
<b>3K1/3M1</b>	250V/450V/630V	5.5	5.0	7.5		5.0	0.5
<b>4K1/4M1</b>	250V/450V/630V	7.5	5.5	8.0		5.0	0.5
<b>5B1/5E1</b>	250V/450V/630V	7.5	7.5*	-		5.0	0.5
<b>UB1/UE1</b>	250V/450V/630V	7.7	12.5*	-		5.0	0.5

\*DC630V: W+0.5mm



## Marking

Dimensions Code	Rated Voltage	DC250V	DC450V	DC630V
	Temp. Char.	X7T		
2				
3, 8				
5, U				
Temperature Characteristics		Marked with code (X7T char.: 7)		
Nominal Capacitance		Marked with 3 figures		
Capacitance Tolerance		Marked with code		
Rated Voltage		Marked with code (DC250V: 4, DC450V: 9, DC630V: 7)		
Manufacturer's Identification		Marked with		

## High Dielectric Constant Type, X7T Characteristics

Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDED72E333K2□□H03□	X7T (EIA)	250Vdc	33000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72E473K2□□H03□	X7T (EIA)	250Vdc	47000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72E683K2□□H03□	X7T (EIA)	250Vdc	68000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72E104K3□□H03□	X7T (EIA)	250Vdc	0.10μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72E154K3□□H03□	X7T (EIA)	250Vdc	0.15μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72E224K4□□H03□	X7T (EIA)	250Vdc	0.22μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDED72E334K4□□H03□	X7T (EIA)	250Vdc	0.33μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDED72E474K5□□H03□	X7T (EIA)	250Vdc	0.47μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72E684K5□□H03□	X7T (EIA)	250Vdc	0.68μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72E105K5□□H03□	X7T (EIA)	250Vdc	1.0μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72E225MU□□H03□	X7T (EIA)	250Vdc	2.2μF±20%	7.7×12.5	4.5	5.0	B1	E1
RDED72W103K2□□H03□	X7T (EIA)	450Vdc	10000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72W153K2□□H03□	X7T (EIA)	450Vdc	15000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72W223K2□□H03□	X7T (EIA)	450Vdc	22000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72W333K2□□H03□	X7T (EIA)	450Vdc	33000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72W473K2□□H03□	X7T (EIA)	450Vdc	47000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72W683K3□□H03□	X7T (EIA)	450Vdc	68000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72W104K3□□H03□	X7T (EIA)	450Vdc	0.10μF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72W154K4□□H03□	X7T (EIA)	450Vdc	0.15μF±10%	7.5×5.5	4.0	5.0	K1	M1
RDED72W224K5□□H03□	X7T (EIA)	450Vdc	0.22μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72W334K5□□H03□	X7T (EIA)	450Vdc	0.33μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72W474K5□□H03□	X7T (EIA)	450Vdc	0.47μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72W564K5□□H03□	X7T (EIA)	450Vdc	0.56μF±10%	7.5×7.5	4.5	5.0	B1	E1
RDED72W105MU□□H03□	X7T (EIA)	450Vdc	1.0μF±20%	7.7×12.5	4.5	5.0	B1	E1
RDED72W125MU□□H03□	X7T (EIA)	450Vdc	1.2μF±20%	7.7×12.5	4.5	5.0	B1	E1
RDED72J103K2□□H03□	X7T (EIA)	630Vdc	10000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72J153K2□□H03□	X7T (EIA)	630Vdc	15000pF±10%	5.5×4.0	3.15	5.0	K1	M1
RDED72J223K3□□H03□	X7T (EIA)	630Vdc	22000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72J333K3□□H03□	X7T (EIA)	630Vdc	33000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72J473K3□□H03□	X7T (EIA)	630Vdc	47000pF±10%	5.5×5.0	4.0	5.0	K1	M1
RDED72J683K4□□H03□	X7T (EIA)	630Vdc	68000pF±10%	7.5×5.5	4.0	5.0	K1	M1
RDED72J104K5□□H03□	X7T (EIA)	630Vdc	0.10μF±10%	7.5×8.0	4.5	5.0	B1	E1
RDED72J154K5□□H03□	X7T (EIA)	630Vdc	0.15μF±10%	7.5×8.0	4.5	5.0	B1	E1
RDED72J224K5□□H03□	X7T (EIA)	630Vdc	0.22μF±10%	7.5×8.0	4.5	5.0	B1	E1

