



MULTILAYER CERAMIC CHIP CAPACITORS



CGA Series Automotive Grade General (Up to 50V)

Type:

**CGA1 [EIA CC0201]
CGA2 [EIA CC0402]
CGA3 [EIA CC0603]
CGA4 [EIA CC0805]
CGA5 [EIA CC1206]
CGA6 [EIA CC1210]
CGA8 [EIA CC1812]
CGA9 [EIA CC2220]**

**Issue date:
Dec 2014**



REMINDERS

Please read before using this product

SAFETY REMINDERS



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(Example)

Catalog Issued date	Catalog Number	Item Description (On Delivery Label)
Prior to January 2013	C1608C0G1E103J	C1608C0G1E103JT000N
January 2013 and Later	C1608C0G1E103J080AA	C1608C0G1E103JT000N



CGA Series General (Up to 50V)

Type: CGA1 [EIA CC0201], CGA2 [EIA CC0402], CGA3 [EIA CC0603],
CGA4 [EIA CC0805], CGA5 [EIA CC1206], CGA6 [EIA CC1210], CGA8 [EIA CC1812],
CGA9 [EIA CC2220]

Features



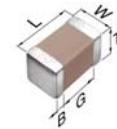
- High capacitance has been achieved through precision technologies that enable the use of multiple thinner ceramic dielectric layers.
- A monolithic structure ensures superior mechanical strength and reliability.
- Low ESL and excellent frequency characteristics allow for a circuit design that closely conforms to theoretical values.
- Low self-heating and high ripple resistance due to low ESR.
- AEC-Q200 compliant.

Applications



- Automotive engine control units
- Automotive sensor modules
- Automotive battery line smoothing
- Applications requiring higher reliability
- Switching power supply smoothing

Shape & Dimensions



L	Body Length
W	Body Width
T	Body Height
B	Terminal Width
G	Terminal Spacing

CGA • 6 • P • 1 • X7S • 0J • 476 • M • 250 • A • C

Series Name

Dimensions L x W (mm)

Code	Length	Width	Terminal
1	0.60 ± 0.03	0.30 ± 0.03	0.10 min.
2	1.00 ± 0.05	0.50 ± 0.05	0.10 min.
3	1.60 ± 0.10	0.80 ± 0.10	0.20 min.
4	2.00 ± 0.20	1.25 ± 0.20	0.20 min.
5	3.20 ± 0.20	1.60 ± 0.20	0.20 min.
6	3.20 ± 0.40	2.50 ± 0.30	0.20 min.
8	4.50 ± 0.40	3.20 ± 0.40	0.20 min.
9	5.70 ± 0.40	5.00 ± 0.40	0.20 min.

*Dimension tolerance are typical values

Thickness T Code (mm)

Code	Thickness
A	0.30 mm
B	0.50 mm
C	0.60 mm
E	0.80 mm
F	0.85 mm
H	1.15 mm
J	1.25 mm
L	1.60 mm
M	2.00 mm
N	2.30 mm
P	2.50 mm
Q	2.80 mm
R	3.20 mm

Voltage Condition for Life Test

Symbol	Condition
1	1 × R.V.
2	2 × R.V.
3	1.5 × R.V.

Temperature Characteristics

Temperature Characteristics	Temperature Coefficient or Capacitance Change	Temperature Range
COG	0±30 ppm/°C	-55 to +125°C
X5R	±15%	-55 to + 85°C
X7R	±15%	-55 to +125°C
X7S	±22%	-55 to +125°C

Rated Voltage (DC)

Code	Voltage (DC)
0J	6.3V
1A	10V
1C	16V
1E	25V
1V	35V
1H	50V

Nominal Capacitance (pF)

The capacitance is expressed in three digit codes and in units of pico Farads (pF). The first and second digits identify the first and second significant figures of the capacitance. The third digit identifies the multiplier. R designates a decimal point.

Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF = 1,000nF = 1μF

Capacitance Tolerance

Code	Tolerance
C	± 0.25pF
D	± 0.50pF
J	± 5%
K	± 10%
M	± 20%

Nominal Thickness

Code	Thickness
030	0.30 mm
050	0.50 mm
060	0.60 mm
125	1.25 mm

*See Thickness T Code for complete list

Packaging Style

Code	Style
A	178 mm Reel, 4 mm Pitch
B	178 mm Reel, 2 mm Pitch
K	178 mm Reel, 8 mm Pitch

Special Reserved Code

Code	Description
A, B	TDK Internal Code



Capacitance Range Chart

CGA1(0603) [EIA CC0201]

Capacitance Range Chart

Temperature Characteristics: C0G (0 ± 30ppm/°C), X7R (±15%)
 Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

Capacitance (pF)	Code	Tolerance	C0G		X7R				
			1H (50V)	1E (25V)	1H (50V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)
1	010	C: ± 0.25pF	■	■					
1.5	1R5	D: ± 0.50pF	■	■					
2	020	J: ± 5%	■	■					
2.2	2R2	K: ± 10%	■	■					
3	030	M: ± 20%	■	■					
3.3	3R3		■	■					
4	040		■	■					
4.7	4R7		■	■					
5	050		■	■					
6	060		■	■					
6.8	6R8		■	■					
7	070		■	■					
8	080		■	■					
9	090		■	■					
10	100		■	■					
12	120		■	■					
15	150		■	■					
18	180		■	■					
22	220		■	■					
27	270		■	■					
33	330		■	■					
39	390		■	■					
47	470		■	■					
56	560		■	■					
68	680		■	■					
82	820		■	■					
100	101		■	■	■	■	■		
150	151				■	■	■		
220	221					■	■		
330	331						■		
470	471							■	
680	681								■
1000	102								■
1500	152								■
2200	222								■
3300	332								■
4700	472								■
6800	682								■
10000	103								■

Standard Thickness
 0.30 mm



Capacitance Range Chart

CGA2(1005) [EIA CC0402]

Capacitance Range Chart

Temperature Characteristics: C0G (0 ± 30ppm/°C), X5R (±15%), X7R (±15%), X7S (±22%)

Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3 (0J)

Capacitance (pF)	Code	Tolerance	C0G		X5R				X7R					X7S		
			1H (50V)	1H (50V)	1V (35V)	1E (25V)	1C (16V)	1A (10V)	1H (50V)	1V (35V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	1C (16V)	1A (10V)
1	010	C : ± 0.25pF	█													
1.5	1R5	D : ± 0.50pF	█													
2	020	J : ± 5%	█													
2.2	2R2	K : ± 10%	█													
3	030	M : ± 20%	█													
3.3	3R3		█													
4	040		█													
4.7	4R7		█													
5	050		█													
6	060		█													
6.8	6R8		█													
7	070		█													
8	080		█													
9	090		█													
10	100		█													
12	120		█													
15	150		█													
18	180		█													
22	220		█													
27	270		█													
33	330		█													
39	390		█													
47	470		█													
56	560		█													
68	680		█													
82	820		█													
100	101		█													
120	121		█													
150	151		█													
180	181		█													
220	221		█	█						█						
270	271		█	█						█						
330	331		█	█						█						
390	391		█	█						█						
470	471		█	█						█						
560	561		█	█						█						
680	681		█	█						█						
820	821		█	█						█						
1,000	102		█	█						█						
1,500	152		█	█						█						
2,200	222		█	█						█						
3,300	332		█	█						█						
4,700	472		█	█						█						
6,800	682		█	█						█						
10,000	103		█	█	█					█	█					
15,000	153		█	█	█					█	█					
22,000	223		█	█	█					█	█					
33,000	333		█	█	█					█	█					
47,000	473		█	█	█					█	█					
68,000	683		█	█	█					█	█					
100,000	104		█	█	█					█	█					
150,000	154		█	█	█					█	█					
220,000	224		█	█	█					█	█					
330,000	334		█	█	█					█	█					
470,000	474		█	█	█					█	█			█	█	

