

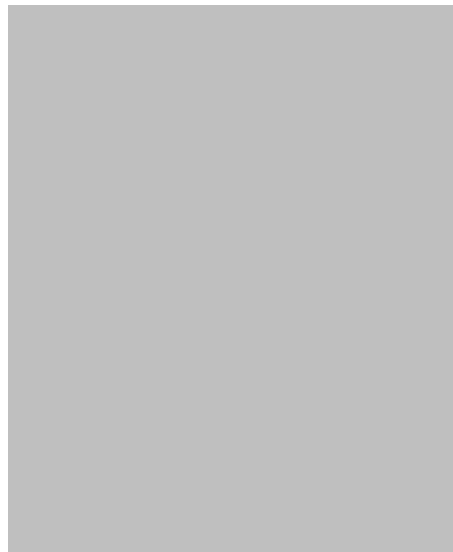
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# MURATA PRODUCTS

## Global Part Numbering



As typified by the prevalence of business innovations such as Supply Chain Management and E-commerce, business environments are undergoing remarkable changes these days. At Murata, we consider adapting to our customer's EDP systems to be an urgent task. That is why we are committed to building global systems for order-receiving and production. As part of this effort, Murata has established a new part numbering system that is rationalized, systematic and, most importantly, globally unified. This brochure is designed to provide our valued customers with an explanation of the structure of our global part numbering system that have been adopted since June 2001. It includes a table that explains the meaning of codes for most Murata product categories.

Please take a minute to read through and study the brochure.

Please note that you can easily translate between current part numbers and their corresponding new global equivalents using our Internet Search Engine (<http://www.murata.co.jp/search/>) or the latest version (2.43) of our "2002 Murata Products" CD-ROM.

If you have any questions related to our new global part numbering system, please feel free to contact your Murata sales office, sales representative or distributor.

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# Capacitors

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## ● Part Numbering

### Chip Monolithic Ceramic Capacitors

(Global Part Number) 

GR	M	18	8	B1	1H	102	K	A01	K
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

#### ① Product ID

#### ② Series

Product ID	Code	Series
<b>GR</b>	<b>M</b>	Tin Plated layer
	<b>P</b>	Soldering Electrode
<b>ER</b>	<b>F</b>	High-frequency and high-power Type
	<b>H</b>	High-frequency and high-power Type (Ribbon Terminal)
	<b>A</b>	High-frequency Type
	<b>D</b>	High-frequency Type (Ribbon Terminal)
<b>GQ</b>	<b>M</b>	High-frequency for Flow/Reflow Soldering
<b>GM</b>	<b>A</b>	Monolithic Microchip
<b>GN</b>	<b>M</b>	Capacitor Array
<b>LL</b>	<b>L</b>	Low ESL Wide-width Type
<b>GJ</b>	<b>6</b>	Low Dissipation
	<b>2</b>	Smoothing Type
<b>GA</b>	<b>2</b>	for AC250V (r.m.s.)
	<b>3</b>	Safety Standard Recognized Type

#### ④ Dimension (T)

Code	Dimension (T)
<b>3</b>	0.3 mm
<b>4</b>	4-elements (Array Type)
<b>5</b>	0.5 mm
<b>6</b>	0.6 mm
<b>7</b>	0.7 mm
<b>8</b>	0.8 mm
<b>9</b>	0.85 mm
<b>A</b>	1.0 mm
<b>B</b>	1.25 mm
<b>C</b>	1.6 mm
<b>D</b>	2.0 mm
<b>E</b>	2.5 mm
<b>M</b>	1.15 mm
<b>N</b>	1.35 mm
<b>R</b>	1.8 mm
<b>Q</b>	1.5 mm
<b>X</b>	Depends on individual standards.

With the array type GNM series, "Dimension(T)" indicates the number of elements.

#### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
<b>03</b>	0.6×0.3 mm	0201
<b>05</b>	0.5×0.5 mm	0202
<b>08</b>	0.8×0.8 mm	0303
<b>11</b>	1.25×1.0 mm	0504
<b>15</b>	1.0×0.5 mm	0402
<b>18</b>	1.6×0.8 mm	0603
<b>1X</b>	Depends on individual standards.	
<b>21</b>	2.0×1.25 mm	0805
<b>22</b>	2.8×2.8 mm	1111
<b>31</b>	3.2×1.6 mm	1206
<b>32</b>	3.2×2.5 mm	1210
<b>3X</b>	Depends on individual standards.	
<b>42</b>	4.5×2.0 mm	1808
<b>43</b>	4.5×3.2 mm	1812
<b>52</b>	5.7×2.8 mm	2211
<b>55</b>	5.7×5.0 mm	2220

#### ⑤ Temperature Characteristics


Code	Temperature Characteristics	Temperature Range	Capacitance Change or Temperature Coefficient	Operating Temperature Range
<b>1X</b>	SL	20 to 85°C	+350 to -1000ppm/°C	-55 to 125°C
<b>5C</b>	C0G	-55 to 125°C	0±30ppm/°C	-55 to 125°C
<b>6C</b>	C0H	-55 to 125°C	0±60ppm/°C	-55 to 125°C
<b>6P</b>	P2H	-55 to 85°C	-150±60ppm/°C	-55 to 125°C
<b>6R</b>	R2H	-55 to 85°C	-220±60ppm/°C	-55 to 125°C
<b>6S</b>	S2H	-55 to 85°C	-330±60ppm/°C	-55 to 125°C

Continued on the following page.

# Capacitors

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<b>6T</b>	<b>T2H</b>	-55 to 85°C	-470±60ppm/°C	-55 to 125°C
<b>7U</b>	<b>U2J</b>	-55 to 85°C	-750±120ppm/°C	-55 to 125°C
<b>B3</b>	<b>B</b>	-25 to 85°C	±10%	-25 to 85°C *
<b>E4</b>	<b>Z5U</b>	10 to 85°C	+22, -56%	10 to 85°C
<b>F5</b>	<b>Y5V</b>	-30 to 85°C	+22, -82%	-30 to 85°C
<b>R3</b>	<b>R</b>	-55 to 125°C	±15%	-55 to 125°C
<b>R6</b>	<b>X5R</b>	-55 to 85°C	±15%	-55 to 85°C
<b>R7</b>	<b>X7R</b>	-55 to 125°C	±15%	-55 to 125°C
<b>9E</b>	<b>ZLM</b>	-25 to 20°C	-4700+100/-2500ppm/°C	-25 to 85°C
		20 to 85°C	-4700+500/-1000ppm/°C	

\* GRM series 630V : -55 to 125°C

## ⑥ Rated Voltage

Code	Rated Voltage
<b>0J</b>	DC6.3V
<b>1A</b>	DC10V
<b>1C</b>	DC16V
<b>1E</b>	DC25V
<b>1H</b>	DC50V
<b>2A</b>	DC100V
<b>2D</b>	DC200V
<b>2E</b>	DC250V
<b>YD</b>	DC300V
<b>2H</b>	DC500V
<b>2J</b>	DC630V
<b>3A</b>	DC1kV
<b>3D</b>	DC2kV
<b>3F</b>	DC3.15kV
<b>E2</b>	AC250V
<b>GB</b>	X2; AC250V (Safety Standard Recognized Type GB)
<b>GC</b>	X1, Y2; AC250V (Safety Standard Recognized Type GC)
<b>GD</b>	Y3; AC250V (Safety Standard Recognized Type GD)
<b>GF</b>	Y2; AC250V (Safety Standard Recognized Type GF)

## ⑦ 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 which 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.

Ex.) Code	Capacitance
<b>R50</b>	0.5pF
<b>1R0</b>	1.0pF
<b>100</b>	10pF
<b>103</b>	10000pF

## ⑧ Capacitance Tolerance

Code	Capacitance Tolerance	TC	Series	Capacitance Step	
<b>B</b>	±0.1pF	CΔ	<b>GJ6</b>	≤5pF	E24 Series, 1pF
<b>C</b>	±0.25pF	CΔ-SL	<b>GRP/GRM/ERF/ERH/ERA/ERD/QQM</b>	≤5pF	* 1pF
		CΔ	<b>GJ6</b>	<10pF	E24 Series, 1pF
<b>D</b>	±0.5pF	CΔ-SL	<b>GRP/GRM</b>	6.0 to 9.0pF	* 1pF
		CΔ	<b>ERF/ERH/ERA/ERD/QQM/GJ6</b>	5.1 to 9.1pF	E24 Series
<b>G</b>	±2%	CΔ	<b>GJ6</b>	≥10pF	E12 Series
		CΔ	<b>QQM</b>	≥10pF	E24 Series
<b>J</b>	±5%	CΔ-SL	<b>GRP/GRM</b>	≥10pF	E12 Series
		CΔ	<b>ERF/ERH/ERA/ERD/QQM/GJ6</b>	≥10pF	E24 Series
<b>K</b>	±10%	B,R,X7R,X5R,ZLM	<b>GRP/GRM/GA3</b>	E6 Series	
<b>M</b>	±20%	Z5U	<b>GRM</b>	E3 Series	
		B,R,X7R	<b>GMA/LLL</b>	E6 Series	
		B	<b>GA2</b>	E3 Series	
<b>Z</b>	+80%, -20%	F,Y5V	<b>GRP/GRM/GJ2</b>	E3 Series	
<b>R</b>	Depends on individual standards.				


\* E24 series is also available.

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# Capacitors

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## ⑨ Individual Specification Code

Code	Series	Individual Specification	Temperature Characteristics Type *4	Inner Electrode	Under coat metal of Outer Electrode
A01	GRM *1	Standard Type	TC	Base Metal	Base Metal
	GRM *1/GRP/LLL		HiK		
A11	GRM *1	Special Dimension Type (Tolerances of LXWXT are $\pm 0.15\text{mm}$ )	HiK	Base Metal	Base Metal
A12	GRM *1	Special Characteristics (Applied Voltage is X1.25 of Rated Voltage at High Temperature Load Test)	HiK	Base Metal	Base Metal
A61	GRM *1	Special Characteristics (Under special control)	HiK	Base Metal	Base Metal
B01	GJ6/GQM	Standard Type	TC	Base Metal (Cu)	Base Metal
C01	GRM *1	Standard Type	HiK	Base Metal	Precious Metal
C11	GRM *1	Special Dimension Type (Tolerances of LXW are $\pm 0.2\text{mm}$ , others)	HiK	Base Metal	Precious Metal
C12	GRM *1	Special Dimension Type (Length is $3.2\pm 0.2$ , Width is $1.6\pm 0.2\text{mm}$ , Thickness is $1.2\pm 0.1\text{mm}$ )	HiK	Base Metal	Precious Metal
D01	ERA/ERD/ERF/ERH	Standard Type (Non-coated type for ERH series)	TC	Precious Metal	Precious Metal
	GRM *1/GRP		TC		
	GRM *1/GJ2/GMA/GRP/LLL		HiK		
D02	ERH	Standard Type (Coated with Resin)	TC	Precious Metal	Precious Metal
	GRP	Standard Type (Ceramic Material of Relaxor Type)	HiK		
D11	GJ2	Special Dimension Type (Thickness is $1.8\pm 0.2\text{mm}$ )	HiK	Precious Metal	Precious Metal
	GRP	Special Dimension Type (Thickness is $0.25\pm 0.05\text{mm}$ )	TC		
D12	GJ2	Special Dimension Type (Thickness is $2.2\pm 0.3\text{mm}$ )	HiK	Precious Metal	Precious Metal
V01	GRM *2	Standard Type (New Ceramic Material)	TC	Precious Metal	Precious Metal
W01	GRM *3/GA3	Standard Type	HiK	Base Metal	Base Metal
	GRM *3		TC		
W02	GA3	Special Dimension Type (Tolerance of Thickness is $\pm 0.3\text{mm}$ )	HiK	Base Metal	Base Metal
W03	GRM *3	Special Dimension Type (Tolerance of Thickness is $\pm 0.2\text{mm}$ )	HiK	Base Metal	Base Metal
Y01	GRM *3	Standard Type	TC	Precious Metal	Precious Metal
	GRM *3		HiK		
Y02	GA2/GA3	Special Dimension Type (Tolerance of Thickness is $\pm 0.3\text{mm}$ )	HiK	Precious Metal	Precious Metal
	GRM *3		TC		
Y05	GRM *3	Special Dimension Type (Thickness is $2.7+0/-0.3\text{mm}$ )	HiK	Precious Metal	Precious Metal
Y06	GA3	Special Dimension Type (Thickness is $2.7\pm 0.3\text{mm}$ )	HiK	Precious Metal	Precious Metal
Y21	GRM *2	Standard Type	TC	Precious Metal	Precious Metal
Z01	GRM *1/GRP	Standard Type (New Ceramic Material)	TC	Precious Metal	Precious Metal

\*1 Apply to rated voltage 100V and under.

\*2 Apply to rated voltage 200/500V.

\*3 Apply to rated voltage 250V, 630V to 3.15kV.

\*4 "TC" means Temperature Compensating Type and "HiK" means High Dielectric Type.

## ⑩ Packaging

Code	Packaging
E	$\phi 178\text{mm}$ 2mm Pitch Paper Taping
F	$\phi 330\text{mm}$ 2mm Pitch Paper Taping
L	$\phi 178\text{mm}$ 4mm Pitch Plastic Taping
D	$\phi 178\text{mm}$ 4mm Pitch Paper Taping
K	$\phi 330\text{mm}$ 4mm Pitch Plastic Taping
J	$\phi 330\text{mm}$ 4mm Pitch Paper Taping
B	Bulk
C	Bulk Case
T	Bulk Tray

# Capacitors

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## Monolithic Ceramic Capacitors (lead type)

(Global Part Number) 

RP	E	R1	1H	104	K	2	M1	A01	A
1	2	3	4	5	6	7	8	9	10

① Product ID

② Series/Terminal

Product ID	Series/Terminal	
RP	E	Monolithic Ceramic Capacitors Lead Type

③ Temperature Characteristics

Code	Temperature Characteristics	Temperature Range	Capacitance Change or Temperature Coefficient	Operating Temperature Range
5C	C0G	-55 to 125°C	0±30ppm/°C	-55 to 125°C
6R	R2H	-55 to 85°C	-220±60ppm/°C	-55 to 125°C
7U	U2J	-55 to 85°C	-750±120ppm/°C	-55 to 125°C
E4	Z5U	10 to 85°C	+22, -56%	10 to 85°C
F5	Y5V	-30 to 85°C	+22, -82%	-30 to 85°C
R7	X7R	-55 to 125°C	±15%	-55 to 125°C

④ Rated Voltage

Code	Rated Voltage
1E	DC25V
1H	DC50V
2A	DC100V
2D	DC200V

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 which 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.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance	Temperature Characteristics	Capacitance Step
C	±0.25pF	C0G, R2H, U2J	≤5pF : 1pF Step
D	±0.5pF		6 to 9pF : 1pF Step
J	±5%		≥10 : E12 Series
K	±10%	X7R	E6 Series
M	±20%	Z5U	E3 Series
Z	+80%, -20%	Y5V	E3 Series

⑦ Size

Code	Size
1	3.5×3.0 mm
2	5.0×3.5 mm
3	5.0×4.5 mm
4	7.5×5.0 mm
5	7.5×7.5 mm
6	10.0×10.0 mm
7	12.5×12.5 mm

⑧ Lead Type

Code	Lead Type	Lead Space
A*	Straight Long Bulk	F=2.5mm
B*	Straight Long Bulk	F=5.0mm
C*	Straight Long Bulk	other than above
E*	Straight Taping	F=5.0mm
K*	Incrimp Bulk	F=5.0mm
M*	Incrimp Taping	F=5.0mm
P*	Outcrimp Bulk	F=2.5mm
S*	Outcrimp Taping	F=2.5mm


Lead style depends on individual standards. \* indicates a figure.