Continued on the following page. ↗

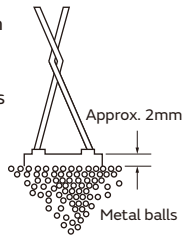
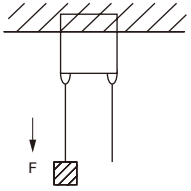
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Part Number	Temp. Char.	Rated Voltage	Capacitance	Dimensions LxW (mm)	Dimension T (mm)	Lead Space F (mm)	Lead Style Code Bulk	Lead Style Code Taping
RDED72J274K5□□H03□	X7T (EIA)	630Vdc	0.27μF±10%	7.5×8.0	4.5	5.0	B1	E1
RDED72J474MU□□H03□	X7T (EIA)	630Vdc	0.47μF±20%	7.7×13.0	4.5	5.0	B1	E1
RDED72J564MU□□H03□	X7T (EIA)	630Vdc	0.56μF±20%	7.7×13.0	4.5	5.0	B1	E1

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)



## Specifications and Test Methods

No.	Item	Specifications	Test Method												
1	Operating Temperature Range	-55 to +125°C	-												
2	Appearance	No defects or abnormalities	Visual inspection												
3	Dimension and Marking	See previous pages	Visual inspection, Vernier Caliper												
4	Dielectric Strength	Between Terminals No defects or abnormalities	The capacitor should not be damaged when voltage in Table is applied between the terminations for 1 to 5s. (Charge/Discharge current $\leq 50\text{mA}$ ) <table border="1" style="margin: 10px 0; width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #444; color: white;"> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td>DC250V</td> <td>200% of the rated voltage</td> </tr> <tr> <td>DC450V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC630V</td> <td>120% of the rated voltage</td> </tr> </tbody> </table>	Rated Voltage	Test Voltage	DC250V	200% of the rated voltage	DC450V	150% of the rated voltage	DC630V	120% of the rated voltage				
	Rated Voltage	Test Voltage													
DC250V	200% of the rated voltage														
DC450V	150% of the rated voltage														
DC630V	120% of the rated voltage														
	Body Insulation	No defects or abnormalities	The capacitor is placed in a container with metal balls of 1mm diameter so that each terminal, short-circuit, is kept approximately 2mm from the balls as shown in the figure, and 200% of the rated DC voltage is impressed for 1 to 5s between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50\text{mA}$ ) 												
5	Insulation Resistance	Between Terminals More than 10000M $\Omega$ or 100M $\Omega$ · $\mu\text{F}$ , Whichever is smaller	The insulation resistance should be measured with DC500V (DC250V in case of rated voltage: DC250V,DC450V) at normal temperature and humidity and within 2min of charging. (Charge/Discharge current $\leq 50\text{mA}$ )												
6	Capacitance	Within the specified tolerance	The capacitance/D.F. should be measured at the frequency of 1 $\pm$ 0.1kHz and a voltage of AC1 $\pm$ 0.2V(r.m.s.).												
7	Dissipation Factor (D.F.)	0.01 max.													
8	Capacitance Temperature Characteristics	Within +22/-33%	The capacitance change should be measured after 5min at each specified temperature stage. <table border="1" style="margin: 10px 0; width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #444; color: white;"> <th>Step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25<math>\pm</math>2</td> </tr> <tr> <td>2</td> <td>-55<math>\pm</math>3</td> </tr> <tr> <td>3</td> <td>25<math>\pm</math>2</td> </tr> <tr> <td>4</td> <td>125<math>\pm</math>3</td> </tr> <tr> <td>5</td> <td>25<math>\pm</math>2</td> </tr> </tbody> </table>	Step	Temperature (°C)	1	25 $\pm$ 2	2	-55 $\pm$ 3	3	25 $\pm$ 2	4	125 $\pm$ 3	5	25 $\pm$ 2
Step	Temperature (°C)														
1	25 $\pm$ 2														
2	-55 $\pm$ 3														
3	25 $\pm$ 2														
4	125 $\pm$ 3														
5	25 $\pm$ 2														
9	Terminal Strength	Tensile Strength Termination not to be broken or loosened	As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10 $\pm$ 1s. 												
		Bending Strength Termination not to be broken or loosened	Each lead wire should be subjected to a force of 2.5N and then bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3s.												
10	Vibration Resistance	Appearance	The capacitor should be firmly soldered to the supporting lead wire and vibrated at a frequency range of 10 to 55Hz, 1.5mm in total amplitude, with about a 1 minute rate of vibration change from 10 to 55Hz and back to 10Hz. Apply for a total of 6h, 2h each in 3 mutually perpendicular directions.												
		Capacitance													
		D.F.													