Standard Thickness

█ 0.50 mm



Capacitance Range Chart

CGA3(1608) [EIA CC0603]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$)

Rated Voltage: 50V (1H)

Capacitance (pF)	Code	Tolerance	C0G
			1H (50V)
1	010	C: $\pm 0.25\text{pF}$	
1.5	1R5	D: $\pm 0.50\text{pF}$	
2	020	J: $\pm 5\%$	
2.2	2R2	K: $\pm 10\%$	
3	030	M: $\pm 20\%$	
3.3	3R3		
4	040		
4.7	4R7		
5	050		
6	060		
6.8	6R8		
7	070		
8	080		
9	090		
10	100		
12	120		
15	150		
18	180		
22	220		
27	270		
33	330		
39	390		
47	470		
56	560		
68	680		
82	820		
100	101		
120	121		
150	151		
180	181		
220	221		
270	271		
330	331		
390	391		
470	471		
560	561		
680	681		
820	821		

Standard Thickness

 0.80 mm



Capacitance Range Chart

CGA3(1608) [EIA CC0603]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$), X5R ($\pm 15\%$), X7R ($\pm 15\%$), X7S ($\pm 22\%$)
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

Capacitance (pF)	Code	Tolerance	C0G		X5R					X7R					X7S	
			1H (50V)	1H (50V)	1V (35V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	1H (50V)	1V (35V)	1E (25V)	1C (16V)	0J (6.3V)	1C (16V)	1A (10V)
1,000	102	J : $\pm 5\%$	■	■												
1,200	122	K : $\pm 10\%$	■	■												
1,500	152	M : $\pm 20\%$	■	■												
1,800	182		■	■												
2,200	222		■	■												
2,700	272		■	■												
3,300	332		■	■												
3,900	392		■	■												
4,700	472		■	■												
5,600	562		■	■												
6,800	682		■	■												
8,200	822		■	■												
10,000	103		■	■												
15,000	153			■												
22,000	223			■												
33,000	333			■												
47,000	473			■												
68,000	683			■												
100,000	104			■												
150,000	154			■												
220,000	224			■												
330,000	334			■												
470,000	474			■												
680,000	684			■												
1,000,000	105			■												
1,500,000	155			■												
2,200,000	225			■										■	■	■
3,300,000	335			■										■	■	■
4,700,000	475			■										■	■	■

Standard Thickness

■ 0.80 mm



Capacitance Range Chart

CGA4(2012) [EIA CC0805]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$), X5R ($\pm 15\%$), X7R ($\pm 15\%$), X7S ($\pm 22\%$)
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

Capacitance (pF)	Code	Tolerance	C0G	X5R					X7R					X7S		
			1H (50V)	1H (50V)	1V (35V)	1E (25V)	1C (16V)	1A (10V)	1H (50V)	1V (35V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	1C (16V)	1A (10V)
1,000	102	J : $\pm 5\%$	█													
1,200	122	K : $\pm 10\%$	█													
1,500	152	M : $\pm 20\%$	█													
1,800	182		█													
2,200	222		█													
2,700	272		█													
3,300	332		█													
3,900	392		█													
4,700	472		█													
5,600	562		█													
6,800	682		█													
8,200	822		█													
10,000	103		█													
15,000	153		█													
22,000	223		█													
33,000	333		█													
100,000	104								█							
150,000	154			█												
220,000	224										█					
330,000	334			█												
470,000	474			█	█	█										
680,000	684				█	█	█									
1,000,000	105					█	█									
1,500,000	155						█									
2,200,000	225							█								
3,300,000	335								█							
4,700,000	475									█						
6,800,000	685													█	█	
10,000,000	106														█	█