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# Capacitors

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## ⑨ Individual Specification Code

Individual Specification Code	Series (size)	Temperature Characteristics Type	Individual Specification	Inner Electrode
A01	RPE_2 (5.0x3.5mm)	HiK	Standard Type (small internal chip size of 2.0x1.25mm)	Base Metal
B01	RPE_2 (5.0x3.5mm)	HiK	Standard Type (small internal chip size of 2.0x1.25mm)	Precious Metal
C02	RPE_1 (3.5x3.0mm)	HiK	Standard Type (Steel lead wire)	Base Metal
C03	RPE_2 (5.0x3.5mm)	HiK	Standard Type	Base Metal
	RPE_3 (5.0x4.5mm)			
D02	RPE_1 (3.5x3.0mm)	HiK	Standard Type (Steel lead wire)	Precious Metal
D03	RPE_1 (3.5x3.0mm)	TC/HiK	Standard Type	Precious Metal
	RPE_2 (5.0x3.5mm)			
	RPE_3 (5.0x4.5mm)			
E12	RPE_4 (7.5x5.0mm)	HiK	Special Dimension Type (Special size of internal chip)	Base Metal
F03	RPE_4 (7.5x5.0mm)	TC/HiK	Standard Type (Special size of internal chip)	Precious Metal
	RPE_5 (7.5x7.5mm)			
	RPE_6 (10.0x10.0mm)			
	RPE_7 (12.5x12.5mm)			
F12	RPE_6 (10.0x10.0mm)	TC	Special Dimension Type (LxW size of 10x8.5 is available.)	Precious Metal
F14	RPE_6 (10.0x10.0mm)	HiK	Special Dimension Type (LxW size of 10x8.5 is available.)	Precious Metal
X03	RPE_4 (7.5x5.0mm)	TC	Standard Type (New Ceramic Material), (Special size of internal chip)	Precious Metal
	RPE_5 (7.5x7.5mm)			
	RPE_6 (10.0x10.0mm)			
	RPE_7 (12.5x12.5mm)			
X13	RPE_6 (10.0x10.0mm)	TC	Special Dimension Type (New Ceramic Material), (LxW size of 10x8.5 is available.)	Precious Metal
Y03	RPE_1 (3.5x3.0mm)	TC/HiK	Standard Type (New Ceramic Material)	Precious Metal
	RPE_2 (5.0x3.5mm)			
	RPE_3 (5.0x4.5mm)			

## ⑩ Packaging

Code	Packaging
A	Ammo Pack
B	Bulk



# Capacitors

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## Ceramic Capacitors (12V-500V)

(Global Part Number)

DD	1	04	-63	B	101	K	50
①	②	③	④	⑤	⑥	⑦	⑧
DD		05	-63	B	101	K	500
①		③	④	⑤	⑥	⑦	⑧
DD	3	04	-63	F	223	Z	25
①	②	③	④	⑤	⑥	⑦	⑧

### ① Product ID

Product ID	
DD	Ceramic Capacitors (12V-500V)

### ② Series Category

Code	Series (Type)
None	DD10 Series (500V)
1	DD100 Series (50V)
3	DD300 Series (Surface Layer Type BC Capacitors)
4	DD400 Series (Boundary Layer Type BC Capacitors)

### ③ Body Diameter

Code	Body Diameter	
	DD100/10 Series	DD300/400 Series
04	4mm	4mm
05	5mm	5mm
06	6mm	6.3mm
07	7.5mm	7mm
08	8mm	8mm
09	9.5mm	—
10	10.5mm	10mm
11	11mm	—
12	12.5mm	12.5mm
14	14.5mm	—
16	16.5mm	—
18	18.5mm	—

### ④ Lead Style

Code	Lead Style
-63	Inside Crimp
-64	
-989	Inside Crimp Taping
-999	
-959	

### ⑤ Temperature Characteristics

Code	Cap. Change or Temp. Coeff.	Temperature Range
CK	0±250ppm/°C	-25 to +85°C
CJ	0±120ppm/°C	
CH	0±60ppm/°C	
SL	+350 to -1000ppm/°C	+20 to +85°C
B	±10%	-25 to +85°C
E	+20%, -55%	
F	+30%, -80%	
SR	±15%	

### ⑥ 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 which 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.

### ⑦ Capacitance Tolerance

Code	Capacitance Tolerance
C	±0.25pF
D	±0.5pF
J	±5%
K	±10%
M	±20%
P	+100%, -0%
Z	+80%, -20%

### ⑧ Rated Voltage

Code	DC Rated Voltage
12	12V
16	16V
25	25V
50	50V
500	500V

# Capacitors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

K23E5.pdf 01.11.16

## High Voltage Ceramic Capacitors (250V-6.3kV)

(Global Part Number) 

DE	B	B3	3A	102	K	N2	A
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
<b>DE</b>	High-voltage (250V - 6.3kV) / Safety Standard Recognized Ceramic Capacitors

### 2 Series Category

Code	Outline	Contents
<b>A</b>	High-Voltage	Class1 (char. SL) DC1-3.15kV Rated
<b>B</b>		Class2 DC1-3.15kV Rated
<b>C</b>		Class 1,2 DC6.3kV Rated
<b>H</b>		High Temperature Guaranteed, Low-dissipation Factor (char. R, C)

First three digit (1 Product ID and 2 Series Category) express "Series Name".

### 3 Temperature Characteristics

Code	Temperature Characteristics	Cap.Change or Temp. Coeff.	Temperature Range
<b>B3</b>	B	±10%	-25 to +85°C
<b>E3</b>	E	+20%, -55%	
<b>F3</b>	F	+30%, -80%	
<b>C3</b>	C	±20%	-25 to +85°C
		+15%, -30%	+85 to +125°C
<b>R3</b>	R	±15%	-25 to +85°C
		+15%, -30%	+85 to +125°C
<b>1X</b>	SL	+350 to -1000ppm/°C	+20 to +85°C

### 4 Rated Voltage

Code	Rated Voltage
<b>2E</b>	DC250V
<b>2H</b>	DC500V
<b>3A</b>	DC1kV
<b>3D</b>	DC2kV
<b>3F</b>	DC3.15kV
<b>3J</b>	DC6.3kV

### 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 which 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.

### 6 Capacitance Tolerance

Code	Capacitance Tolerance
<b>J</b>	±5%
<b>K</b>	±10%
<b>Z</b>	+80%, -20%

### 7 Lead Style

Code	Lead Style	Dimensions(mm)		
		Lead Spacing	Lead Diameter	Pitch of Components
<b>A2</b>	Vertical Crimp Long	5	ø0.6±0.05	-
<b>A3</b>		7.5		
<b>A4</b>		10		
<b>B2</b>	Vertical Crimp Short	5	ø0.6±0.05	-
<b>B3</b>		7.5		
<b>B4</b>		10		
<b>C1</b>	Straight Long	5	ø0.5±0.05	-
<b>C3</b>		7.5	ø0.6±0.05	
<b>C4</b>		10	ø0.6±0.05	
<b>CD</b>		7.5	ø0.5±0.05	
<b>D1</b>	Straight Short	5	ø0.5±0.05	-
<b>D3</b>		7.5	ø0.6±0.05	
<b>DD</b>		7.5	ø0.5±0.05	
<b>N2</b>	Vertical Crimp Taping	5	ø0.6±0.05	12.7
<b>N3</b>		7.5		15
<b>N7</b>		7.5		30
<b>P2</b>	Straight Taping	5	ø0.6±0.05	12.7
<b>P3</b>		7.5		15

### 8 Packaging

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

# Capacitors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Safety Standard Recognized Ceramic Capacitors

(Global Part Number) 

DE	2	E3	KH	102	M	N3	A	
1	2	3	4	5	6	7	8	9

### ① Product ID

Product ID	
<b>DE</b>	High-voltage (250V - 6.3kV) / Safety Standard Recognized Ceramic Capacitors

### ② Series Category

Code	Outline	Contents
1	Safety Standard	IEC60384-14 Class X1, Y1
2	Recognized	IEC60384-14 Class X1, Y2
J	AC250V (r.m.s.)	"Products which are based on the Electrical Appliance and Material Control Law of Japan"

In case of Electrical Appliance and Material Control Law of Japan, first three digit (①Product ID and ②Series Category) express "Series Name".

In case of Safety Recognized Capacitors, first three digit express product code. The following fourth figure expresses recognized type shown in ④Safety Standard Recognized type column.

### ③ Temperature Characteristics

Code	Temperature Characteristics	Cap.Change or Temp. Coeff.	Temperature Range
<b>B3</b>	B	±10%	-25 to +85°C
<b>E3</b>	E	+20%, -55%	
<b>F3</b>	F	+30%, -80%	
<b>1X</b>	SL	+350 to -1000ppm/°C	+20 to +85°C

### ④ Rated Voltage/Safety Standard Recognized Type

Code	Rated Voltage
<b>E2</b>	AC250V
<b>KH</b>	X1, Y2; AC250V, (Safety Standard Recognized Type KH)
<b>KY</b>	X1, Y2; AC250V, (Safety Standard Recognized Type KY)
<b>KX</b>	X1, Y1; AC250V, (Safety Standard Recognized Type KX)

### 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 which 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.

### ⑥ Capacitance Tolerance

Code	Capacitance Tolerance
<b>K</b>	±10%
<b>M</b>	±20%
<b>Z</b>	+80%, -20%

### ⑦ Lead Style

Code	Lead Style	Dimensions(mm)		
		Lead Spacing	Lead Diameter	Pitch of Components
<b>A2</b>	Vertical Crimp Long	5	ø0.6±0.05	-
<b>A3</b>		7.5		
<b>A5</b>		10		
<b>B2</b>	Vertical Crimp Short	5	ø0.6±0.05	-
<b>B3</b>		7.5		
<b>B5</b>		10		
<b>C3</b>	Straight Long	7.5	ø0.6±0.05	-
<b>D3</b>	Straight Short	7.5	ø0.6±0.05	-
<b>N2</b>	Vertical Crimp Taping	5	ø0.6±0.05	12.7
<b>N3</b>		7.5		15
<b>N5</b>		10	ø0.6+0.1, -0.05	25.4
<b>N7</b>		7.5	ø0.6±0.05	30
<b>P3</b>	Straight Taping	7.5	ø0.6±0.05	15

### ⑧ Packaging

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

### ⑨ Individual Specification

In case part number cannot be identified without "Individual Specification", it is added at the end of part number.

Code	Individual Specification	Application
<b>A01</b>	Small size	Type KX
<b>M01</b>	New marking, Dielectric strength : AC2000V	Type KY

# Capacitors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## High-voltage Ceramic Capacitors (over 10kV)

(Global Part Number) 

DH	R	B3	4A	101	M	2B	B
①	②	③	④	⑤	⑥	⑦	⑧

### ① Product ID

Product ID	
<b>DH</b>	High-voltage Ceramic Capacitors (over 10kV)

### ② Series Category

Code	Contents
<b>R</b>	Radial Type
<b>S</b>	Mold Type

First three digit of part number (① Product ID and ② Series Category) express "Series Name".

### ③ Temperature Characteristics

Code	Temp. Char.	Cap. Change or Temp. Coeff.	Temp. Range
<b>B3</b>	<b>B</b>	±10%	-25 to +85°C
<b>F4</b>	<b>Z5V</b>	+22%, -82%	+10 to +85°C
<b>4E</b>	<b>ZM</b> <b>N4700</b>	-4700±1000ppm/°C	+20 to +85°C

### ④ Rated Voltage

Code	Rated Voltage
<b>4A</b>	DC10kV
<b>4B</b>	DC12kV
<b>4C</b>	DC15kV
<b>4D</b>	DC20kV
<b>4F</b>	DC30kV
<b>4G</b>	DC40kV

### 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 which 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.

### ⑥ Capacitance Tolerance

Code	Capacitance Tolerance
<b>K</b>	±10%
<b>M</b>	±20%
<b>Z</b>	+80%, -20%

### ⑦ Lead Type (DHR Series)

Code	Lead Type	Lead Spacing	Lead Diameter
<b>2B</b>	Straight Long	9.5mm	ø0.65mm
<b>2F</b>		12.7mm	ø0.8mm

### ⑦ Body Diameter and Terminal Type (DHS Series)

Code	Body Diameter	Terminal Type
<b>CX</b>	20mm	No.8-32 Tapped Holes
<b>DX</b>	24mm	
<b>HX</b>	30mm	
<b>LX</b>	38mm	
<b>NX</b>	43mm	
<b>RX</b>	52mm	
<b>TX</b>	60mm	

### ⑧ Packaging

Code	Packaging
<b>B</b>	Bulk

# Capacitors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## High-frequency Power Ceramic Capacitors

(Global Part Number) 

DC	T	3U	AF	501	K	B4	B
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
<b>DC</b>	High-frequency Power Ceramic Capacitors

### 2 Series Category

Code	Contents
<b>A</b>	Disc Type
<b>T</b>	Flange Type
<b>W</b>	Water-cooling Type
<b>5</b>	Small Type
<b>6</b>	Small Size Feed-thru Type

First three digit of part number (1 Product ID and 2 Series Category) express "Series Name".

### 3 Temperature Characteristics

Code	Temp. Char.	Cap. Change or Temp. Coeff.	Temp. Range
<b>F3</b>	<b>F</b>	+30%, -80%	-25 to +85°C
<b>2A</b>	<b>AH</b>	+100±60ppm/°C	
<b>2C</b>	<b>CH</b>	0±60ppm/°C	
<b>3U</b>	<b>UJ</b>	-750±120ppm/°C	

### 4 Rated Voltage

Code	Rated Voltage
<b>D3</b>	HF2kV
<b>AT</b>	HF9kV
<b>B4</b>	HF12kV
<b>AF</b>	HF14kV
<b>C4</b>	HF15kV
<b>AX</b>	HF16kV
<b>D4</b>	HF20kV
<b>E4</b>	HF25kV
<b>F4</b>	HF30kV
<b>AZ</b>	HF31.5kV
<b>3D</b>	DC2kV
<b>3G</b>	DC4kV
<b>3H</b>	DC5kV
<b>AD</b>	DC7.5kV
<b>4C</b>	DC15kV

### 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 which 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.

### 6 Capacitance Tolerance

Code	Capacitance Tolerance
<b>D</b>	±0.5pF
<b>K</b>	±10%
<b>M</b>	±20%
<b>P</b>	+100%, -0%

### 7 Shape

Code	Shape	Application
<b>A2</b>	Dia. 40mm	<b>DCA Series</b>
<b>B3</b>	Dia. 60mm	<b>DCT Series</b>
<b>B4</b>	Dia. 80mm	
<b>B5</b>	Dia. 110mm	
<b>B6</b>	Dia. 140mm	
<b>B8</b>	Dia. 200mm	
<b>C1</b>	Dia. 12mm	<b>DC5 Series</b>
<b>C3</b>	Dia. 6.3mm	
<b>C4</b>	Dia. 30mm	
<b>C6</b>	Dia. 20mm	
<b>C8</b>	Dia. 20mm	<b>DC6 Series</b>
<b>E1</b>	Dia. 40mm	
<b>E2</b>	Dia. 60mm	<b>DCW Series</b>
<b>F1</b>	Dia. 100mm	
<b>F2</b>	Dia. 125mm	
<b>F3</b>	Dia. 135mm	

### 8 Packaging

Code	Packaging
<b>B</b>	Bulk

# Capacitors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Ceramic Trimmer Capacitors

(Global Part Number) 

TZ	Y2	R	200	A	001	R00
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
<b>TZ</b>	Trimmer Capacitors

### 2 Series/Terminal

Code	Series/Terminal
<b>03</b>	6mm Size Lead Type
<b>B4</b>	4mm Size Chip/Lead Type
<b>C3</b>	3mm Size Chip Type
<b>S2</b>	2mm Size Chip Type (Height 1.0mm)
<b>Y2</b>	2mm Size Chip Type (Height 1.25mm)
<b>V2</b>	2mm Size Chip Type (Height 1.45mm)
<b>R1</b>	1mm Size Chip Type (Height 0.90mm)

### 3 Temperature Characteristics

Code	Temperature Characteristics
<b>Z</b>	NP0 ppm/°C
<b>S</b>	N150ppm/°C
<b>N</b>	N200ppm/°C
<b>T</b>	N450ppm/°C
<b>R</b>	N750ppm/°C
<b>K</b>	N1000ppm/°C
<b>P</b>	N1200ppm/°C

Please refer to ratings for tolerance of temperature characteristics.

### 4 Maximum 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 which 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.

### 5 Terminal Shape

Code	Terminal Shape
<b>A</b>	Top Adjustment; <b>TZR1, TZS2, TZY2, TZV2, TZC3, TZB4</b> (Chip Type)
<b>B</b>	Top Adjustment; <b>TZB4</b> (Chip Type), Rear Adjustment; <b>TZ03</b> (Lead Type)
<b>C</b>	Top Adjustment; <b>TZB4</b> (Lead Type)
<b>D</b>	Rear Adjustment; <b>TZB4</b> (Lead Type)
<b>E</b>	Top Adjustment; <b>TZ03</b> (Lead Type), Rear Adjustment; <b>TZB4</b> (Chip Type)
<b>F</b>	Top Adjustment; <b>TZ03</b> (Lead Type)
<b>N</b>	Rear Adjustment; <b>TZ03</b> (Lead Type)
<b>T</b>	Top Adjustment; <b>TZ03</b> (Taping Type)
<b>Y</b>	Side Adjustment; <b>TZ03</b> (Lead Type)

Please refer to dimensions for terminals in detail.