Continued on the following page. ↗

## Specifications and Test Methods

Continued from the preceding page. ↘

No.	Item	Specifications	Test Method															
11	Solderability of Leads	Lead wire should be soldered with uniform coating on the axial direction over 3/4 of the circumferential direction.	The terminal of a capacitor is dipped into a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion) and then into molten solder (JIS-Z-3282) for 2±0.5s. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body. Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder															
12 1	Resistance to Soldering Heat (Non-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.																
		Appearance	No defects or abnormalities															
		Capacitance Change	Within ±10%															
	Dielectric Strength (Between Terminals)	No defects	Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. Post-treatment Capacitor should be stored for 24±2h at room condition*.															
12 2	Resistance to Soldering Heat (On-Preheat)	The measured and observed characteristics should satisfy the specifications in the following table.																
		Appearance	No defects or abnormalities															
		Capacitance Change	Within ±10%															
	Dielectric Strength (Between Terminals)	No defects	First the capacitor should be stored at 120+0/-5°C for 60+0/-5s. Then, the lead wires should be immersed in the melted solder 1.5 to 2.0mm from the root of terminal at 260±5°C for 7.5+0/-1s. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. Post-treatment Capacitor should be stored for 24±2h at room condition*.															
12 3	Resistance to Soldering Heat (Soldering Iron Method)	The measured and observed characteristics should satisfy the specifications in the following table.																
		Appearance	No defects or abnormalities															
		Capacitance Change	Within ±10%															
	Dielectric Strength (Between Terminals)	No defects	Test condition Temperature of iron-tip: 350±10°C Soldering time: 3.5±0.5s. Soldering position Straight Lead: 1.5 to 2.0mm from the root of terminal. Crimp Lead: 1.5 to 2.0mm from the end of lead bend. Pre-treatment Capacitor should be stored at 150+0/-10°C for 1h, then place at room temperature for 24±2h before initial measurement. Post-treatment Capacitor should be stored for 24±2h at room condition*.															
13	Temperature Cycle	Appearance	No defects or abnormalities															
		Capacitance Change	Within ±12.5%															
		D.F.	0.01 max.															
		Insulation Resistance	More than 1000MΩ or 50MΩ · μF (Whichever is smaller)															
		Dielectric Strength (Between Terminals)	No defects or abnormalities															
		The capacitor should be subjected to 5 temperature cycles.																
		<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±3</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room Temp.</td> <td>3 max.</td> </tr> <tr> <td>3</td> <td>125±3</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room Temp.</td> <td>3 max.</td> </tr> </tbody> </table>		Step	Temperature (°C)	Time (min)	1	-55±3	30±3	2	Room Temp.	3 max.	3	125±3	30±3	4	Room Temp.	3 max.
Step	Temperature (°C)	Time (min)																
1	-55±3	30±3																
2	Room Temp.	3 max.																
3	125±3	30±3																
4	Room Temp.	3 max.																
		• Pretreatment Perform a heat treatment at 150+0/-10°C for 1h, and then let sit at room temperature for 24±2h.																
14	Humidity (Steady State)	Appearance	No defects or abnormalities															
		Capacitance Change	Within ±12.5%															
		D.F.	0.02 max.															
		Insulation Resistance	More than 1000MΩ or 50MΩ · μF (Whichever is smaller)															
		Set the capacitor at 40±2°C and relative humidity of 90 to 95% for 500±2 <sup>1</sup> / <sub>2</sub> h. Remove and set for 24±2h at room temperature, then measure.																
		• Pretreatment Perform a heat treatment at 150+0/-10°C for 1h and then let sit at room temperature for 24±2h.																
15	Humidity Load	Appearance	No defects or abnormalities															
		Capacitance Change	Within ±12.5%															
		D.F.	0.02 max.															
		Insulation Resistance	More than 500MΩ or 25MΩ · μF (Whichever is smaller)															
		Apply the rated voltage at 40±2°C and relative humidity of 90 to 95% for 500±2 <sup>1</sup> / <sub>2</sub> h. Remove and set for 24±2h at room temperature, then measure. (Charge/Discharge current ≤ 50mA)																
		• Pretreatment Perform a heat treatment at 150+0/-10°C for 1h and then let sit at room temperature for 24±2h.																

\* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmosphere pressure: 86 to 106kPa

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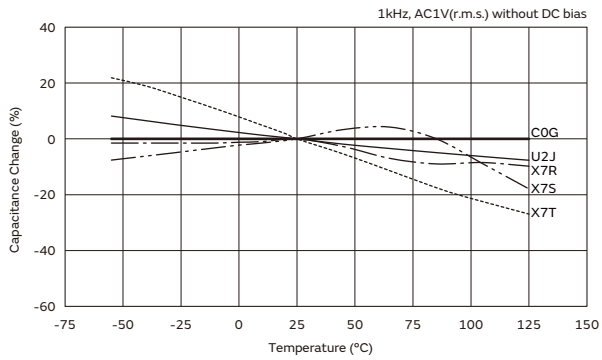
## Specifications and Test Methods

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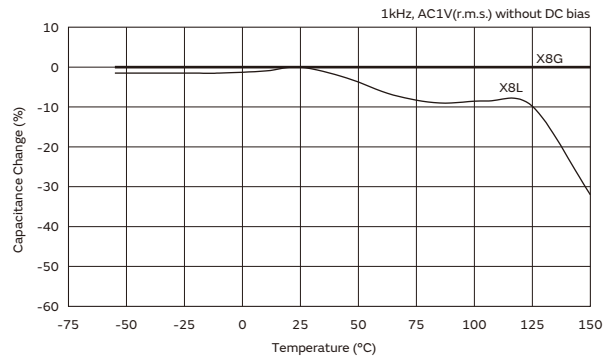
No.	Item	Specifications	Test Method							
16	High Temperature Load	Appearance	Apply voltage in Table for 1000 <sup>±4</sup> h at the maximum operating temperature. Remove and set for 24±2h at room temperature, then measure. (Charge/Discharge current ≤ 50mA)							
		Capacitance Change								
		D.F.								
		Insulation Resistance	More than 1000MΩ or 50MΩ • μF (Whichever is smaller)	<table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>Test Voltage</th> </tr> </thead> <tbody> <tr> <td>DC250V</td> <td>150% of the rated voltage</td> </tr> <tr> <td>DC450V</td> <td>130% of the rated voltage</td> </tr> <tr> <td>DC630V</td> <td>120% of the rated voltage</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Pretreatment Apply test voltage for 1h, at test temperature. Remove and set for 24±2h at room temperature.</li> </ul>	Rated Voltage	Test Voltage	DC250V	150% of the rated voltage	DC450V	130% of the rated voltage
Rated Voltage	Test Voltage									
DC250V	150% of the rated voltage									
DC450V	130% of the rated voltage									
DC630V	120% of the rated voltage									
17	Solvent Resistance	Appearance	The capacitor should be fully immersed, unagitated, in reagent at 20 to 25°C for 30±5s and then removed gently. Marking on the surface of the capacitor should immediately be visually examined. Reagent : • Isopropyl alcohol							
		Marking		Legible						