Standard Thickness

0.60 mm
 0.85 mm
 1.25 mm

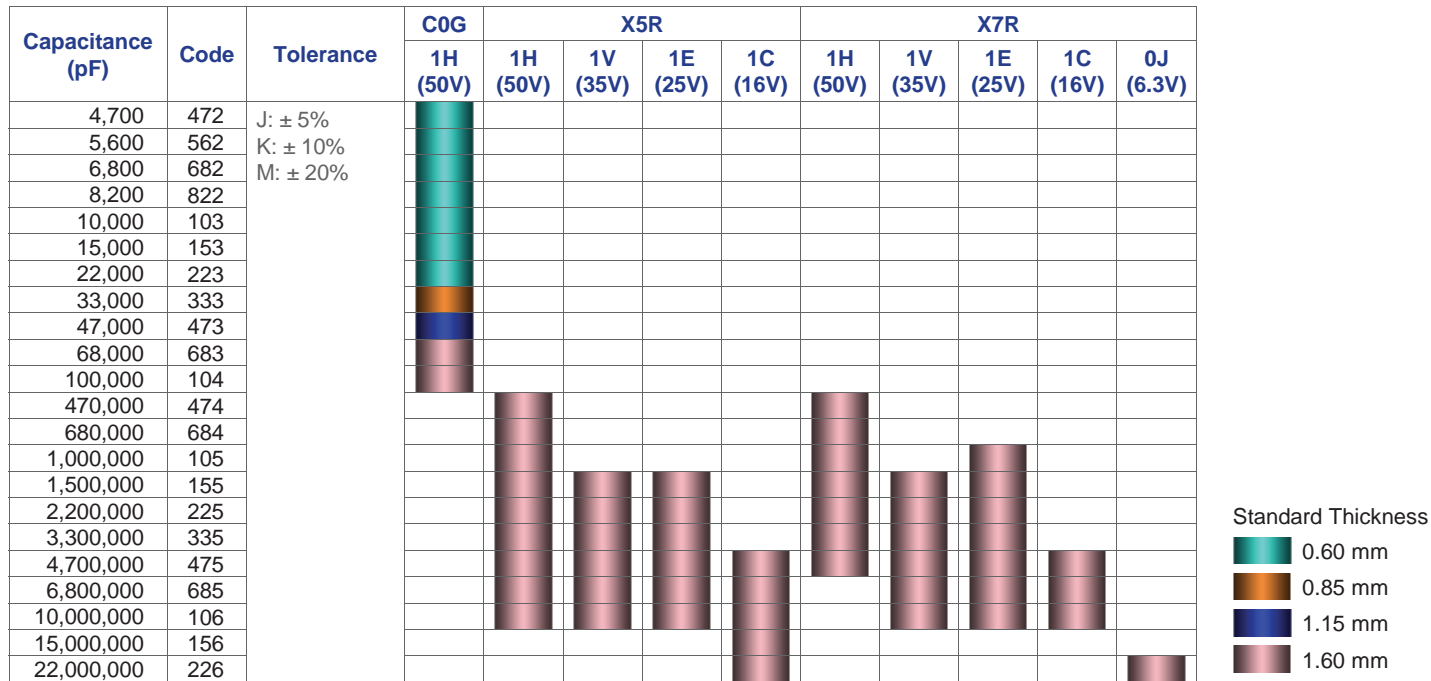


Capacitance Range Chart

CGA5(3216) [EIA CC1206]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$), X5R ($\pm 15\%$), X7R ($\pm 15\%$)
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 6.3V (0J)