### 6 Individual Specification

Code	Individual Specifications
<b>001</b>	<b>TZR1, TZS2, TZY2</b> Standard Type
<b>110</b>	<b>TZV2, TZC3</b> (Minus Slot) Standard Type
<b>169</b>	<b>TZ03</b> Standard Type
<b>310</b>	<b>TZC3</b> (Plus Slot) Standard Type
<b>A10</b>	<b>TZB4</b> No-cover Film Standard Type
<b>B10</b>	<b>TZB4</b> with Cover Film Standard Type

### 7 Packaging

Code	Packaging
<b>A00</b>	Ammo Pack (Radial Taping)
<b>B00</b>	Bulk
<b>M00</b>	Magazine
<b>R00</b>	Reel (Taping ø180mm)
<b>R01</b>	Reel (Taping ø330mm)

# Capacitors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## C Networks (Bulk)

(Global Part Number) 

B	5	RC	0127	-33N
1	2	3	4	5

### 1 Product ID

Product ID	
<b>B</b>	C Network Bulk

### 2 Number of Terminals

Code	Number of Terminals
<b>5</b>	5 Terminals (4 Elements)
<b>7</b>	7 Terminals (6 Elements)
<b>8</b>	8 Terminals (7 Elements)
<b>9</b>	9 Terminals (8 Elements)

### 3 Appearance/Structure

Code	Appearance/Structure
<b>RC</b>	Unit Size: 15.3×9.5mm
<b>ZC</b>	Unit Size: 19.8×9.5mm
<b>XC</b>	Unit Size: 21.0×8.0mm
<b>HC</b>	Unit Size: 24.0×9.5mm

### 4 Serial Number

### 5 Terminal Structure

Code	Terminal Structure
<b>-33N</b>	2.5mm Pitch, Straight

## C Networks (Small Taping Type)

(Global Part Number) 

CG	SD	8	X	102	M	-T21
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
<b>CG</b>	C Network Low-Profile

### 2 Structure

Code	Structure
<b>SD</b>	Terminal Pitch:2.54mm, Height:6.5mm max.

### 3 Number of Elements

Code	Number of Elements
<b>4</b>	4 Elements
<b>6</b>	6 Elements
<b>8</b>	8 Elements

### 4 Circuit

Code	Circuit
<b>X</b>	Pull up, Pull down Circuit

### 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 which follow the two numbers.

Ex.)

Code	Capacitance
<b>101</b>	100pF
<b>103</b>	10000pF

### 6 Capacitance Tolerance

Code	Capacitance Tolerance
<b>M</b>	±20%
<b>N</b>	±30%

### 7 Packaging

Code	Packaging
<b>-T21</b>	Three-pins, Taping

# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

### PTC Thermistors (POSISTOR®) for Heater

(Global Part Number) 

PT	WSB1	AS	201	T	260	A00
①	②	③	④	⑤	⑥	⑦

#### ① Product ID

Product ID	
PT	PTC Thermistors

#### ② Series

Code	Series
WSB1	Heater Standard Type B1 Series
WSB2	Heater Standard Type B2 Series
WTA1	High-temperature Heater A1 Series

#### ③ Temperature Characteristics

Code	Temperature Characteristics
AD	Curie Point 280°C
AG	Curie Point 225°C
AH	Curie Point 205°C
AS	Curie Point 135°C
BC	Curie Point 90°C

#### ④ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
201	200 $\Omega$

#### ⑤ Resistance Tolerance

Code	Resistance Tolerance
Y	Special Tolerance

#### ⑥ Maximum Voltage

Code	Maximum Voltage
260	260V

#### ⑦ Individual Specifications

Code	Individual Specifications
A00	Structure, others

### PTC Thermistors (POSISTOR®) for Circuit Protection

(Global Part Number) 

PR	G	18	BB	470	M	B1	RB
①	②	③	④	⑤	⑥	⑦	⑧

#### ① Product ID

Product ID	
PR	PTC Thermistors Chip Type

#### ② Series

Code	Series
G	for Overcurrent Protection

#### ③ Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80

#### ④ Temperature Characteristics

Code	Temperature Characteristics
BB	Curie Point 100°C

#### ⑤ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
470	47 $\Omega$
471	470 $\Omega$

#### ⑥ Resistance Tolerance

Code	Resistance Tolerance
M	±20%
Q	Special Tolerance

#### ⑦ Individual Specifications

Code	Individual Specifications
B1	Structure, others

#### ⑧ Packaging

Code	Packaging
RB	Paper Taping (4mm Pitch)



# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## PTC Thermistors (POSISTOR®) for Circuit Protection SMD Type

(Global Part Number) 

PD	G	A8	AR	200	M	A0	RS
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
PD	PTC Thermistors SMD Type

### 2 Series

Code	Series
G	for Overcurrent Protection

### 3 Dimensions (L×W)

Code	Dimensions (L×W)
A0	Special (10.0×8.0mm)

### 4 Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
BB	Curie Point 100°C

### 5 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
100	10 $\Omega$
200	20 $\Omega$

### 6 Resistance Tolerance

Code	Resistance Tolerance
M	$\pm 20\%$

### 7 Individual Specifications

Code	Individual Specifications
A0	Structure, others

### 8 Packaging

Code	Packaging
RS	Plastic Taping 12mm Pitch

## PTC Thermistors (POSISTOR®) for Overheat Sensing Chip Type

(Global Part Number) 

PR	F	18	BB	471	Q	B1	RB
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
PR	PTC Thermistors Chip Type

### 2 Series

Code	Series
F	for Overheat Sensing

### 3 Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80

### 4 Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
AS	Curie Point 130°C
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C

### 5 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
471	470 $\Omega$

### 6 Resistance Tolerance

Code	Resistance Tolerance
Q	Special Tolerance

### 7 Individual Specifications

Code	Individual Specifications
B1	Structure, others

### 8 Packaging

Code	Packaging
RB	Paper Taping (4mm Pitch)

# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## PTC Thermistors (POSISTOR®) for Circuit Protection / for Overheat Sensing Lead Type

(Global Part Number) 

PT	GL	07	AR	220	M	3P51	A0
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
<b>PT</b>	PTC Thermistors

### 2 Series

Code	Series
<b>FL</b>	for Overheat Sensing Lead Type
<b>FM</b>	for Overheat Sensing with Lug-terminal
<b>GL</b>	for Circuit Protection Lead Type

### 3 Dimensions

Code	Dimensions
<b>04</b>	Nominal Body Diameter 4mm Series
<b>05</b>	Nominal Body Diameter 5mm Series
<b>07</b>	Nominal Body Diameter 7mm Series
<b>09</b>	Nominal Body Diameter 9mm Series
<b>10</b>	Nominal Body Diameter 10mm Series
<b>12</b>	Nominal Body Diameter 12mm Series
<b>13</b>	Nominal Body Diameter 13mm Series
<b>14</b>	Nominal Body Diameter 14mm Series
<b>16</b>	Nominal Body Diameter 16mm Series
<b>18</b>	Nominal Body Diameter 18mm Series
<b>S5</b>	Nominal 5mm Rectangular Series
<b>S6</b>	Nominal 6mm Rectangular Series
<b>S7</b>	Nominal 7mm Rectangular Series

### 4 Temperature Characteristics

Code	Temperature Characteristics
<b>AR</b>	Curie Point 120°C
<b>BA</b>	Curie Point 110°C
<b>BB</b>	Curie Point 100°C
<b>BC</b>	Curie Point 90°C
<b>BD</b>	Curie Point 80°C
<b>BE</b>	Curie Point 70°C
<b>BF</b>	Curie Point 60°C
<b>BG</b>	Curie Point 50°C
<b>BH</b>	Curie Point 40°C

### 5 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
<b>R22</b>	0.22 $\Omega$
<b>2R2</b>	2.2 $\Omega$
<b>220</b>	22 $\Omega$

### 6 Resistance Tolerance

Code	Resistance Tolerance
<b>H</b>	$\pm 25\%$
<b>N</b>	$\pm 30\%$
<b>M</b>	$\pm 20\%$
<b>Q</b>	Special Tolerance

### 7 Individual Specifications

Code	Individual Specifications
<b>3P51</b>	Lead Type, others

### 8 Packaging

Code	Packaging
<b>A0</b>	Ammo Pack
<b>B0</b>	Bulk

# Resistors/Thermistors

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## PTC Thermistors (POSISTOR®) for Motor Starters

(Global Part Number) 

PT	HGA1	AR	100	N	225	-00
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
<b>PT</b>	PTC Thermistors

### 2 Series

Code	Series
<b>HGA1</b>	for Motor Starter Case Type

### 3 Temperature Characteristics

Code	Temperature Characteristics
<b>AR</b>	Curie Point 120°C

### 4 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
<b>3R3</b>	3.3 $\Omega$
<b>330</b>	33 $\Omega$

### 5 Resistance Tolerance

Code	Resistance Tolerance
<b>N</b>	$\pm 30\%$

### 6 Maximum Voltage

Code	Maximum Voltage
<b>225</b>	Expressed by three significant digits. The unit is in volts (V).

### 7 Individual Specifications

Code	Individual Specifications
<b>-00</b>	Structure, others

## PTC Thermistors (POSISTOR®) for Motor Starter Plug-on Type

(Global Part Number) 

PT	H7M	100	M	C1	-00
1	2	3	4	5	6

### 1 Product ID

Product ID	
<b>PT</b>	PTC Thermistors

### 2 Series

Code	Series
<b>H7M</b>	for Motor Starter Plug-on Type (Size $\phi 16\text{mm}$ )
<b>H8M</b>	for Motor Starter Plug-on Type (Size $\phi 20\text{mm}$ )

### 3 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
<b>4R7</b>	4.7 $\Omega$
<b>470</b>	47 $\Omega$

### 4 Resistance Tolerance

Code	Resistance Tolerance
<b>M</b>	$\pm 20\%$

### 5 Starting Circuit

Code	Starting Circuit
<b>B3</b>	Starting Circuit : CSR 3Pin
<b>C1</b>	Starting Circuit : RSIR 1Pin
<b>C2</b>	Starting Circuit : RSIR 2Pin
<b>D2</b>	Starting Circuit : RSCR 2Pin
<b>D3</b>	Starting Circuit : RSCR 3Pin

Please contact us for details.

### 6 Individual Specifications

Code	Individual Specifications
<b>-00</b>	Structures, others

# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## PTC Thermistors (POSISTOR®) for Degaussing Circuits

(Global Part Number) **PT** **DAA1** **BF** **4R5** **Q** **200**

① ② ③ ④ ⑤ ⑥

### ① Product ID

Product ID	
<b>PT</b>	PTC Thermistors

### ② Series

Code	Series
<b>DAA1</b>	2-terminals Case Type
<b>DCA1</b>	3-terminals Case Type
<b>DL7P</b>	Lead Type

### ③ Temperature Characteristics

Code	Temperature Characteristics
<b>BF</b>	Curie Point 60°C

### ④ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
<b>3R0</b>	3 $\Omega$
<b>4R5</b>	4.5 $\Omega$
<b>140</b>	14 $\Omega$

### ⑤ Resistance Tolerance

Code	Resistance Tolerance
<b>M</b>	$\pm 20\%$
<b>N</b>	$\pm 30\%$
<b>Q</b>	Special Tolerance

### ⑥ Individual Specifications

Code	Individual Specifications
<b>100</b>	1st Digit : Voltage (100V Type) 2nd-3rd Digits : Others
<b>200</b>	1st Digit : Voltage (200V Type) 2nd-3rd Digits : Others

Please contact us for details.

# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## NTC Thermistors for Temperature Compensation Chip Type

(Global Part Number) 

NC	P	18	XH	103	J	03	RB
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
<b>NC</b>	NTC Thermistors Chip Type

### 2 Series

Code	Series
<b>P</b>	Plated Termination Series

### 3 Dimensions (L×W)

Code	Dimensions (L×W)	EIA
<b>03</b>	0.60×0.30mm	0201
<b>15</b>	1.00×0.50mm	0402
<b>18</b>	1.60×0.80mm	0603
<b>21</b>	2.00×1.25mm	0805

### 4 Temperature Characteristics

Code	Temperature Characteristics
<b>WB</b>	Nominal B-Constant 4050—4099K
<b>WD</b>	Nominal B-Constant 4150—4199K
<b>WF</b>	Nominal B-Constant 4250—4299K
<b>WM</b>	Nominal B-Constant 4500—4549K
<b>XF</b>	Nominal B-Constant 3250—3299K
<b>XQ</b>	Nominal B-Constant 3650—3699K
<b>XH</b>	Nominal B-Constant 3350—3399K
<b>XM</b>	Nominal B-Constant 3500—3549K
<b>XV</b>	Nominal B-Constant 3900—3949K
<b>XW</b>	Nominal B-Constant 3950—3999K

### 5 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
<b>102</b>	1k $\Omega$
<b>103</b>	10k $\Omega$
<b>104</b>	100k $\Omega$

### 6 Resistance Tolerance

Code	Resistance Tolerance
<b>F</b>	$\pm 1\%$
<b>J</b>	$\pm 5\%$
<b>K</b>	$\pm 10\%$

### 7 Individual Specifications

Code	Individual Specifications
<b>03</b>	Structure, others

Please contact us for details.

### 8 Packaging

Code	Packaging
<b>RA</b>	Plastic Taping 8mm Pitch
<b>RB</b>	Paper Taping 4mm Pitch
<b>RC</b>	Paper Taping 2mm Pitch (10000 pcs.)
<b>RD</b>	Paper Taping 2mm Pitch (15000 pcs.)

# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## NTC Thermistors for Temperature Sensor Lead Type

(Global Part Number) 

NT	SA0	XH	103	F	E1	B0
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
NT	NTC Thermistors

### 2 Series

Code	Series
SA0	for Temperature Sensors No Lead-coating Type
SD0	for Temperature Sensors Lead-coating Type

### 3 Temperature Characteristics

Code	Temperature Characteristics
WB	Nominal B-Constant 4050–4099K
WC	Nominal B-Constant 4100–4149K
WD	Nominal B-Constant 4150–4199K
WF	Nominal B-Constant 4250–4299K
XM	Nominal B-Constant 3500–3549K
XH	Nominal B-Constant 3350–3399K
XR	Nominal B-Constant 3700–3749K
XV	Nominal B-Constant 3900–3949K

### 4 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
202	2k $\Omega$
203	20k $\Omega$

### 5 Resistance Tolerance

Code	Resistance Tolerance
E	±3%
F	±1%

### 6 Individual Specifications

Code	Individual Specifications
E1	Lead Style, others

### 7 Packaging

Code	Packaging
A0	Ammo Pack
B0	Bulk

## NTC Thermistors for Inrush Current Suppression

(Global Part Number) 

NT	PA7	160	L	BM	B0
1	2	3	4	5	6

### 1 Product ID

Product ID	
NT	NTC Thermistors

### 2 Series

Code	Series	Nominal Body Diameter
PA7	Inrush Current Suppression Lead Type	7mm
PAA		10mm
PAD		13mm
PAJ		18mm
PAN		22mm

### 3 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
3R0	3 $\Omega$
100	10 $\Omega$

### 4 Resistance Tolerance

Code	Resistance Tolerance
L	±15%

### 5 Individual Specifications

Code	Individual Specifications
BM	Lead Style, others

### 6 Packaging

Code	Packaging
A0	Ammo Pack
B0	Bulk

# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## High-voltage Resistors

(Global Part Number) **MHR** **0409** **S** **A** **107** **J** **60** **T7**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

### ① Product ID

Product ID	
<b>MHR</b>	High-voltage Resistors

### ② Board (W×L) Dimensions

Ex.)

Code	Dimensions
<b>0409</b>	4×9mm
<b>0609</b>	6×9mm
<b>0830</b>	8×30mm

### ③ Type

Code	Type
<b>S</b>	Hoop Terminal, Blue Epoxy Resin
<b>P</b>	øpin, Semitransparent Epoxy Resin

### ④ Circuit

Code	Circuit
<b>A</b>	Single Element
<b>B</b>	Two Elements, Series Circuit

### ⑤ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

Code	Resistance
<b>406</b>	40M $\Omega$
<b>207</b>	200M $\Omega$

### ⑥ Resistance Tolerance

Code	Resistance Tolerance
<b>G</b>	±2%
<b>J</b>	±5%
<b>K</b>	±10%
<b>M</b>	±20%

### ⑦ Individual Specifications

Two digits indicate other specifications.