## Characteristics Reference Data (Typical Example)

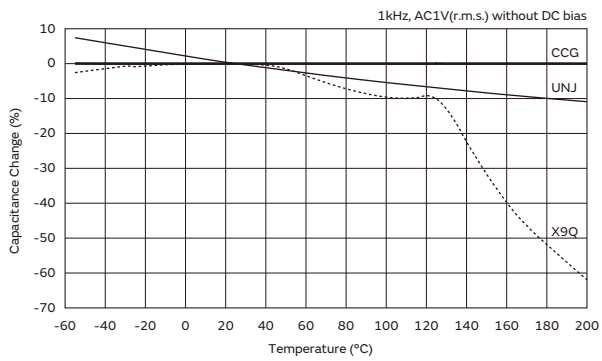
### Capacitance - Temperature Characteristics (RCE, RDE Series)



### Capacitance - Temperature Characteristics (RHE Series)

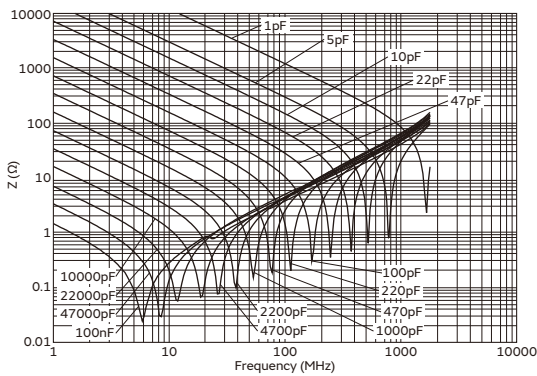


### Capacitance - Temperature Characteristics (RHS Series)

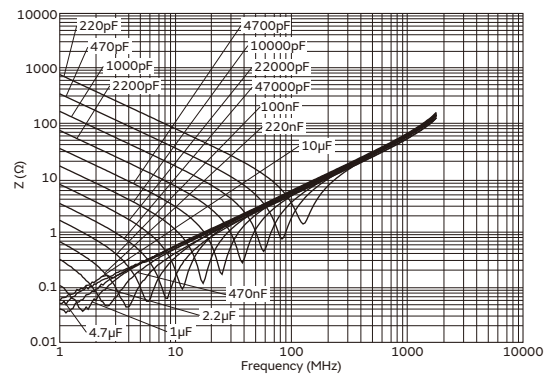


### Impedance - Frequency Characteristics

#### Temperature Compensating Type

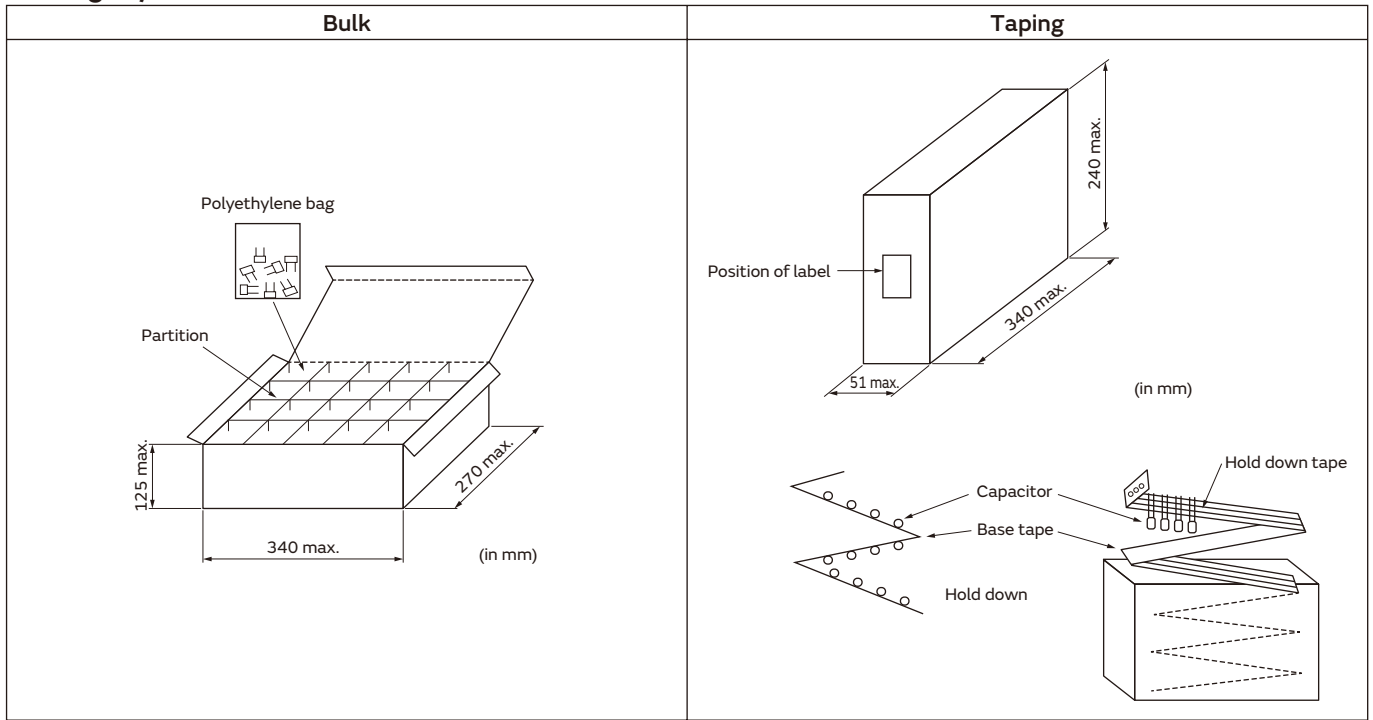


#### High Dielectric Constant Type



# Packaging

## Packing Styles



## Minimum Quantity

### [Bulk]

Series	Dimensions Code	Minimum Quantity (pcs./Bag)*
RCE	Except for "U"	500
	U	200
RHE	0, 1, 2, 3, W	500
RHS	0, 1, 2	500
RDE	Except for "U"	500
	U	200

### [Taping]

Series	Dimensions Code	Minimum Quantity (pcs./Ammo Pack)*