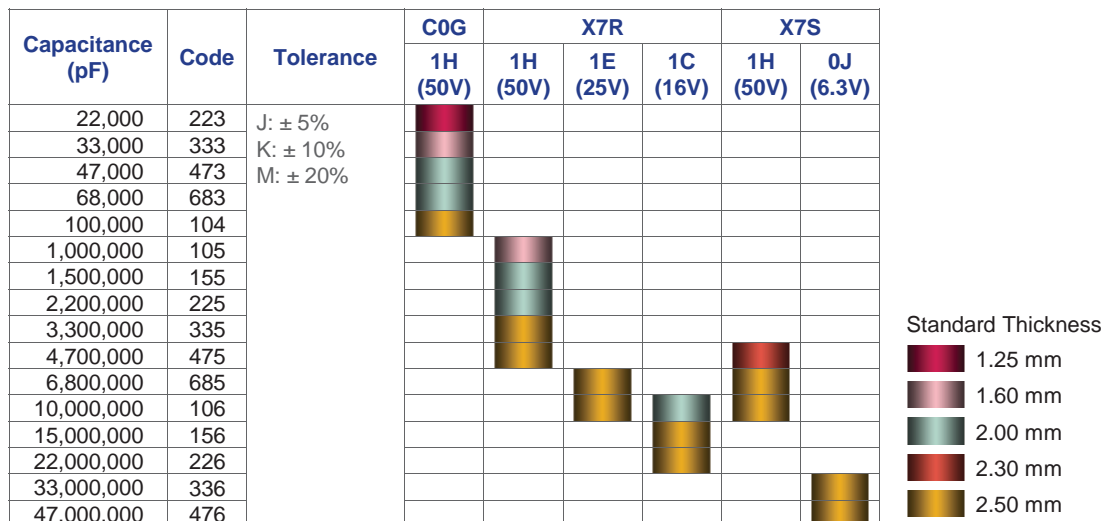


Capacitance Range Chart

CGA6(3225) [EIA CC1210]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$), X7R ($\pm 15\%$), X7S ($\pm 22\%$)
 Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 6.3V (0J)





Capacitance Range Chart

CGA8(4532) [EIA CC1812]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$), X7R ($\pm 15\%$)
 Rated Voltage: 50V (1H), 25V (1E), 16V (1C)

Capacitance (pF)	Code	Tolerance	C0G		X7R	
			1H (50V)	1H (50V)	1E (25V)	1C (16V)
47,000	473	J: $\pm 5\%$	█			
68,000	683	K: $\pm 10\%$	█			
100,000	104	M: $\pm 20\%$	█			
150,000	154		█			
220,000	224		█			
1,500,000	155			█		
2,200,000	225			█		
3,300,000	335			█		
4,700,000	475			█	█	
6,800,000	685			█	█	
10,000,000	106				█	
15,000,000	156				█	
22,000,000	226				█	█
33,000,000	336					█

Standard Thickness

- █ 1.60 mm
- █ 2.00 mm
- █ 2.30 mm
- █ 2.50 mm
- █ 2.80 mm
- █ 3.20 mm



Capacitance Range Chart

CGA9(5750) [EIA CC2220]

Capacitance Range Chart

Temperature Characteristics: X7R ($\pm 15\%$)
 Rated Voltage: 50V (1H), 25V (1E), 16V (1C)

Capacitance (pF)	Code	Tolerance	X7R		
			1H (50V)	1E (25V)	1C (16V)
4,700,000	475	K: $\pm 10\%$	█		
6,800,000	685	M: $\pm 20\%$	█		
10,000,000	106		█	█	
15,000,000	156			█	
22,000,000	226			█	
47,000,000	476				█