### ⑧ Packaging

Code	Packaging
<b>T7</b>	Taping

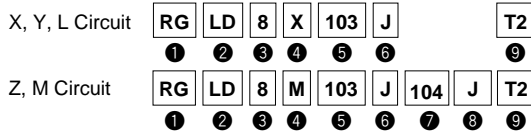
# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## R Network

(Global Part Number)



### ① Product ID

Product ID	
RG	R Networks

### ② Structure

Code	Structure
LD	Terminal Pitch : 2.54mm, Height : 5.0mm max.
LE	Terminal Pitch : 1.78mm, Height : 5.0mm max.
SD	Terminal Pitch : 2.54mm, Height : 6.5mm max.

### ③ Number of Element

Code	Number of Element
8	1 or 2 digits shows the number of element.

### ④ Circuit

Code	Circuit
X	Pull-up, Pull-down Circuit
Y	Isolated Circuit
Z	Double Terminator Circuit
M	Divider Circuit
L	R/2R Ladder Circuit

### ⑤ Nominal Resistance (Z, M Circuit : R<sub>A</sub>)

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

Code	Nominal Resistance
150	15 $\Omega$
103	10k $\Omega$

### ⑥ Resistance Tolerance (Z, M Circuit : R<sub>A</sub>)

Code	Resistance Tolerance
J	$\pm 5\%$
G	$\pm 2\%$ (22 $\Omega$ min.)

### ⑦ Nominal Resistance (Z, M Circuit : R<sub>B</sub>)

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

Code	Nominal Resistance
150	15 $\Omega$
104	100k $\Omega$

If R<sub>A</sub> and R<sub>B</sub> values are the same, ⑦ and ⑧ remain blanks, and the corresponding code is omitted.

### ⑧ Resistance Tolerance (Z, M Circuit : R<sub>B</sub>)

Code	Resistance Tolerance
J	$\pm 5\%$
G	$\pm 2\%$ (22 $\Omega$ min.)

### ⑨ Packaging

Code	Packaging
T2	3pins Taping



# Resistors/Thermistors

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Trimmer Potentiometers

(Global Part Number) **PV** **Z3** **A** **103** **A01** **R00**  
① ② ③ ④ ⑤ ⑥

### ① Product ID

Product ID	
<b>PV</b>	Trimmer Potentiometers

### ② Series

### ③ Lead Type /Adjustment Direction

Code	Series	Code	Lead Type/ Adjustment Direction
<b>Z2</b>	2mm Size	<b>A</b>	Top
		<b>K</b>	Rear
<b>Z3</b>	3mm Size	<b>A</b>	Top
		<b>K</b>	Rear
<b>S3</b>	3mm Size with Stopper Low-profile	<b>A</b>	Top
<b>A3</b>	3mm Size	<b>A</b>	Top
<b>M4</b>	Closed 4mm Size	<b>A</b>	Top
<b>F2</b>	Closed 2mm Size	<b>A</b>	Top
<b>G3</b>	Closed 3mm Size	<b>A</b>	Top, J-hook
		<b>G</b>	Top, Gull-wing
<b>G5</b>	SMD 11-turns 5 Size	<b>A</b>	Top
		<b>H</b>	Side
<b>01</b>	SMD 12-turns	<b>P</b>	Side
		<b>W</b>	Top
		<b>X</b>	Side
<b>C6</b>	Single-turn Closed Type 6mm Size	<b>A</b>	Top, Triangle
		<b>D</b>	Top, Triangle
		<b>E</b>	Side, Triangle
		<b>G</b>	Side, Triangle
		<b>H</b>	Side, Triangle
		<b>M</b>	Top, Inline
		<b>Q</b>	Side, Inline
<b>32</b>	Single-turn Closed Type 6mm Size	<b>H</b>	Top, Triangle
		<b>P</b>	Top, Triangle
		<b>R</b>	Top, Inline
		<b>N</b>	Side, Triangle
		<b>T</b>	Side, Triangle
		<b>S</b>	Side, Triangle
<b>34</b>	Single-turn Closed Type	<b>F</b>	Top, Triangle
		<b>P</b>	Top, Triangle
		<b>H</b>	Side, Triangle
		<b>X</b>	Side, Triangle
		<b>W</b>	Side, Inline
<b>12</b>	4-turn Closed Type	<b>H</b>	Top, Triangle
		<b>P</b>	Top, Triangle
		<b>T</b>	Side, Triangle
		<b>S</b>	Side, Triangle
<b>22</b>	22-turn Closed Type	<b>L</b>	Side
		<b>S</b>	Side, Inline
		<b>Y</b>	Side, Triangle

<b>23</b>	15-turn Closed Type	<b>P</b>	Side, Triangle
		<b>Y</b>	Side, Triangle
<b>36</b>	25-turn Closed Type	<b>W</b>	Top, Inline
		<b>Y</b>	Top, Triangle
		<b>P</b>	Side, Triangle
		<b>X</b>	Side, Inline
		<b>Z</b>	Side, Triangle
<b>37</b>	12-turn Closed Type	<b>W</b>	Top, Triangle
		<b>Y</b>	Top, Inline
		<b>P</b>	Side, Triangle
		<b>X</b>	Side, Triangle
		<b>Z</b>	Side, Inline

### ④ All Resistance

Expressed by three figures. The unit is ohm. The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

Code	All Resistance
<b>100</b>	100ohm
<b>102</b>	1000ohm
<b>104</b>	10000ohm (=100kohm)

### ⑤ Individual Specification Code

Code	Series	Individual Specification Code
<b>A01</b>	—	Standard
<b>B01</b>	<b>PVZ3</b>	Heat-resistance Type
<b>B01</b>	<b>PVM4</b>	High-liability Type
<b>A31</b>	<b>PV36/PV37</b>	Radial Taping
<b>A04</b>	<b>PVC6</b>	Radial Taping
<b>A11</b>	<b>PVF2</b>	Standard Type (Resistance Change Characteristics : Linear)
<b>A41</b>	<b>PVF2</b>	Standard Type (Resistance Change Characteristics : Log curve)
<b>A81</b>	<b>PVF2</b>	Standard Type (Resistance Change Characteristics : Log curve)
<b>A51</b>	<b>PVF2</b>	Standard Type (Resistance Change Characteristics : Log-log curve)
<b>A91</b>	<b>PVF2</b>	Standard Type (Resistance Change Characteristics : Log-log curve)

### ⑥ Packaging

Code	Packaging
<b>A00</b>	Ammo Pack
<b>B00</b>	Bulk
<b>M00*</b>	Magazine
<b>R00</b>	Reel

\* M02 for PV01 series

# Coils/Delay Lines

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

### Chip Coils (SMD)

(Global Part Number) 

L	H	3	2	M	N	3	3	1	K	2	1	L
1	2	3	4	5	6	7	8	9	10			

#### ① Product ID

Product ID	
LQ	Chip Coils

#### ② Structure

Code	Structure
G	Monolithic Type (Air-core Coil)
H	Winding Type (Ferrite Core)
M	Monolithic (Ferrite Core)
P	Film Type
W	Winding Type (Air-core Coil)

#### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
03	0.60×0.30mm	0201
15	1.00×0.50mm	0402
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
2B	2.00×1.50mm	0805
31	3.20×1.60mm	1206
32	3.20×2.50mm	1210
3E	3.50×3.20mm	1214
3K	3.30×3.30mm	1212
43	4.50×3.20mm	1812
55	5.70×5.00mm	2220
66	6.30×6.30mm	2525

#### ④ Applications and Characteristics

Code	Series	Applications and Characteristics
H	LQG	Monolithic Air-core
N	LQM	for Resonant Circuit
D		for Choke (Low-current DC Power Supplies)
F		for Choke (DC Power Supplies)
M	LQP	Film Type
T		Film Type (Low DC Resistance Type)
A	LQW	High Q Type (UHF-SHF)
H		High Q Type (VHF-UHF)
N	LQH	for Resonant Circuit
M		for Resonant Circuit (Coating Type)
R		for Resonant Circuit (Magnetically Shielded Type)
D		for Choke
C		for Choke (Coating Type)
S		for Choke (Magnetically Shielded Type)
H		for High-frequency Resonant Circuit

#### ⑤ Category

Code	Category
N	Standard Type

#### ⑥ Inductance

Expressed by three figures. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits. If inductance is less than 0.1μH, the inductance code is expressed by combination of two figures are capital letter "N", and the unit of inductance is nano-henry (nH).

Capital letter "N" indicates the unit of "nH", and also expresses a decimal point. In this case, all figure are significant digits.

#### ⑦ Inductance Tolerance

Code	Inductance Tolerance
B	±0.1nH
C	±0.2nH
D	±0.5nH
G	±2%
H	±3%
J	±5%
K	±10%
M	±20%
N	±30%
S	±0.3nH
W	±0.05nH

#### ⑧ Features

Expressed by a figure from "0" to "2".

Ex.)

Code	Features
0	Standard Type

#### ⑨ Electrode


Code	Electrode
0	Solder etc
1	Ni alloy + Solder
2	Sn

Continued on the following page.

# Coils/Delay Lines

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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 Continued from the preceding page.

(Global Part Number) 

L	Q	H	3	2	M	N	3	3	1	K	2	1	L
1	2	3	4	5	6	7	8	9	10				

## 10 Packaging

Code	Packaging	Series
<b>K</b>	Plastic Taping (ø330mm Reel)	<b>LQM*1 /LQH*2 /LQW2B</b>
<b>L</b>	Plastic Taping (ø180mm Reel)	<b>LQH/LQM*3</b>
<b>B</b>	Bulk	All series except <b>LQH/LQW2B/LQW31/LQP03</b>
<b>J</b>	Paper Taping (ø330mm Reel)	<b>LQG/LQM*4 /LQW*5</b>
<b>D</b>	Paper Taping (ø180mm Reel)	<b>LQG/LQP/LQM*6</b>

\*1 LQM31F/LQM21N(2.7 - 4.7μH)/LQM21D(22 - 47μH)/LQM21F(4.7 - 47μH) series only.

\*2 Except LQH3ER/LQH43C/LQH66S

\*3 LQM31F/LQM21N(2.7 - 4.7μH)/LQM21D(22 - 47μH)/LQM21F(4.7 - 47μH) series only.

\*4 LQM21N(0.1 - 2.2μH)/LQM21D(1 - 10μH)/LQM21F(1 - 2.2μH) series only.

\*5 Except LQW15A

\*6 LQM21N(0.1 - 2.2μH)/LQM21D(1 - 10μH)/LQM21F(1 - 2.2μH) series only.

## Chip Multilayer Delay Lines

(Global Part Number) 

L	D	H	6	5	1	0	P	A	A	A	-	4	0
1	2	3	4	5	6	7	8						

### 1 Product ID

Product ID	
<b>LD</b>	Chip Multilayer Devices

### 2 Function

Code	Function
<b>H</b>	Delay Lines

### 3 Dimension (L×W)

Code	Dimension (L×W)	EIA
<b>21</b>	2.00×1.25mm	0805
<b>31</b>	3.20×1.60mm	1206
<b>32</b>	3.20×2.50mm	1210
<b>54</b>	5.00×4.00mm	-
<b>65</b>	6.30×5.00mm	-
<b>A2</b>	10.0×6.3mm	-

### 4 Delay Time

Three figures and a capital letter express the nominal value. If the unit is "nano-second", a decimal point is expressed by the capital letter "N". If the unit is "pico-second", the letter "P".

### 5 Delay Time Tolerance

Code	Delay Time Tolerance
<b>A</b>	±0.05ns
<b>B</b>	±0.1ns
<b>C</b>	±0.2ns
<b>K</b>	±10%
<b>L</b>	±15%

### 6 Individual Specification Code (1)

Code	Individual Specification Code (1)
<b>A</b>	Standard

### 7 Design

Code	Design
<b>A</b>	An alphabet expresses identification of design type for each function.

### 8 Individual Specification Code (2)

A hyphen (-), figures, alphabets, express the specifications or characteristics or others.

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## ● Part Numbering

### Chip EMIFIL® Inductor Type

(Global Part Number) 

BL	M	18	AG	102	S	N	1	D
①	②	③	④	⑤	⑥	⑦	⑧	⑨

#### ① Product ID

Product ID	
BL	Chip Ferrite Beads

#### ② Type

Code	Type
A	Array Type
M	Monolithic Type

#### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
15	1.00×0.50mm	0402
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206
41	4.50×1.60mm	1806

#### ⑤ Impedance

Expressed by three figures. The unit is in ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

#### ⑥ Performance

Expressed by an alphabet.

Ex.)

Code	Performance
S	Sn Plating

#### ⑦ Category

Code	Category
N	Standard Type
H	for Automotive Electronics

#### ⑧ Numbers of Circuit

Code	Numbers of Circuit
1	1Circuit
4	4Circuit

#### ④ Characteristics/Applications

Code *1	Characteristics/Applications	Series
AF	for General Use	BLM31/BLM41
AG		BLM15/BLM18/BLM21/BLM31/BLA31
AJ		BLM21/BLM31
AH		BLM21
BA	for High-speed Signal Lines	BLM18
BB		BLM15/BLM18/BLM21
BD		BLM15/BLM18/BLM21/BLA31
BE		BLM31
PF	for Power Supplies	BLM41
PG		BLM18/BLM21/BLM31/BLM41
RK	for Digital Interface	BLM18/BLM21
HG	for GHz Band General Use	BLM18
HD	for GHz Band High-speed Signal Line	BLM18
HK	for GHz Band Digital Interface	BLM18

\*1 Frequency characteristics is varied with each code.

#### ⑨ Packaging

Code	Packaging	Series
K	Plastic Taping ( $\phi$ 330mm Reel)	BLM31/BLM41/BLM21 *1
L	Plastic Taping ( $\phi$ 180mm Reel)	
B	Bulk	All series
J	Paper Taping ( $\phi$ 330mm Reel)	BLM15/BLM18/BLM21*2 /BLA31
D	Paper Taping ( $\phi$ 180mm Reel)	
C	Bulk Case	BLM15/BLM18

\*1 BLM21BD222SN1/BLM21BD272SN1/BLM21BD252SN1 only.

\*2 Except BLM21BD222SN1/BLM21BD272SN1/BLM21BD252SN1

# Noise Suppression Products/(EMIFIL®)

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## Chip EMIFIL® Capacitor Type

(Global Part Number) 

NF	M	3D	CC	102	R	1H	3	L
1	2	3	4	5	6	7	8	9

### ① Product ID

Product ID	
<b>NF</b>	Chip EMI Filters Capacitor Type

### ② Structure

Code	Structure
<b>M</b>	Capacitor Type

### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
<b>21</b>	2.00×1.25mm	0805
<b>3D</b>	3.20×1.25mm	1206
<b>41</b>	4.50×1.60mm	1806
<b>55</b>	5.70×5.00mm	2200

### ④ Features

Code	Features
<b>CC</b>	Capacitor Type for Signal Lines
<b>PC</b>	Capacitor Type for Large Current
<b>HC</b>	Capacitor Type for Automotive Electronics

### ⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### ⑨ Packaging

Code	Packaging	Series
<b>L</b>	Plastic Taping (ø180mm Reel)	<b>NFM3D/NFM41/NFM55</b>
<b>B</b>	Bulk	All series
<b>D</b>	Paper Taping (ø180mm Reel)	<b>NFM21</b>

### ⑥ Capacitance Change

Code	Capacitance Change
<b>B</b>	±10%
<b>F</b>	+30/-80%
<b>R</b>	±15%
<b>U</b>	-750 ±120ppm
<b>S</b>	+350 to -1000ppm

### ⑦ Rated Voltage

Code	Rated Voltage
<b>1A</b>	10V
<b>1C</b>	16V
<b>1E</b>	25V
<b>1H</b>	50V
<b>2A</b>	100V

### ⑧ Electrode/Others

Expressed by a figure.

Ex.)