RCE	0, 1, 2	2000
	3	2000 or 1500
	4, 5, U, W	1500
RHE	0, 1, 2	2000
	3, W	1500
RHS	0, 1	2000
	2	1500
RDE	0, 1, 2	2000
	3	2000 or 1500
	4, 5, W	1500
	U	1500 or 1000

Please order with an integral multiple of the minimum quantity above.

\*Minimum Quantity may change depends on part number.

Please check our website "Product details".

"Minimum Quantity" means the numbers of units of each delivery or order. The quantity should be an integral multiple of the "minimum quantity." (Please note that the actual delivery quantity in a package may change sometimes.)

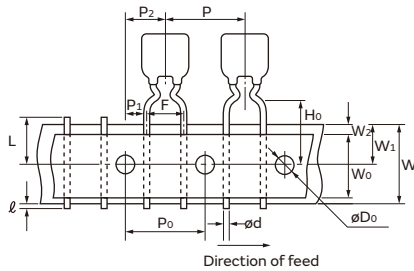
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## Packaging

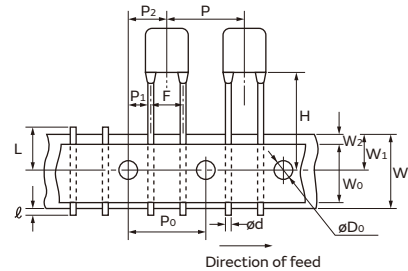
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### Taping Dimensions

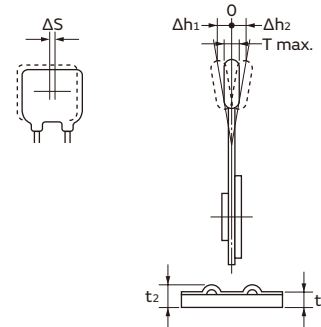
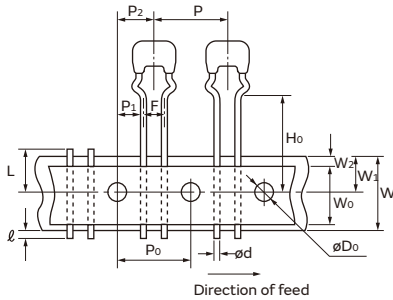
#### Inside Crimp Taping Lead Spacing 5.0mm (Lead Code: M1, M2)



#### Straight Taping Lead Spacing 2.5mm (Lead Code: DB, DG) Lead Spacing 5.0mm (Lead Code: E1)



#### Outside Crimp Taping Lead Spacing 2.5mm (Lead Code: S1)



#### Dimension of capacitors on tape (in mm)

Item	Code	Lead Code					
		DB	DG	E1	M1	M2	S1
Pitch of component	P	12.7±1.0					
Pitch of sprocket hole	P <sub>0</sub>	12.7±0.2					
Lead spacing	F	2.5 <sup>+0.4</sup> <sub>-0.2</sub>		5.0 <sup>+0.6</sup> <sub>-0.2</sub>		2.5 <sup>+0.4</sup> <sub>-0.2</sub>	
Length from hole center to component center	P <sub>2</sub>	6.35±1.3					
Length from hole center to lead	P <sub>1</sub>	5.1±0.7		3.85±0.7		5.1±0.7	
		254±1.5 total length of componentspitch × 20					
Deviation along tape, left or right defect	ΔS	0±2.0					
Carrier tape width	W	18.0±0.5					
Position of sprocket hole	W <sub>1</sub>	9.0 <sup>+0</sup> <sub>-0.5</sub>					
Lead distance between reference and bottom plane	H <sub>0</sub>	-			16.0±0.5	20.0±0.5	16.0±0.5
	H	16.0±0.5	20.0±0.5	17.5±0.5	-		
Protrusion length	ℓ	0.5 max.					
Diameter of sprocket hole	D <sub>0</sub>	4.0±0.1					
Lead diameter	d	0.5±0.05					
Total tape thickness	t <sub>1</sub>	0.6±0.3					
Total thickness of tape and lead wire	t <sub>2</sub>	1.5 max.					
Body thickness	T	Depends on Part Number					
Deviation across tape	Δh <sub>1</sub>	1.0 max.					
	Δh <sub>2</sub>	(Dimension code W, U: 2.0 max.)					
Portion to cut in case of defect	L	11.0 <sup>+0</sup> <sub>-1.0</sub>					
Hold down tape width	W <sub>0</sub>	9.5 min.					
Hold down tape position	W <sub>2</sub>	1.5±1.5					

**⚠️Caution**

**⚠️Caution (Storage and Operating Condition)**

**Operating and storage environment**

The insulating coating of capacitors does not form a perfect seal; therefore, do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. Also avoid exposure to moisture. Before cleaning, bonding or molding this product, verify that these processes do not affect product quality by testing the performance of a cleaned, bonded or molded product in the intended

equipment. Store the capacitors where the temperature and relative humidity do not exceed 5 to 40 degrees centigrade and 20 to 70%. Use capacitors within 6 months after delivery.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

**⚠️Caution (Rating)**

**1. Operating Voltage**

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the  $V_{p-p}$  value of the applied voltage or the  $V_{0-p}$  which contains DC bias within the rated voltage range. When the voltage is applied to the circuit, starting or stopping may generate irregular voltage for a transit period because of resonance or switching. Be sure to use a capacitor with a rated voltage range that includes these irregular voltages.

When DC-rated capacitors are to be used in input circuits from commercial power source (AC filter), be sure to use Safety Recognized Capacitors because various regulations on withstand voltage or impulse withstand established for all equipment should be taken into consideration.