Code	Electrode
<b>3</b>	Sn Plating
<b>4</b>	Solder Coating
<b>9</b>	Others

# Noise Suppression Products/(EMIFIL®)

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## Chip EMIFIL® Capacitor Array Type

(Global Part Number) 

NF	A	31	CC	101	S	1E	4	B
1	2	3	4	5	6	7	8	9

### ① Product ID

Product ID	
<b>NF</b>	Chip EMI Filters Capacitor Type

### ② Structure

Code	Structure
<b>A</b>	Array Type

### ③ Dimension (L×W)

Code	Dimension (L×W)
<b>31</b>	3.20×1.60mm

### ④ Features

Code	Features
<b>CC</b>	Capacitor Type for Signal Lines

### ⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### ⑥ Capacitance Change

Code	Capacitance Change
<b>R</b>	±15%
<b>S</b>	+350 to -1000ppm

### ⑦ Rated Voltage

Code	Rated Voltage
<b>1C</b>	16V
<b>1E</b>	25V

### ⑧ Numbers of Circuit

Code	Number of Circuit
<b>4</b>	4 circuit

### ⑨ Packaging

Code	Packaging
<b>B</b>	Bulk
<b>D</b>	Paper Taping (ø180mm Reel)

# Noise Suppression Products/(EMIFIL®)

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## Chip EMIFIL® LC Combined Type

(Global Part Number) **NF** **W** **31** **SP** **206** **X** **1E** **4** **L**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

### ① Product ID

Product ID	
<b>NF</b>	Chip EMI Filters LC Combined Type

### ② Structure

Code	Structure
<b>L</b>	Monolithic, LC Combined Type
<b>W</b>	Winding, LC Combined Type
<b>E</b>	Block, LC Combined Type

### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
<b>21</b>	2.0×1.25mm	0805
<b>31</b>	3.20×1.60mm	1206
<b>61</b>	6.80×1.60mm	2606

### ④ Features

Code	Features
<b>SP</b>	$\pi$ Circuit for Signal Lines
<b>PT</b>	T Circuit for Large Current
<b>HP</b>	$\pi$ Circuit for Automotive Electronics
<b>HT</b>	T Circuit for Automotive Electronics

### ⑤ Cut-off Frequency (NFL/NFW Series)

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

### ⑥ Capacitance (NFE Series)

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### ⑨ Packaging

Code	Packaging	Series
<b>K</b>	Plastic Taping (ø330mm Reel)	<b>NFW31/NFE</b>
<b>L</b>	Plastic Taping (ø180mm Reel)	<b>NFW31/NFE</b>
<b>B</b>	Bulk	<b>NFL21/NFE</b>
<b>D</b>	Paper Taping (ø180mm Reel)	<b>NFL21</b>

### ⑥ Characteristics (NFL/NFW Series)

Code	Characteristics
<b>X</b>	Cut off Frequency

### ⑥ Capacitance Change (NFE Series)

Code	Capacitance Change
<b>B</b>	±10%
<b>C</b>	±20%, ±22%
<b>D</b>	+20/-30%, +22/-33%
<b>E</b>	+20/-55%, +22/-56%
<b>F</b>	+30/-80%, +22/-82%
<b>R</b>	±15%
<b>U</b>	-750 ±120ppm/ °C
<b>Z</b>	Other

### ⑦ Rated Voltage

Code	Rated Voltage
<b>1C</b>	16V
<b>1E</b>	25V
<b>1H</b>	50V
<b>2A</b>	100V

### ⑧ Electrode

Expressed by a figure.

Ex.)

Code	Electrode
<b>0</b>	Ag / Pd Outer Electrode
<b>3</b>	Sn Plating
<b>4</b>	Solder Coating
<b>9</b>	Others

# Noise Suppression Products/(EMIFIL®)

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## Chip EMIFIL® RC Combined Type

(Global Part Number) 

NF	R	21	GD	470	470	2	L
①	②	③	④	⑤	⑥	⑦	⑧

### ① Product ID

Product ID	
NF	EMIFIL®

### ② Structure

Code	Structure
R	RC Combined Type

### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.25mm	0805

### ④ Features

Code	Features
GD	RC Combined Type for Signal Lines

### ⑤ Capacitance

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

### ⑥ Resistance

Expressed by three figures. The unit is in ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits.

### ⑦ Electrode/Others

Code	Electrode
1	Ag Plating
2	Sn Plating

### ⑧ Packaging

Code	Packaging
L	Plastic Taping ( $\phi$ 180mm Reel)
B	Bulk

## Chip EMIFIL® RC Combined Array Type

(Global Part Number) 

NF	A	31	GD	100	101	4	D
①	②	③	④	⑤	⑥	⑦	⑧

### ① Product ID

Product ID	
NF	EMIFIL®

### ② Structure

Code	Structure
A	Array Type

### ③ Dimension (L×W)

Code	Dimension (L×W)
31	3.20×1.60mm

### ④ Features

Code	Features
GD	RC Combined Type for Signal Lines

### ⑤ Capacitance

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

### ⑥ Resistance

Expressed by three figures. The unit is in ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits.

### ⑦ Numbers of Circuit

Code	Numbers of Circuit
4	4 Circuit

### ⑧ Packaging

Code	Packaging
B	Bulk
D	Paper Taping ( $\phi$ 180mm Reel)



# Noise Suppression Products/(EMIFIL®)

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Chip EMIFIL® Common Mode Choke Coils

(Global Part Number) 

DL	M	31	K	N	281	S	J	2	L
1	2	3	4	5	6	7	8	9	10

### 1 Product ID

Product ID	
<b>DL</b>	Chip Common Mode Choke Coils

### 2 Structure

Code	Structure
<b>W</b>	Monolithic Type
<b>M</b>	Winding Type
<b>P</b>	Film Type

### 3 Dimension (L×W)

Code	Dimension (L×W)	EIA
<b>21</b>	2.00×1.20mm	0805
<b>31</b>	3.20×1.60mm	1206
<b>2H</b>	2.50×2.00mm	-
<b>5A</b>	5.00×3.60mm	-
<b>5B</b>	5.00×5.00mm	-

### 4 Type

Code	Type
<b>S</b>	Magnetically Shielded One Circuit Type
<b>D</b>	Magnetically Shielded Two Circuit Type
<b>H</b>	Open Magnetic One Circuit Type
<b>K</b>	Magnetically Monolithic Type (bifilar winding)
<b>G</b>	Magnetically Monolithic Type (sectional winding)

### 10 Packaging

Code	Packaging	Series
<b>K</b>	Plastic Taping (ø330mm Reel)	<b>DLW5AH/DLW5BS</b>
<b>L</b>	Plastic Taping (ø180mm Reel)	All series
<b>B</b>	Bulk	All series except <b>DLM2H</b>

### 5 Category

Code	Category
<b>N</b>	Standard Type

### 6 Impedance

Typical impedance at 100MHz is expressed by three figures. The unit is in ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### 7 Circuit

Ex.)

Code	Circuit
<b>S</b>	Standard Type

### 8 Features

Expressed by an alphabet.

### 9 Numbers of Signal Line

Code	Number of Signal Line
<b>2</b>	Two Lines
<b>3</b>	Three Lines
<b>4</b>	Four Lines

# Noise Suppression Products/(EMIFIL®)

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Lead Type EMIFIL® Inductor Type

(Global Part Number) 

BL	02	RN	2	R1	M	2	B
----	----	----	---	----	---	---	---

  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

### ① Product ID

Product ID	
<b>BL</b>	Ferrite Beads Inductors

### ② Series

Code	Series
<b>01</b>	Beads ø3.6
<b>02</b>	Beads ø3.4
<b>03</b>	Beads ø2.3 max.

### ③ Beads Core Material

Code	Beads Core Material
<b>RN</b>	Standard Type

### ④ Numbers of Beads Core

Code	Numbers of Beads Core
<b>1</b>	1
<b>2</b>	2

### ⑤ Lead Type

Code	Lead Type
<b>A1</b>	Axial Straight Type
<b>A2</b>	Axial Crimp Type
<b>R1</b>	Radial Straight Type
<b>R2</b>	Radial Straight and wave formed Leads Type

### ⑧ Packaging

Code	Packaging	Series
<b>A</b>	Ammo Pack	<b>BL01RN1A1E1A/BL02/BL03</b>
<b>B</b>	Bulk	All series
<b>J</b>	Corrugated Reel (ø320mm)	<b>BL01RN1A1F1J</b>

### ⑥ Lead Length, Space

Code	Lead Length, Space
<b>A</b>	Bulk, Axial Type, 3.7mm
<b>B</b>	Bulk, Axial Type, 4.6mm
<b>C</b>	Bulk, Axial Type, 10.0mm
<b>D</b>	Bulk, Axial Type, 47.0mm
<b>E</b>	Taping Axial Type, 26.0mm
<b>F</b>	Taping, Axial Type, 52.0mm
<b>G</b>	Bulk, Radial Type, 3.5mm
<b>H</b>	Bulk, Radial Type, 4.0mm
<b>J</b>	Bulk, Radial Type, 5.0mm
<b>K</b>	Bulk, Radial Type, 6.0mm
<b>L</b>	Bulk, Radial Type, 8.0mm
<b>M</b>	Bulk, Radial Type, 10.0mm
<b>N</b>	Taping, Radial Type, 16.5mm
<b>P</b>	Taping, Radial Type, 18.5mm
<b>Q</b>	Taping, Radial Type, 20.0mm

### ⑦ Lead Diameter

Code	Lead Diameter
<b>1</b>	ø0.60mm
<b>2</b>	ø0.65mm

# Noise Suppression Products/(EMIFIL®)

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## Lead Type EMIFIL® Capacitor Type

(Global Part Number) 

DS	S	9	H	B3	2E	271	Q55	B
1	2	3	4	5	6	7	8	9

### 1 Product ID

Product ID	
<b>DS</b>	Three-terminals Capacitor

### 2 Structure

Code	Structure
<b>N</b>	No Ferrite Beads Type
<b>S</b>	Built-in Ferrite Beads Type
<b>T</b>	with Ferrite Beads Type

### 3 Style

Code	Style
<b>6</b>	Diameter 8.0mm Type
<b>9</b>	Diameter 9.5mm Type

### 4 Category

Code	Category
<b>N</b>	for General Use
<b>H</b>	for Heavy-duty

### 5 Temperature Characteristics

Code	Temperature Characteristics
<b>B3</b>	±10% (Temperature Range : -25°C to +85°C)
<b>D3</b>	+20/-30% (Temperature Range : -25°C to +85°C)
<b>E3</b>	+20/-55% (Temperature Range : -25°C to +85°C)
<b>F3</b>	+30/-80% (Temperature Range : -25°C to +85°C)
<b>Z8</b>	+30/-85% (Temperature Range : -10°C to +60°C)

### 6 Rated Voltage

Code	Rated Voltage
<b>1C</b>	16V
<b>1H</b>	50V
<b>2A</b>	100V
<b>2E</b>	250V

### 7 Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### 8 Lead Type

Code	Lead Type
<b>Q□□</b>	Straight Type
<b>T□□, U□□</b>	Others

### 9 Packaging

Code	Packaging	Series
<b>A</b>	Ammo Pack	All series except <b>DSS9</b>
<b>B</b>	Bulk	All series
<b>J</b>	Corrugated Reel (ø320mm)	<b>DSS9</b>

# Noise Suppression Products/(EMIFIL®)

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Lead Type Common Mode Choke Coils / AC Line Filters

(Global Part Number) 

PL	A	10	A	S	152	2R0	R	2	B
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

### ① Product ID

Product ID	
PL	Common Mode Choke Coils

### ② Type

Code	Type
T	DC Type
A	Standard Type
H	High-frequency Type
Y	Hybrid Choke Coils Type

### ③ Applications

Code	Applications
08	for DC Line
09	for DC Line High-frequency Type
10	for AC Line

### ④ Structure

Code	Structure
A	Core Vertical Type
H	Core Horizontal Type
C	Case Type

### ⑤ Features

Code	Features
S	Safety Recognized
N	General Use

### ⑩ Packaging

Code	Packaging	Series
B	Bulk	All series
M	Magazine Package	PLT All series

•Please contact us for FKOB type.

### ⑥ Inductance

Expressed by three figures. The unit is micro-henry ( $\mu\text{H}$ ). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits. If inductance is less than  $0.1 \mu\text{H}$ , the inductance code is expressed by combination of two figures and capital letter "N", and the unit of inductance is nano-henry (nH). Capital letter "N" indicates the unit of "nH", and also expresses a decimal point. In this case, all figure are significant digits.

### ⑦ Rated Current

Expressed by three figures. The unit is in ampere (A). A decimal point is expressed capital letter "R". In this case, all figures are significant digits.

### ⑧ Winding Mode

Code	Winding Mode
D	Sectional Winding Type
R	Standard Type
P	Aligned Winding Type
T	Troidal Type

### ⑨ Lead Dimensions

Code	Lead Dimensions
2	3.5mm
1	5mm
0	4mm (PLT)
3	4mm (Except for PLT)

# Noise Suppression Products/(EMIFIL®)

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Chip Varistors

(Global Part Number) 

VC	M	18	R	N	180	D	S	1	L
1	2	3	4	5	6	7	8	9	10

### ① Product ID

Product ID	
VC	Chip Varistor

### ② Structure

Code	Structure
M	Monolithic Type

### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805

### ④ Style

Code	Style
R	Standard Type

### ⑤ Category

Code	Category
N	Standard Type

### ⑥ Rated Voltage

Expressed by three figures. The unit is in volts (V). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits.

### ⑦ Electrode

Expressed by a figure.

Ex.)

Code	Electrode
D	Ag/Pd
S	Sn

### ⑧ Characteristics

Code	Characteristics
S	Standard Type

### ⑨ Number of Circuit

Code	Number of Circuit
1	1 Circuit

### ⑩ Packaging

Code	Packaging
L	Plastic Taping (ø180mm Reel)
B	Bulk

## Chip EMIGUARD® (EMIFIL® with Varistor Function)

(Global Part Number) 

VF	M	41	R	N	222	N	1C	L
1	2	3	4	5	6	7	8	9

### ① Product ID

Product ID	
VF	Chip Solid EMIGUARD®

### ② Structure

Code	Structure
M	Monolithic Type

### ③ Dimension (L×W)

Code	Dimension (L×W)
41	4.50×1.60mm

### ④ Outer Electrode

Code	Outer Electrode
R	Standard Type

### ⑤ Category

Code	Category
N	Standard

### ⑥ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### ⑦ Capacitance Tolerance

Code	Capacitance Tolerance
N	±30%

### ⑧ Rated Voltage

Code	Rated Voltage
1C	16V

### ⑨ Packaging

Code	Packaging
L	Plastic Taping (ø180mm Reel)
B	Bulk

# Noise Suppression Products/(EMIFIL®)

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Lead Type EMIGUARD® (EMIFIL® with Varistor Function)

(Global Part Number) 

VF	S	6	V	D8	1E	221	T51	B
1	2	3	4	5	6	7	8	9

### ① Product ID

Product ID	
<b>VF</b>	EMIGUARD® Lead Type

### ② Structure

Code	Structure
<b>S</b>	Built-in Ferrite Beads Type
<b>R</b>	with Resistance

### ③ Style

Code	Style
<b>3</b>	Size is expressed by a figure
<b>6</b>	
<b>9</b>	

### ④ Features

Code	Features
<b>V</b>	with Varistor Function

### ⑤ Packaging

Code	Packaging	Series
<b>A</b>	Ammo Pack	<b>VFR3V/VFS6V</b>
<b>B</b>	Bulk	<b>VFR3V/VFS6V/VFS9V</b>
<b>J</b>	Corrugated Reel ø320mm	<b>VFS9V</b>

### ⑤ Temperature Characteristics

Code	Temperature Characteristics
<b>D8</b>	+20/-30% (Temperature Range : -40°C~+105°C)
<b>D3</b>	+20/-30% (Temperature Range : -25°C~+85°C)

### ⑥ Rated Voltage

Code	Rated Voltage
<b>1E</b>	25V
<b>1B</b>	12V

### ⑦ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

### ⑧ Lead Type

Code	Lead Type
<b>Q□□</b>	Straight Type
<b>T□□, U□□</b>	Others

# Noise Suppression Products/(EMIFIL®)

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## RC/C Module

(Global Part Number)

RC Module 

AR	CL	8	L	S	103	102	
①	②	③	④	⑤	⑥	⑦	⑧

C Module 

CN	TL	8	X	W	102M	
①	②	③	④	⑤	⑦	⑧

### ① Product ID

Product ID	
AR	RC Module
CN	C Module

### ② Series

Code	Series
C	Standard (H : 7.6mm max.)
CL	Low-profile Standard (H : 5.5mm max.)
TL	Low-profile Standard (H : 5.5mm max.)

### ③ Number of Lead Terminal

Expressed by one or two figures.

### ④ Circuit Type

Expressed by an alphabet.

### ⑤ Lead Pitch

Code	Lead Pitch	
None	AR Series	Inch Pitch
W	CNTL Series	Inch Pitch
S	Shrink Pitch	

### ⑥ Resistance and Tolerance (RC Module)

Expressed by three figures.

Ex.)

Code	Resistance and Tolerance
103	10000Ω±5%

Please contact us for any other tolerance.

### ⑦ Capacitance and Tolerance

RC Module : Expressed by three figures.

C Module : Expressed by three figures and an alphabet.

Ex.)

Code	Capacitance and Tolerance	
102	RC Module	1000pF
102M	C Module	1000pF, M : ±20%

As for the tolerance of RC Modules.