Voltage	DC Voltage	DC+AC Voltage	AC Voltage	Pulse Voltage (1)	Pulse Voltage (2)
Positional Measurement					

**2. Operating Temperature**

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself (Please refer to the following column 3) and by peripheral components.

temperature and a heat from peripheral components are stable.

The self-generated heat should be measured under the conditions where the capacitor is subjected at an atmosphere temperature 25°C and is not affected by radiant heat from other components or wind from surroundings.

**3. Self-generated Heat**

When the capacitor is used in a high-frequency current, pulse current or similar current, it may have self-generated heat due to dielectric loss. In the case of "High Dielectric Constant Type Capacitors", applied voltage load should be such that self-generated heat is within 20 °C under the condition where the capacitor is subjected at an atmosphere temperature of 25 °C. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. Please contact us if self-generated heat occurs with "Temperature Compensating Type Capacitors".

When measuring, use a thermocouple of small thermal capacity -K of  $\varnothing 0.1\text{mm}$ .

Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.

**4. Measurement of Temperature**

The surface temperature of capacitor should be measured under the condition where an atmosphere

**5. Fail-Safe**

Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

## ⚠️Caution

### ⚠️Caution (Soldering and Mounting)

#### 1. Vibration and impact

Do not expose a capacitor or its leads to excessive shock or vibration during use.

#### 2. Soldering

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specification of the capacitor. Subjecting this product to excessive heating could melt the internal junction solder and may result in thermal shocks that can crack the ceramic element.

#### 3. Bonding, resin molding and coating

In case of bonding, molding or coating this product, verify that these processes do not affect the quality of the capacitor by testing the performance of the bonded, molded or coated product in the intended equipment.

In case the amount of application, dryness/hardening conditions of adhesives and molding resins

containing organic solvents (ethyl acetate, methyl ethyl ketone, toluene, etc.) are unsuitable, the outer coating resin of a capacitor may be damaged by the organic solvents and may result, worst case, in a short circuit.

The variation in thickness of adhesive or molding resin or coating may cause an outer coating resin cracking and/or ceramic element cracking of a capacitor in a temperature cycling.

#### 4. Treatment after bonding, resin molding and coating

When the outer coating is hot (over 100 degrees centigrade) after soldering, it becomes soft and fragile, so please be careful not to give it mechanical stress.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

### ⚠️Caution (Handling)

#### Vibration and impact

Do not expose a capacitor or its leads to excessive shock or vibration during use.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.



## Notice

### Notice (Rating)

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#### Capacitance change of capacitor

In case of high dielectric constant type capacitors  
Capacitors have an aging characteristic, whereby  
the capacitor continually decreases its capacitance  
slightly if the capacitor is left on for a long  
time. Moreover, capacitance might change greatly  
depending on the surrounding temperature or an  
applied voltage.

### Notice (Soldering and Mounting)

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#### 1. Cleaning (ultrasonic cleaning)

To perform ultrasonic cleaning, observe the following  
conditions.

Rinse bath capacity: Output of 20 watts per liter or less.

Rinsing time: 5 min. maximum.

Do not vibrate the PCB/PWB directly.

Excessive ultrasonic cleaning may lead to fatigue  
destruction of the lead wires.

#### 2. Soldering and Mounting

##### Insertion of the Lead Wire

- When soldering, insert the lead wire into the PCB without  
mechanically stressing the lead wire.
- Insert the lead wire into the PCB with a distance  
appropriate to the lead space.

# Global Locations

For details please visit [www.murata.com](http://www.murata.com)



## ⚠ Note

### 1 Export Control

*For customers outside Japan:*

No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

*For customers in Japan:*

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2 Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Power plant equipment
- ⑤ Medical equipment
- ⑥ Transportation equipment (vehicles, trains, ships, etc.)
- ⑦ Traffic signal equipment
- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed above

3 Product specifications in this catalog are as of October 2019. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

4 Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

5 This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

6 Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or a third party's intellectual property rights and other related rights in consideration of your use of our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

7 No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.

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