### ⑧ Other Specifications

# Noise Suppression Products/(EMIFIL®)

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## Ferrite Cores

(Global Part Number) 

FS	RB	12	1	060	RT	B0	0	T
1	2	3	4	5	6	7	8	9

### ① Product ID

Product ID	
<b>FS</b>	Ferrite

### ② Series

Code	Series
<b>RH</b>	Beads Core
<b>RB</b>	Ring Core
<b>RC</b>	for Flat Cable
<b>MA</b>	Mutli-hole Core
<b>SA</b>	Plate Core

### ③ Dimensions

Code	Dimensions
<b>12</b>	Approximately 12mm
<b>05</b>	Approximately 5mm

### ④ Outer Dimension Supplement Code

Code	Outer Dimension Supplement Code
<b>0</b>	Serial number is added in case their internal diameters are the same.

### ⑤ Length

Code	Length
<b>120</b>	12.0mm
<b>050</b>	5.0mm
<b>A50</b>	1.50mm
<b>B50</b>	2.50mm
<b>Z50</b>	0.50mm
<b>Z55</b>	0.55mm

Expressed by three figures or combination of an alphabet and two figures. A to J (except I) indicates one to nine. Z indicates Zero.

### ⑥ Material

Code	Material
<b>RN</b>	Ni-Zn $\mu=550$
<b>RT</b>	Ni-Zn $\mu=1600$
<b>RX</b>	Ni-Zn $\mu=750$

### ⑦ Process

Code	Process
<b>00</b>	Standard Type
<b>B0</b>	Barrel Type
<b>F0</b>	Separate Type

### ⑧ Individual Specification Code

Code	Individual Specification Code
<b>0</b>	Standard Type

### ⑨ Packaging

Code	Packaging
<b>B</b>	Bulk
<b>T</b>	Tray



# Resonators

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

### CERALOCK® (MHz)

(Global Part Number) 

CS	T	CV	16M0	X53	***	-R0
①	②	③	④	⑤	⑥	⑦

#### ① Product ID

Product ID	
<b>CS</b>	Ceramic Resonators

#### ② Frequency/Capacitance

Code	Frequency/Capacitance
<b>A</b>	MHz No capacitance built-in
<b>T</b>	MHz Built-in Capacitance

#### ③ Structure/Size

Code	Structure/Size
<b>LA</b>	Lead Type
<b>LS</b>	Round Lead Type
<b>CC</b>	Cap Chip Type
<b>CR/CE/CG</b>	Small-cap Chip Type
<b>CV</b>	Monolithic Chip Type
<b>CW</b>	Small Monolithic Chip Type

#### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz). Decimal point is expressed by capital letter "M".

#### ⑤ Design

Code	Design
<b>G□□</b>	Thickness Shear mode
<b>TV□□</b>	Thickness Expander mode
<b>X□□</b>	Thickness Expander mode (3rd overtone)

□□ indicates initial frequency tolerance and load capacity.

### CERALOCK® (kHz)

(Global Part Number) 

CS	B	FB	1M00	J58	***	-R1
①	②	③	④	⑤	⑥	⑦

#### ① Product ID

Product ID	
<b>CS</b>	Ceramic Resonators

#### ② Frequency/Capacitance

Code	Frequency/Capacitance
<b>B</b>	kHz No capacitance built-in

#### ③ Structure/Size

Code	Structure/Size
<b>LA</b>	Two-Terminal Lead Type
<b>FB</b>	SMD Type

#### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

#### ⑥ Individual Specification

Code	Individual Specification
***	Three-digit alphanumerics express "Individual Specification".

With standard products, "⑥ Individual Specification" is omitted, and "⑦ Package Specification Code" is carried up.

#### ⑦ Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-A0</b>	Radial Taping H <sub>0</sub> =18mm
<b>-A1</b>	Radial Taping H <sub>0</sub> =16mm
<b>-R0</b>	Plastic Taping ø=180mm
<b>-R1</b>	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.

#### ⑤ Design

Code	Design
<b>E□□</b>	Area Expansion mode
<b>J□□</b>	Area Expansion mode (Closed Type)

□□ indicates initial frequency tolerance and load capacitance.

#### ⑥ Individual Specification

Code	Individual Specification
***	Three-digit alphanumerics express "Individual Specification".

With standard products, "⑥ Individual Specification" is omitted, and "⑦ Package Specification Code" is carried up.

#### ⑦ Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-R1</b>	Plastic Taping ø=330mm

# Resonators

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## SAW Resonators

(Global Part Number) 

SA	R	UK	433M92	B	X	M	0	R11
1	2	3	4	5	6	7	8	9

### 1 Product ID

Product ID	
<b>SA</b>	SAW

### 2 Function

Code	Function
<b>R</b>	Resonator

### 3 Structure/Size

Code	Structure/Size
<b>UK</b>	Package

### 4 Resonant Frequency

Expressed by six-digit alphanumerics. The unit is in hertz (Hz). A decimal point is expressed by the capital letter "M".

### 5 Design

Code	Design
<b>B</b>	1 port

### 6 Board

Code	Board
<b>X</b>	Crystal

### 7 Resonant Frequency Tolerance

Code	Resonant Frequency Tolerance
<b>L</b>	±50kHz
<b>M</b>	±75kHz
<b>P</b>	±100kHz

### 8 Customer Code

Expressed by a figure.

### 9 Packaging

Code	Packaging
<b>R11</b>	1000pcs. /ø178mm Reel
<b>R04</b>	4000pcs. /ø330mm Reel

## BGS Resonators

(Global Part Number) 

MK	R	KA	81M0	AB0	P	00	R11
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
<b>MK</b>	BGS

### 2 Function

Code	Function
<b>R</b>	Resonator

### 3 Structure/Size

Code	Structure/Size
<b>KA</b>	Chip Type
<b>GA</b>	Lead Type

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). A decimal point is expressed by the capital letter "M".

### 5 Standard Specification Code

Code	Standard Specification Code
<b>AB0</b>	Three-digit alphanumerics express product specifications.

### 6 Piezoelectric Board

Code	Piezoelectric Board
<b>P</b>	An alphabet expresses a piezoelectric substrate material.

### 7 Individual Specification Code

Code	Individual Specification Code
<b>00</b>	Standard Type

### 8 Packaging

Code	Packaging
<b>R11</b>	Plastic Taping ø=180mm
<b>B05</b>	Bulk

Plastic taping is only for chip type.

# Piezoelectric Sound Components

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

### Piezoelectric Speakers (CERAMITONE®)

(Global Part Number) 

VS	B	35	E	W	-07	01	B
①	②	③	④	⑤	⑥	⑦	⑧

#### ① Product ID

Product ID	
VS	Piezoelectric Speakers

#### ② Product

Code	Product
B	Piezoelectric Diaphragms

#### ③ Outer Dimensions

Code	Outer Dimensions
35	ø35mm
50	ø50mm

#### ④ Drive

Code	Drive
E	External Drive

#### ⑤ Outer Electrode Style

Code	Outer Electrode Style
W	Lead Wire Type

#### ⑥ Resonant Frequency Type

Code	Resonant Frequency
-03	1st Resonant Frequency : 300Hz
-07	1st Resonant Frequency : 700Hz

#### ⑦ Individual Specification Code

Code	Individual Specification Code
01	Characteristics, Style, others

#### ⑧ Numbers of Ceramic

Code	Numbers of Ceramic
B	Two Elements (The code is omitted when element is one.)

### Piezoelectric Diaphragms

(Global Part Number) 

7	N	B	-31R2	DM	-1R5		A	10
①	②	③	④	⑤	⑥	⑦	⑧	⑨

#### ① Product ID(1)

Product ID(1)	Ceramic Material
7	A2

#### ② Product(2)

Product ID(2)	Metal Plate Material
B	Brass
N	Nickel Alloy
M	Ni Plated Iron
S	SUS

#### ③ Product

Code	Product
B	Piezoelectric Diaphragms

#### ④ Metal Plate Diameter

Code	Metal Plate Diameter
-31R2	A hyphen (-) plus four-digit alphanumerics express metal plate outer dimensions. A decimal point is expressed by the capital letter "R".

If there is no decimal point, the decimal point code is omitted.

#### ⑤ Form of Piezoelectric Style

Code	Form of Piezoelectric Style
DM	Two digits express shape of ceramics.

For an Ag electrode, this digit remains blank, the corresponding code is omitted.

#### ⑥ Resonant Frequency Type

Code	Resonant Frequency (kHz)
-1R5	A hyphen (-) and three-digit alphanumerics express resonant frequency. A decimal point is expressed by the capital letter "R".

If there is no decimal point, the decimal point is omitted.

#### ⑦ With Feedback Electrode

Code	With Feedback Electrode
C	With Feedback Electrode
-	without Feedback Electrode

#### ⑧ Product Specification

Code	Product Specification
A	With lead
-	No lead (omitted)

#### ⑨ Individual Specification Code

Code	Individual Specification Code
10	These digits express a lead length, lead number, and presence/absence of a connector.

If the product has no individual specification, the corresponding code is omitted.

# Piezoelectric Sound Components

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## Piezoelectric Sounders/Piezoelectric Buzzers/Piezoelectric Ringers(PIEZORINGER®)

(Global Part Number) 

PK	M	13	E	P	Y	-40	00	P	-A0
1	2	3	4	5	6	7	8	9	10

### 1 Product ID

Product ID	
<b>PK</b>	Piezoelectric Sound Components

### 2 Product

Code	Product
<b>M</b>	Sounder, Ringer
<b>B</b>	Buzzer

### 3 Outer Dimensions

Expressed by two figures in mm.

Ex.)

Code	Outer Dimensions
<b>13</b>	ø12.6mm

### 4 Drive

Code	Drive
<b>E</b>	External-Drive
<b>S</b>	Self-Drive

### 5 Outer Electrode Style

Code	Outer Electrode Style
<b>P</b>	Pin Type
<b>W</b>	Lead Wire Type

### 6 Structure

Code	Structure
<b>T</b>	Standing Type
<b>P</b>	Flat Type Auto-assemble
<b>Y</b>	Flat Type/Available for Taping
<b>C</b>	Flat Type/Semi-auto-assemble

## SMD Piezoelectric Sounder

(Global Part Number) 

PK	LCS	1212	E	40	01	-R1
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
<b>PK</b>	Piezoelectric Sound Components

### 2 Product

Code	Product
<b>LCS</b>	SMD Sounder

### 3 Dimensions

Code	Outer Dimensions
<b>1212</b>	□12mm

### 4 Drive

Code	Drive
<b>E</b>	External Drive

### 7 Oscillating Frequency Type

Code	Oscillating Frequency Type
<b>-40</b>	A hyphen (-) plus two-digit figures express Oscillating Frequency type.

If there is no decimal point, the decimal point is omitted.

### 8 Individual Specification Code

Code	Individual Specification Code
<b>00</b>	Two digits express specific specification in characteristics.

### 9 Special Quality Guarantee

Code	Special Quality Guarantee
<b>P</b>	Post Plated Terminal
-	Omitted

### 10 Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-A0</b>	Radial Taping
<b>-M0</b>	Magazine

Radial taping or magazine are not available for all types. Please contact us.

### 5 Oscillating Frequency Type

Code	Oscillating Frequency Type
<b>40</b>	A hyphen (-) plus two-digit figures express Oscillating Frequency type.

### 6 Individual Specification Code

Code	Individual Specification Code
<b>01</b>	Two digit express specific specification in characteristics.

### 7 Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-R1</b>	Plastic taping

# Piezoelectric Sound Components

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## SMD Piezoelectric Receiver

(Global Part Number) 

PK	LCD	1212	E	10	00	-R1
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
<b>PK</b>	Piezoelectric Sound Components

### 2 Product

Code	Product
<b>LCD</b>	SMD Receiver

### 3 Dimensions

Code	Outer Dimensions
<b>1212</b>	□12mm

### 4 Drive

Code	
<b>R</b>	Receiver

### 5 Oscillating Frequency Type

Code	
<b>10</b>	A hyphen (-) plus two-digit figures express Oscillating Frequency type.

### 6 Individual Specification Code

Code	Individual Specification Code
<b>00</b>	Two digit express specific specification in characteristics.

### 7 Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-R1</b>	Plastic taping

# Filters for Communication Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

Antenna/Duplexer Dielectric Filters (GIGAFIL<sup>®</sup>)  
for RF/Local Dielectric Filters (GIGAFIL<sup>®</sup>)

(Global Part Number) **DF** **YK6** **1G95** **LBNBB-** **TT1**  
① ② ③ ④ ⑤

### ① Product ID

Product ID	
<b>DF</b>	Microwave Filters (GIGAFIL <sup>®</sup> )

### ② Series

Two capital letters and an alphabet express the series name.

### ③ Nominal Center Frequency

Expressed by four-digit alphanumerics. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

Chip Multilayer LC Filters for RF/Local and IF

(Global Part Number) **LF** **B** **32** **836M** **SA** **1** **-747**  
① ② ③ ④ ⑤ ⑥ ⑦

### ① Product ID

Product ID	
<b>LF</b>	Chip Multilayer LC Filters

### ② Function

Code	Function
<b>B</b>	Band-pass Filters
<b>L</b>	Low-pass Filters
<b>D</b>	Multi-function Filters
<b>E</b>	Trap

### ③ Dimensions (L×W)

Code	Dimensions (L×W)
<b>18</b>	1.60×0.80mm
<b>21</b>	2.00×1.25mm
<b>31</b>	3.20×1.60mm
<b>32</b>	3.20×2.50mm
<b>43</b>	4.50×3.20mm
<b>55</b>	5.70×5.00mm

### ④ Individual Specification Code

Expressed by five alphabets plus a hyphen.

### ⑤ Packaging

Code	Packaging
<b>T**</b>	Tray
<b>R**</b>	Reel

Packaging varies on each product type. Please contact us for details.

### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

### ⑤ Series

Code	Series
<b>SA</b>	Two capital letters express the series name.

### ⑥ Design

Code	Design
<b>1</b>	A figure expresses identification of the series design type.

### ⑦ Individual Specification Code

Code	Individual Specification Code
<b>-747</b>	Specification, Characteristics, others

# Filters for Communication Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## SAW Filters for RF/Local and IF

(Global Part Number) **SA** **F** **CC** **942M** **VM0** **T** **00** **R05**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

### ① Product ID

Product ID	
<b>SA</b>	SAW

### ② Function

Code	Function
<b>F</b>	Single Filter
<b>W</b>	Dual Filter

### ③ Structure/Size

Code	Structure/Size
<b>CC</b>	Package Type

### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

### ⑤ Character Design

Code	Character Design
<b>VM0</b>	A serial number expresses the design version.

### ⑥ Board

Code	Board
<b>T</b>	Expresses the substrate being used.

### ⑦ Individual Specification

Code	Individual Specification
<b>00</b>	—

### ⑧ Packaging

Code	Packaging
<b>R00</b>	10000 pcs./ø330mm Reel
<b>R05</b>	5000 pcs./ø330mm Reel
<b>R11</b>	1000 pcs./ø180mm Reel

## Ceramic Filters (CERAFIL<sup>®</sup>) for IF

(Global Part Number) **CF** **X** **CA** **450K** **CFA** **001** **-R0**  
**SF** **P** **CA** **455K** **D4A** **-R0**  
**SF** **E** **CS** **10M8** **PF00** **00** **-R0**  
 ① ② ③ ④ ⑤ ⑥ ⑦

### ① Product ID

### ② Oscillating/Element

Product ID	Oscillating/Element
<b>CF</b>	<b>U</b> 4 Elements Area Expansion mode
	<b>W</b> 6 Elements Area Expansion mode
	<b>X</b> 4 Elements Length mode
<b>SF</b>	<b>P</b> 4 Elements Area Expansion mode
	<b>E</b> 2 Elements Thickness Expansion mode
	<b>S</b> 2 Elements Thickness Shear mode
	<b>J</b> 4 Elements Thickness Shear mode

### ③ Structure/Size

Code	Structure/Size
<b>C</b> □	Chip Type
<b>L</b> □	Lead Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "kHz", it is expressed by three figures plus "K". If the unit is "MHz", a decimal point is expressed by the capital letter "M".

### ⑤ Product Specification

Code	Product Specification
<b>CFA</b>	Three alphabets express pass band width, center frequency tolerance and design type.

### ⑥ Individual Specification

Code	Individual Specification Code
<b>001</b>	Expressed by three-digit alphanumerics.

### ⑦ Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-R0</b>	Plastic Taping ø=180mm
<b>-R1</b>	Plastic Taping ø=330mm
<b>-M0</b>	Magazine

Magazine cassette is applied to lead type and plastic taping to chip type.

# Filters for Communication Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## BGS Filter for IF

(Global Part Number) 

MK	F	KB	51M7	JA0	P	00	R11
①	②	③	④	⑤	⑥	⑦	⑧

### ① Product ID

Product ID	
MK	BGS

### ② Function

Code	Function
F	Filter

### ③ Structure/Size

Code	Structure/Size
KB	Chip Type

### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M".

### ⑤ Product Specification

Code	Product Specification
JA0	Expressed by three figures.

### ⑥ Piezoelectric Board Material

Code	Piezoelectric Board Material
P	Expressed by an alphabet.

### ⑦ Individual Specification Code

Code	Individual Specification Code
00	Standard

### ⑧ Packaging

Code	Packaging
R11	Plastic Taping $\phi=180\text{mm}$

## Ceramic Discriminators for IF

(Global Part Number) 

CD	B	LB	450K	C	A	X	16	-B0
①	②	③	④	⑤	⑥	⑦	⑧	⑨

### ① Product ID

Product ID	
CD	Ceramic Discriminators

### ② Oscillating

Code	Oscillating
B	Area Expansion mode

### ③ Structure/Size

Code	Structure/Size
C□	Chip Type
L□	Lead Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

### ⑤ Detection

Code	Detection
C	Quadrature Detection

### ⑥ Application

Code	Application
A	Standard
L	Application with coil

### ⑦ Element Type

Code	Element Type
X	Low-capacitance
Y	High-capacitance

### ⑧ IC

Code	IC
16	Applicable IC Control code

### ⑨ Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping $\phi=180\text{mm}$
-R1	Plastic Taping $\phi=330\text{mm}$
-M0	Magazine

Magazine cassette is applied to lead type and plastic taping to chip type. With non-standard products, one alphabet indicating "Individual Specification" is added between "⑧ Applicable IC" and "⑨ Package Specification code".



# Microwave Components

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## ● Part Numbering

### Isolators

(Global Part Number) 

CE	040	1G95	DCB000	RAB
----	-----	------	--------	-----

①    ②    ③    ④    ⑤

#### ① Product ID

Product ID	
CE	Isolators

#### ② Series

Code	Series
053	5×5×2mm
073	7×7×2mm
040	4×4×2mm
041	4×4×1.7mm

#### ③ Nominal Center Frequency

Expressed by four-digits alphanumeric. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

#### ④ Individual Specification Code

Expressed by three alphabets and three digits serial number.

#### ⑤ Packaging

Code	Packaging
TT1	Bulk
RCA	250 pcs. /Reel (CE053, CE073)
RD1	1000 pcs. /Reel (CE053, CE073)
RAB	500 pcs. /Reel (CE040, CE041)
RB2	2000 pcs. /Reel (CE040, CE041)

### Chip Multilayer Hybrid Couplers/Chip Multilayer Hybrid Dividers

(Global Part Number) 

LD	C	21	897M	20	B	-027
----	---	----	------	----	---	------

①    ②    ③    ④    ⑤    ⑥    ⑦

#### ① Product ID

Product ID	
LD	Chip Multilayer Devices

#### ② Function

Code	Function
C	Couplers
D	Dividers

#### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206
32	3.20×2.50mm	1210
43	4.50×3.20mm	1812
55	5.70×5.00mm	2220

#### ④ Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

#### ⑤ Coupling

Expressed by two figures.

Ex.)

Code	Coupling
03	3dB
14	14dB
20	20dB

#### ⑥ Design

Code	Design
B	Couplers Single Type
H	with Integrated LPF
L	with Integrated LPF
A	Dividers Standard Type

#### ⑦ Individual Specification Code

Code	Individual Specification Code
-027	Spfication, Characteristics, others

# Microwave Components

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## Chip Multilayer Hybrid Baluns

(Global Part Number) 

LD	B	21	836M	20	C	-001
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
LD	Chip Multilayer Devices

### 2 Function

Code	Function
B	Baluns

### 3 Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206

### 4 Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

### 5 Balanceport Impedance

Code	Balanceport Impedance
05	50Ω
10	100Ω
20	200Ω

### 6 Design

Code	Design
C	Standard

### 7 Individual Specification Code

Code	Individual Specification Code
-001	Spfication, Characteristics, others

## Chip Dielectric Antennas

(Global Part Number) 

AN	C	G1	1G48	SAA003	R	F	1
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
AN	Dielectric Antennas

### 2 Function

Code	Function
C	Chip Dielectric Antennas

### 3 Series

Expressed by an alphabet and a figure.

### 6 Package Product ID

### 7 Package Detail(1)

### 8 Package Detail(2)

Code	Package Product ID	Code	Package Detail(1)	Code	Package Detail(2)
R	Reel	F	Tape Width 24mm ø330mm	1	Package Quantity per Reel (Ex: 1=1000pcs/reel)
		D	Tape Width 16mm ø330mm		
T	Tray	T	Tray Specification	1	Tray Specification

### 4 Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

### 5 Individual Specification Code

Expressed by three alphabets and a three-digit serial number.

# Microwave Components

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Dielectric Resonators (RESOMICS®) TE Mode

(Global Part Number) 

DR	D	055	0244	M	20	B	00	R
1	2	3	4	5	6	7	8	9

### 1 Product ID

Product ID	
<b>DR</b>	Dielectric Resonators(RESOMICS®)

### 2 Product

Code	Product
<b>D</b>	TE Mode (Disc Type)
<b>T</b>	TE Mode (Tube Type)

### 3 Outer Diameter

Code	Outer Diameter
<b>055</b>	Expressed by three figures. The unit is 1/10mm.

### 4 Thickness

Code	Thickness
<b>0244</b>	Expressed by four figures. The unit is 1/100mm.

### 5 Materials

Code	Materials
<b>U</b>	U Series
<b>M</b>	M Series
<b>V</b>	V Series
<b>R</b>	R Series
<b>B</b>	B Series
<b>E</b>	E Series
<b>F</b>	F Series

### 6 Resonant Frequency Temperature Characteristics(Tf)

Expressed by two figures or combination of an alphabet and a figure.

Ex.)

Code	Resonant Frequency Temperature Characteristics(Tf) Tolerance
<b>C0</b>	-2.0 ppm/C
<b>20</b>	2.0 ppm/C

### 7 Resonant Frequency Temperature Characteristics(Tf) Tolerance

Code	Resonant Frequency Temperature Characteristics(Tf) Tolerance
<b>Z</b>	±2 ppm/C
<b>A</b>	±1 ppm/C
<b>B</b>	±0.5ppm/C

### 8 Individual Specification Code (Serial)

Code	Individual Specification Code (Serial)
<b>00</b>	Standard Type

### 9 Packaging

Code	Packaging
<b>T</b>	Bulk
<b>R</b>	Taping

# Microwave Components

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Dielectric Resonators (RESOMICS®) TEM Mode

(Global Part Number) 

DR	R	020	1G590	K	T	C	00	R
1	2	3	4	5	6	7	8	9

### 1 Product ID

Product ID	
<b>DR</b>	Dielectric Resonators(RESOMICS®)

### 2 Product

Code	Product
<b>R</b>	TEM Mode

### 3 Outer Diameter

Code	Outer Diameter
<b>020</b>	2.0×2.0mm
<b>030</b>	3.0×3.0mm
<b>040</b>	4.0×4.0mm
<b>060</b>	6.0×6.0mm

### 4 Nominal Center Frequency

Expressed by five figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

Ex.)

Code	Nominal Center Frequency
<b>900M0</b>	900MHz
<b>1G200</b>	1200MHz

### 5 Materials

Code	Materials
<b>U</b>	U Series
<b>K</b>	K Series
<b>P</b>	P Series

### 6 Wave Length

Code	Wave Length
<b>T</b>	$\lambda / 4$
<b>P</b>	$\lambda / 2$

### 7 Electrode

Code	Electrode
<b>C</b>	Copper
<b>S</b>	Silver

### 8 Individual Specification Code (Serial)

Code	Individual Specification Code (Serial)
<b>00</b>	Standard

### 9 Packaging

Code	Packaging
<b>T</b>	Bulk
<b>R</b>	Taping

# Microwave Components

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## High-Frequency Microchip Capacitors

(Global Part Number) 

CL	B	05	B5	390	K	1	000	TC1
1	2	3	4	5	6	7	8	9

### 1 Product ID

Product ID	
<b>CL</b>	High-Frequency Microchip Capacitors

### 2 Series

Code	Series
<b>B</b>	with Border on Both Sides

### 3 Size

Code	Size
<b>0A</b>	0.25×0.25mm
<b>0B</b>	0.30×0.25mm
<b>0C</b>	0.35×0.25mm
<b>0D</b>	0.38×0.38mm
<b>0E</b>	0.55×0.38mm
<b>0H</b>	0.71×0.38mm
<b>05</b>	0.50×0.50mm
<b>0G</b>	0.70×0.50mm
<b>0K</b>	0.90×0.50mm
<b>0F</b>	0.64×0.64mm
<b>1A</b>	1.00×0.64mm
<b>0J</b>	0.76×0.76mm
<b>1B</b>	1.09×0.76mm
<b>09</b>	0.90×0.90mm
<b>1E</b>	1.49×0.90mm
<b>1C</b>	1.27×1.27mm
<b>1G</b>	1.73×1.27mm
<b>2C</b>	2.19×1.27mm
<b>1H</b>	1.78×1.78mm
<b>2L</b>	2.95×1.78mm
<b>2E</b>	2.29×2.29mm
<b>3G</b>	3.71×2.29mm

### 4 Temperature Characteristics

Code	Temperature Range	Capacitance Change
<b>5C</b>	-25 to 85°C	0±30ppm/°C
<b>6U</b>	-25 to 85°C	-750±60ppm/°C
<b>7K</b>	-25 to 85°C	-2200±500ppm/°C
<b>B5</b>	-25 to 85°C	±10%
<b>F9</b>	-25 to 85°C	+30,-80%
<b>W1</b>	-25 to 85°C	+30,-90%

### 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 which 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.

### 6 Capacitance Tolerance

Code	Capacitance Tolerance
<b>B</b>	±0.1pF
<b>K</b>	±10%
<b>M</b>	±20%
<b>Z</b>	+80%, -20%

### 7 Numbers of Electrode

Code	Number of Electrode
<b>1</b>	1
<b>3</b>	3
<b>4</b>	4
<b>5</b>	5

### 8 Individual Specification Code

Code	Individual Specification Code
<b>000</b>	Standard

### 9 Packaging

Code	Packaging
<b>TC1</b>	Tray

# Microwave Components

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Coaxial Connectors (Chip Type Receptacle)

(Global Part Number) **MM** **7329** **-27** **00** **R** **A1**  
① ② ③ ④ ⑤ ⑥

### ① Product ID

Product ID	
<b>MM</b>	Microwave Coaxial Connectors (Chip Type Receptacle)

### ② Series

Code	Series
<b>3325</b>	BFA Type Straight
<b>3326</b>	BFA Type Right Angle
<b>7329</b>	FSC Type
<b>8430</b>	SWD Type
<b>9329</b>	GSC Type

### ③ Individual Specification Code(1)

Code	Individual Specification Code(1)
<b>-25</b>	Discrete Terminal
<b>-26</b>	Switch Connector SMD Type
<b>-27</b>	Connector SMD Type

### ④ Individual Specification Code(2)

Code	Individual Specification Code(2)
<b>00</b>	Serial

### ⑤ Package Product ID

Code	Package Product ID
<b>B</b>	Bulk
<b>R</b>	Reel

### ⑥ Package Detail

Code	Package Detail
<b>A1</b>	FSC,SWD,GSC Type 1000pcs. /Reel (ø178mm)
<b>B3</b>	SWD Type, 3000pcs. /Reel (ø330mm)
<b>B4</b>	FSC Type, 4000pcs. /Reel (ø330mm)
<b>B5</b>	GSC Type, 5000pcs. /Reel (ø330mm)

## Coaxial Connectors (with Cable)

(Global Part Number) **MX** **FG** **76**     
① ② ③ ④ ⑤ ⑥

### ① Product ID

Product ID	
<b>MX</b>	Coaxial Connectors (with Cable)

### ② Connector (1)

Code	Connector (1)
<b>FG</b>	FSC Type for 76 Cable
<b>FK</b>	FSC Type for 81 Cable
<b>TK</b>	GSC Type
<b>YH</b>	BFA Type

### ③ Cable

Code	Cable
<b>62</b>	0.8D,PE, Double Shield Line
<b>63</b>	0.8D,PE, Single Shield Line
<b>75</b>	0.8D,FEP, Double Shield Line
<b>76</b>	0.8D,FEP, Single Shield Line
<b>81</b>	0.4D,FEP, Single Shield Line
<b>88</b>	0.4D,PFA, Single Shield Line, Single Line
<b>92</b>	0.4D,PFA, Single Shield Line, Spiral

### ④ Connector (2)

Code	Connector (2)
<b>FG</b>	FSC Type for 76 Cable
<b>FK</b>	FSC Type for 81 Cable
<b>TK</b>	GSC Type
<b>YH</b>	BFA Type
<b>XX</b>	None Connector

### ⑤ Length

Expressed by four figures.

### ⑥ Individual Specification Code

Expressed by two figures.

# Microwave Modules

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

### RF Diode Switches

(Global Part Number) 

LM	SW	43	KA	-207
----	----	----	----	------

①   ②   ③   ④   ⑤

#### ① Product ID

Product ID	
<b>LM</b>	Multilayer Modules

#### ② Function

Code	Function
<b>SW</b>	RF Diode Switches
<b>SP</b>	Switchplexer®

#### ③ Dimension (L×W)

Code	Dimension (L×W)
<b>43</b>	4.50×3.20mm
<b>65</b>	6.30×5.00mm

#### ④ Design

Two capital letters express identification of design type for each function.

#### ⑤ Individual Specification Code

Specifications, Characteristics, others

### VCO

(Global Part Number) 

MQ	W	11	2B	897M	R	5
----	---	----	----	------	---	---

①   ②   ③   ④   ⑤   ⑥   ⑦

#### ① Product ID

Product ID	
<b>MQ</b>	VCO

#### ② Series

Code	Series
<b>W</b>	Dual VCO
<b>E</b>	7.6×5.8mm min.
<b>K</b>	5.5×4.8mm min.
<b>L</b>	5.0×4.0mm min.

#### ③ Dimension/Application

Code	Dimension/Application
<b>11</b>	Pin Layout, Type

#### ④ Serial Number

Expressed by an alphabet and a figure.

#### ⑤ Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

#### ⑥ Package Product ID

Code	Package Product ID
<b>R</b>	Taping

#### ⑦ Package Detail

Code	Package Detail
<b>5</b>	Quantity, direction of reel

### PLL Modules

(Global Part Number) 

HF	Q	D31P15A	01	A	R	5
----	---	---------	----	---	---	---

①   ②   ③   ④   ⑤   ⑥   ⑦

#### ① Product ID

Product ID	
<b>HF</b>	Module Products

#### ② Series

Code	Series
<b>Q</b>	PLL Modules

#### ③ Dimension/Application

Code	Dimension/Application
<b>D31P15A</b>	Size, System

#### ④ Serial Number

Expressed by two figures.

#### ⑤ Others

Code	Others
<b>A</b>	Specification Change Code

#### ⑥ Package Product ID

Code	Package Product ID
<b>R</b>	Taping

#### ⑦ Package Detail

Code	Package Detail
<b>5</b>	Quantity, direction of reel

# Filters for Audio Visual Equipment

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## ● Part Numbering

### CERAFIL<sup>®</sup> for AM

(Global Part Number) 

PF	W	LA	450K	P2A	-B0
1	2	3	4	5	6

#### ① Product ID

Product ID	
<b>PF</b>	Ceramic Filters
<b>SF</b>	Ceramic Filters
<b>CF</b>	Ceramic Filters

#### ② Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
<b>S</b>	1 Element Length mode
<b>W</b>	2 Elements Length mode
<b>U</b>	1 Element Area Expansion mode
<b>Z</b>	2 Elements Area Expansion mode
<b>P</b>	4 Elements Area Expansion mode

#### ③ Structure/Size

Code	Structure/Size
<input type="checkbox"/> <b>L</b>	Lead Type
<input type="checkbox"/> <b>C</b>	Chip Type

is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

#### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

### CERAFIL<sup>®</sup> for Search-stop Signal Detection

(Global Part Number) 

BF	U	LA	450K	C	-B0
1	2	3	4	5	6

#### ① Product ID

Product ID	
<b>BF</b>	Resonator

#### ② Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
<b>U</b>	1 Element Area Expansion mode

#### ③ Structure/Size

Code	Structure/Size
<b>LA</b>	Lead Type Standard

#### ④ Nominal Center Frequency

Code	Nominal Center Frequency
<b>450K</b>	450kHz

#### ⑤ Product Specification

Code	Product Specification
<b>P2A</b>	Standard Type

**A** indicates standard type.

#### ⑥ Packaging

Code	Packaging
<b>-B0</b>	Bulk
<b>-R0</b>	Plastic Taping (ø180mm)
<b>-R1</b>	Plastic Taping (ø330mm)
<b>-A0</b>	Radial Taping H <sub>0</sub> =18mm
<b>-M0</b>	Magazine Cassette

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, three-digit alphanumerics indicating "Individual Specification" is added between "⑤ Product Specification" and "⑥ Packaging".

#### ⑤ Product Specification

Code	Product Specification
<input type="checkbox"/> <b>C</b>	Bandwidth

With standard type,  is omitted.

#### ⑥ Packaging

Code	Packaging
<b>-B0</b>	Bulk

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, "Individual Specification (serial number)" and "Lead Shape (Lead Bend : **B**)" are added between "⑤ Product Specification" and "⑥ Package Specification Code" upon specification.



# Filters for Audio Visual Equipment

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## CERAFIL<sup>®</sup> for FM

(Global Part Number) 

SF	E	LA	10M7	FAA0	-R0
1	2	3	4	5	6

### 1 Product ID

Product ID	
SF	Ceramic Filters

### 2 Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
E	2 Elements Thickness Expander mode
T	3 Elements Thickness Expander mode
K	2 Elements Thickness Expander mode (2nd Harmonic)
V	2 Elements Thickness Expander mode (3rd Over Tone)

### 3 Structure/Size

Code	Structure/Size
L□	Lead Type
C□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz). Decimal point is expressed by capital letter "M".

## Discriminators for FM

(Global Part Number) 

CD	A	LA	10M7	GA	001	-R0
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
CD	Discriminators

### 2 Oscillation

Code	Oscillation
A	Thickness Expander mode

### 3 Structure/Size

Code	Structure/Size
L□	Lead Type
C□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz). Decimal point is expressed by capital letter "M".

### 5 Product Specification

Code	Product Specification
FAA0	Four-digit alphanumerics express pass-bandwidth, center frequency tolerance, rank, series, others.

### 6 Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping ø180mm
-R1	Plastic Taping ø330mm
-A0	1500pcs. /Radial Taping H <sub>0</sub> =18mm
-A1	1000pcs. /Radial Taping H <sub>0</sub> =18mm

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, two-digit alphanumerics indicating "Individual Specification" is added between "5 Product Specification" and "6 Packaging".

### 5 Product Specification

Code	Product Specification
GA	Two-digit alphanumerics express type, center frequency, rank, others

### 6 IC

Code	IC
001	Applicable IC Control Code

### 7 Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H <sub>0</sub> =18mm
-R0	Plastic Taping (ø180mm)
-R1	Plastic Taping (ø330mm)

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, an alphanumerics indicating "Individual Specification" is added between "6 IC" and "7 Packaging".

# Filters for Audio Visual Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## CERAFIL<sup>®</sup> for TV/VCR

(Global Part Number) 

SF	S	RA	4M50	CF	00	-B0
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
SF	Ceramic Filters

### 2 Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
S	2 Elements Thickness Shear mode
T	3 Elements Thickness Expander mode

### 3 Structure/Size

Code	Structure/Size
R□	Lead Type
K□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### 5 Product Specification Code (1)

Code	Product Specification Code (1)
AF	Standard Bandwidth Type
BF	Tight Bandwidth Type
CF	Standard Bandwidth Type
DF	Broad Bandwidth Type
EF	Ultra-broad Bandwidth Type

The code **AF** is only applied to **SFT** series.

### 6 Product Specification Code (2)

Code	Product Specification Code (2)
00	Standard Type

### 7 Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H <sub>0</sub> =18mm
-R1	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.  
With non-standard products, two-digit alphanumerics indicating "Individual Specification" is added between "5 Product Specification Code (1)" and "6 Product Specification Code (2)".

## Discriminators for TV/VCR

(Global Part Number) 

CD	S	RH	4M50	E	K	048	-A0
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
CD	Discriminators

### 2 Oscillation

Code	Oscillation
S	Thickness Shear mode

### 3 Structure/Size

Code	Structure/Size
RH	Standard Type
RL	Low-profile

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### 5 Product Specification Code (1)

Code	Product Specification Code (1)
C	Three-terminals
E	Two-terminals

### 6 Product Specification Code (2)

Code	Product Specification Code (2)
K	Specification

### 7 IC

Code	IC
048	Applicable IC control code

### 8 Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H <sub>0</sub> =18mm

With non-standard products, an alphabet indicating "Individual Specification" is added between "7 IC" and "8 Packaging".

# Filters for Audio Visual Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## Ceramic Traps

(Global Part Number) 

TP	S	RA	4M50	B	00	-B0
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
TP	Ceramic Traps

### 2 Function

Code	Function
S	Single Traps
T	Triple Traps
W	Double Traps

### 3 Structure/Size

Code	Structure/Size
R□	Lead Type
K□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### 5 Product Specification Code (1)

Code	Product Specification (1)
B	Broad-bandwidth Type
C	Low-capacitance Type

### 6 Product Specification Code (2)

Code	Product Specification Code (2)
00	Standard Type

### 7 Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H <sub>0</sub> =18mm
-R1	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.  
With non-standard products, three-digit alphanumerics indicating "Individual Specification" is added between "6 Product Specification Code (2)" and "7 Packaging".

## BGS Traps

(Global Part Number) 

MK	T	GA	47M2	CAH	P	00	B05
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
MK	BGS

### 2 Function

Code	Function
T	Traps

### 3 Structure/Size

Code	Structure/Size
GA	Lead Type

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### 5 Product Specification (1)

Code	Product Specification (1)
AA	Standard Bandwidth
CA	Narrow-bandwidth

### 5 Product Specification (2)

Code	Product Specification (2)
H	High-frequency side Traps
L	Low-frequency side Traps

### 6 Piezoelectric Board Material

Code	Piezoelectric Board Material
P	Expressed by an alphabet.

### 7 Individual Specification Code

Code	Individual Specification Code
00	Standard

### 8 Packaging

Code	Packaging
B05	Bulk
A03	Radial Taping H <sub>0</sub> =18mm

# Filters for Audio Visual Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## SAW Filters for TV/VCR/Digital Broadcasting

(Global Part Number) 

SA	F	JA	58M7	VBP	Z	00	R02
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
SA	SAW Filters

### 2 Function

Code	Function
F	Filters

### 3 Structure/Size

Code	Structure/Size
G□	Lead Type
J□	Cap Chip Type
C□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

### 4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### 5 Standard Specification Code

Code	Standard Specification Code
VBP	Three-digit alphanumerics expressed design type.

### 6 Piezoelectric Board Material

Code	Piezoelectric Board Material
Z	Expressed by an alphabet.

### 7 Individual Specification Code

Code	Individual Specification Code
00	Standard

### 8 Packaging

Code	Packaging
B03	Bulk
R01	1000pcs. /Plastic Taping $\phi=330\text{mm}$
R03	3000pcs. /Plastic Taping $\phi=330\text{mm}$
R10	500pcs. /Plastic Taping $\phi=180\text{mm}$
A01	Radial Taping $H_0=18\text{mm}$

Radial taping is applied to lead type and plastic taping to chip type.

## SAW Filters for TV/VCR Dual Type

(Global Part Number) 

SA	W	GS	38M0	VCA	Z	00	B03
1	2	3	4	5	6	7	8

### 1 Product ID

Product ID	
SA	SAW Filters

### 2 Function

Code	Function
W	Dual Filters

### 3 Structure/Size

Code	Structure/Size
GS	Lead Type
KE	Chip Type

### 4 Nominal Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### 5 Standard Specification Code

Code	Standard Specification Code
VCA	Three-digit alphanumerics expressed design type.

### 6 Piezoelectric Board Material

Code	Piezoelectric Board Material
Z	Expressed by an alphabet.

### 7 Individual Specification Code

Code	Individual Specification Code
00	Standard Type

### 8 Packaging

Code	Packaging
B03	Bulk
A02	Radial Taping $H_0=18\text{mm}$
R02	Plastic Taping $\phi=330\text{mm}$

Radial taping is applied to lead type and plastic taping to chip type.

# Filters for Audio Visual Equipment

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## BGS Filters

(Global Part Number) 

MK	F	GA	25M0	HA0	P	00	B05
----	---	----	------	-----	---	----	-----

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

### ① Product ID

Product ID	
<b>MK</b>	BGS

### ② Function

Code	Function
<b>F</b>	Filters

### ③ Structure/Size

Code	Structure/Size
<b>G□</b>	Lead Type

□ is expressed "A" or subsequent code, which indicates the size.

### ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).  
Decimal point is expressed by capital letter "M".

### ⑤ Product Specification

Code	Product Specification
<b>HA0</b>	Expressed by three-digit alphanumerics.

### ⑥ Piezoelectric Board Material

Code	Piezoelectric Board Material
<b>P</b>	An alphabet express Piezoelectric material.

### ⑦ Individual Specification Code

Code	Individual Specification Code
<b>00</b>	Standard

### ⑧ Packaging

Code	Packaging
<b>B05</b>	Bulk
<b>A03</b>	Radial Taping H <sub>0</sub> =18mm

# Products for Video Equipment

For safety, you are requested to approve our product specification or transact the approval sheet for product specifications before ordering.

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## ● Part Numbering

### Focus Adjustment Resistors

(Global Part Number) 

MHF	128	-24	A
-----	-----	-----	---

  
① ② ③ ④

#### ① Product ID

Product ID	
MHF	Focus Adjustment Blocks

#### ② Style

Code	Style
128	Serial Number

#### ③ Electric Code

Code	Electric Code
-24	Serial Number

#### ④ Individual Specification Code

Code	Individual Specification Code
A	An alphabet is added when other factor is specified.

## ● Part Numbering

### PTC Thermistors (POSISTOR®) Chip Type

(Global Part Number) 

PR	F	18	AR	471	Q	B1	RB
①	②	③	④	⑤	⑥	⑦	⑧

#### ① Product ID

Product ID	
PR	PTC Thermistors Chip Type

#### ② Series

Code	Series
F	for Overheat Sensing

#### ③ Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80

#### ④ Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
AS	Curie Point 130°C
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C

#### ⑤ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
471	470 $\Omega$

#### ⑥ Resistance Tolerance

Code	Resistance Tolerance
Q	Special Tolerance

#### ⑦ Individual Specifications

Code	Individual Specifications
B1	Structure, others

#### ⑧ Packaging

Code	Packaging
RB	Paper Taping (4mm Pitch)

### PTC Thermistors (POSISTOR®) Lead Type

(Global Part Number) 

PT	FL	04	BB	222	Q	2N34	B0
①	②	③	④	⑤	⑥	⑦	⑧

#### ① Product ID

Product ID	
PT	PTC Thermistors

#### ② Series

Code	Series
FL	for Overheat Sensing Lead Type
FM	for Overheat Sensing with Lug-terminal
GL	for Circuit Protection Lead Type

#### ③ Dimensions

Code	Dimensions
04	Nominal Body Diameter 4mm Series

#### ④ Temperature Characteristics

Code	Temperature Characteristics
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C
BF	Curie Point 60°C
BG	Curie Point 50°C
BH	Curie Point 40°C

#### ⑤ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
R22	0.22 $\Omega$
2R2	2.2 $\Omega$
220	22 $\Omega$

#### ⑥ Resistance Tolerance

Code	Resistance Tolerance
Q	Special Tolerance

#### ⑦ Individual Specifications

Code	Individual Specifications
2N34	Lead Type, others

#### ⑧ Packaging

Code	Packaging
B0	Bulk

## NTC Thermistors Lead Type

(Global Part Number) 

NT	SA0	XH	103	F	E1	B0
1	2	3	4	5	6	7

### 1 Product ID

Product ID	
<b>NT</b>	NTC Thermistors

### 2 Series

Code	Series
<b>SA0</b>	for Temperature Sensors No Lead-coating Type
<b>SD0</b>	for Temperature Sensors Lead-coating Type

### 3 Temperature Characteristics

Code	Temperature Characteristics
<b>WB</b>	Nominal B-Constant 4050—4099
<b>WC</b>	Nominal B-Constant 4100—4149
<b>WD</b>	Nominal B-Constant 4150—4199
<b>WF</b>	Nominal B-Constant 4250—4299
<b>XM</b>	Nominal B-Constant 3500—3549
<b>XH</b>	Nominal B-Constant 3350—3399
<b>XR</b>	Nominal B-Constant 3700—3749
<b>XV</b>	Nominal B-Constant 3900—3949

### 4 Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
<b>202</b>	2k $\Omega$
<b>203</b>	20k $\Omega$

### 5 Resistance Tolerance

Code	Resistance Tolerance
<b>E</b>	$\pm 3\%$
<b>F</b>	$\pm 1\%$

### 6 Individual Specifications

Code	Individual Specifications
<b>E1</b>	Lead Style, others

### 7 Packaging

Code	Packaging
<b>A0</b>	Ammo Pack
<b>B0</b>	Bulk

## Pyroelectric Infrared Sensors

(Global Part Number) 

IR	A-	E710ST	1
1	2	3	4

### 1 Product ID

### 2 Type

### 3 Characteristics

### 4 Individual Specification Code

\* Global Part Number shows only an example which might be different from actual part number.

\* "3 Characteristics" and "4 Individual Specification Code" might have different digit number from actual Global Part Number.

## Pyroelectric Infrared Sensor Modules

(Global Part Number) 

IM	D-	B101-	01
1	2	3	4

### 1 Product ID

### 2 Type

### 3 Characteristics

### 4 Individual Specification Code

\* Global Part Number shows only an example which might be different from actual part number.

\* "3 Characteristics" and "4 Individual Specification Code" might have different digit number from actual Global Part Number.

## Ultrasonic Sensors

(Global Part Number) 

MA	40MF	14	-1N	-M
1	2	3	4	5

### 1 Product ID

### 2 Series

### 3 Characteristics

### 4 Individual Specification Code

### 5 Packaging

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "1 Product ID" might have different digit numbers from actual Global Part Number.



# Sensors

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## Shock Sensors

(Global Part Number) 

PK	GS-25	ME	1	-R
----	-------	----	---	----

  
① ② ③ ④ ⑤

- ① Product ID
- ② Series
- ③ Characteristics
- ④ Individual Specification Code
- ⑤ Packaging

\* Global Part Number shows only an example which might be different from actual part number.

\* "③ Characteristics", "④ Individual Specification Code" and "⑤ Packaging" might have different digit number from actual Global Part Number.

## Built-in Circuit Acceleration Sensors

(Global Part Number) 

PK	GA-S	60A		-M
----	------	-----	--	----

  
① ② ③ ④ ⑤

- ① Product ID
- ② Series
- ③ Characteristics
- ④ Individual Specification Code
- ⑤ Packaging

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "① Product ID" might have different digit number from actual Global Part Number.

## Piezoelectric Gyroscopes (GYROSTAR®)

(Global Part Number) 

EN	C-03JA	-02	
----	--------	-----	--

  
① ② ③ ④

- ① Product ID
- ② Type
- ③ Individual Specification Code
- ④ Packaging

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "① Product ID" might have different digit number from actual Global Part Number.

## Non-contact Potentiometers

(Global Part Number) 

LP	05M	4R1AA	
----	-----	-------	--

  
① ② ③ ④

- ① Product ID
- ② Type
- ③ Characteristics
- ④ Individual Specification Code

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "① Product ID" might have different digit number from actual Global Part Number.

## Rotary Sensors

(Global Part Number) 

FR	05CM	12AL	
----	------	------	--

  
① ② ③ ④

- ① Product ID
- ② Type
- ③ Characteristics
- ④ Individual Specification Code

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "① Product ID" might have different digit number from actual Global Part Number.

## Magnetic Pattern Recognition Sensors

(Global Part Number) 

BS	05W	1KFAB	
----	-----	-------	--

  
① ② ③ ④

- ① Product ID
- ② Type
- ③ Characteristics
- ④ Individual Specification Code

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "① Product ID" might have different digit number from actual Global Part Number.

## Electric Potential Sensors

(Global Part Number) 

PK	E05	A	
----	-----	---	--

  
① ② ③ ④

- ① Product ID
- ② Series
- ③ Characteristics
- ④ Individual Specification Code

\* Global Part Number shows only an example which might be different from actual part number.

\* Any other definitions than "① Product ID" might have different digit number from actual Global Part Number.

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**Head Office**  
2-26-10, Tenjin Nagaokakyo-shi, Kyoto 617-8555, Japan Phone:81-75-951-9111

**International Division**  
3-29-12, Shibuya, Shibuya-ku, Tokyo 150-0002, Japan  
Phone:81-3-5469-6123 Fax:81-3-5469-6155 E-mail:intl@murata.co.jp

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