Standard Thickness

- █ 2.00 mm
- █ 2.30 mm
- █ 2.50 mm



Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to +125°C, 0 ± 30 ppm/°C)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number	
				Rated Voltage Edc: 50V	Rated Voltage Edc: 25V
1 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H010C030BA	CGA1A2C0G1E010C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H010C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H010C080AA	
1.5 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H1R5C030BA	CGA1A2C0G1E1R5C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H1R5C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H1R5C080AA	
2 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H020C030BA	CGA1A2C0G1E020C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H020C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H020C080AA	
2.2 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H2R2C030BA	CGA1A2C0G1E2R2C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H2R2C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H2R2C080AA	
3 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H030C030BA	CGA1A2C0G1E030C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H030C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H030C080AA	
3.3 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H3R3C030BA	CGA1A2C0G1E3R3C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H3R3C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H3R3C080AA	
4 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H040C030BA	CGA1A2C0G1E040C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H040C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H040C080AA	
4.7 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H4R7C030BA	CGA1A2C0G1E4R7C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H4R7C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H4R7C080AA	
5 pF	0603	0.30 ± 0.03	± 0.25pF	CGA1A2C0G1H050C030BA	CGA1A2C0G1E050C030BA
	1005	0.50 ± 0.05	± 0.25pF	CGA2B2C0G1H050C050BA	
	1608	0.80 ± 0.10	± 0.25pF	CGA3E2C0G1H050C080AA	
6 pF	0603	0.30 ± 0.03	± 0.50pF	CGA1A2C0G1H060D030BA	CGA1A2C0G1E060D030BA
	1005	0.50 ± 0.05	± 0.50pF	CGA2B2C0G1H060D050BA	
	1608	0.80 ± 0.10	± 0.50pF	CGA3E2C0G1H060D080AA	
6.8 pF	0603	0.30 ± 0.03	± 0.50pF	CGA1A2C0G1H6R8D030BA	CGA1A2C0G1E6R8D030BA
	1005	0.50 ± 0.05	± 0.50pF	CGA2B2C0G1H6R8D050BA	
	1608	0.80 ± 0.10	± 0.50pF	CGA3E2C0G1H6R8D080AA	
7 pF	0603	0.30 ± 0.03	± 0.50pF	CGA1A2C0G1H070D030BA	CGA1A2C0G1E070D030BA
	1005	0.50 ± 0.05	± 0.50pF	CGA2B2C0G1H070D050BA	
	1608	0.80 ± 0.10	± 0.50pF	CGA3E2C0G1H070D080AA	
8 pF	0603	0.30 ± 0.03	± 0.50pF	CGA1A2C0G1H080D030BA	CGA1A2C0G1E080D030BA
	1005	0.50 ± 0.05	± 0.50pF	CGA2B2C0G1H080D050BA	
	1608	0.80 ± 0.10	± 0.50pF	CGA3E2C0G1H080D080AA	
9 pF	0603	0.30 ± 0.03	± 0.50pF	CGA1A2C0G1H090D030BA	CGA1A2C0G1E090D030BA
	1005	0.50 ± 0.05	± 0.50pF	CGA2B2C0G1H090D050BA	
	1608	0.80 ± 0.10	± 0.50pF	CGA3E2C0G1H090D080AA	
10 pF	0603	0.30 ± 0.03	± 0.50pF	CGA1A2C0G1H100D030BA	CGA1A2C0G1E100D030BA
	1005	0.50 ± 0.05	± 0.50pF	CGA2B2C0G1H100D050BA	
	1608	0.80 ± 0.10	± 0.50pF	CGA3E2C0G1H100D080AA	
12 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H120J030BA	CGA1A2C0G1E120J030BA
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H120J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H120J080AA	
15 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H150J030BA	CGA1A2C0G1E150J030BA
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H150J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H150J080AA	
18 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H180J030BA	CGA1A2C0G1E180J030BA
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H180J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H180J080AA	
22 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H220J030BA	CGA1A2C0G1E220J030BA
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H220J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H220J080AA	
27 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H270J030BA	CGA1A2C0G1E270J030BA
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H270J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H270J080AA	



Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to +125°C, 0 ± 30 ppm/°C)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number		
				Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	
33 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H330J030BA	CGA1A2C0G1E330J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H330J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H330J080AA		
39 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H390J030BA	CGA1A2C0G1E390J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H390J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H390J080AA		
47 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H470J030BA	CGA1A2C0G1E470J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H470J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H470J080AA		
56 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H560J030BA	CGA1A2C0G1E560J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H560J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H560J080AA		
68 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H680J030BA	CGA1A2C0G1E680J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H680J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H680J080AA		
82 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H820J030BA	CGA1A2C0G1E820J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H820J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H820J080AA		
100 pF	0603	0.30 ± 0.03	± 5%	CGA1A2C0G1H101J030BA	CGA1A2C0G1E101J030BA	
	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H101J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H101J080AA		
120 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H121J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H121J080AA		
	150 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H151J050BA	
150 pF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H151J080AA		
	180 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H181J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H181J080AA		
220 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H221J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H221J080AA		
	270 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H271J050BA	
270 pF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H271J080AA		
	330 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H331J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H331J080AA		
390 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H391J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H391J080AA		
	470 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H471J050BA	
470 pF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H471J080AA		
	560 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H561J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H561J080AA		
680 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H681J050BA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H681J080AA		
	820 pF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H821J050BA	
820 pF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H821J080AA		
	1 nF	1005	0.50 ± 0.05	± 5%	CGA2B2C0G1H102J050BA	
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H102J080AA		
1.2 nF	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H102J060AA		
	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H122J080AA		
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H122J060AA		
1.5 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H152J080AA		
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H152J060AA		
	1.8 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H182J080AA	
1.8 nF	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H182J060AA		
	2.2 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H222J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H222J060AA		
2.7 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H272J080AA		
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H272J060AA		
	3.3 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H332J080AA	
3.3 nF	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H332J060AA		
	3.9 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H392J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H392J060AA		



Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to +125°C, 0 ± 30 ppm/°C)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number	
				Rated Voltage Edc: 50V	Rated Voltage Edc: 25V
4.7 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H472J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H472J060AA	
	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H472J060AA	
5.6 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H562J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H562J060AA	
	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H562J060AA	
6.8 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H682J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H682J060AA	
	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H682J060AA	
8.2 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H822J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H822J060AA	
	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H822J060AA	
10 nF	1608	0.80 ± 0.10	± 5%	CGA3E2C0G1H103J080AA	
	2012	0.60 ± 0.15	± 5%	CGA4C2C0G1H103J060AA	
	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H103J060AA	
15 nF	2012	0.85 ± 0.15	± 5%	CGA4F2C0G1H153J085AA	
	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H153J060AA	
	2012	1.25 ± 0.20	± 5%	CGA4J2C0G1H223J125AA	
22 nF	3216	0.60 ± 0.15	± 5%	CGA5C2C0G1H223J060AA	
	3225	1.25 ± 0.20	± 5%	CGA6J2C0G1H223J125AA	
	2012	1.25 ± 0.20	± 5%	CGA4J2C0G1H333J125AA	
33 nF	3216	0.85 ± 0.15	± 5%	CGA5F2C0G1H333J085AA	
	3225	1.60 ± 0.20	± 5%	CGA6L2C0G1H333J160AA	
	3216	1.15 ± 0.15	± 5%	CGA5H2C0G1H473J115AA	
47 nF	3225	2.00 ± 0.20	± 5%	CGA6M2C0G1H473J200AA	
	4532	1.60 ± 0.20	± 5%	CGA8L2C0G1H473J160KA	
	3216	1.60 ± 0.20	± 5%	CGA5L2C0G1H683J160AA	
68 nF	3225	2.00 ± 0.20	± 5%	CGA6M2C0G1H683J200AA	
	4532	1.60 ± 0.20	± 5%	CGA8L2C0G1H683J160KA	
	3216	1.60 ± 0.20	± 5%	CGA5L2C0G1H104J160AA	
100 nF	3225	2.50 ± 0.30	± 5%	CGA6P2C0G1H104J250AA	
	4532	2.00 ± 0.20	± 5%	CGA8M2C0G1H104J200KA	
	150 nF	4532	2.50 ± 0.30	± 5%	CGA8P2C0G1H154J250KA
220 nF	4532	3.20 ± 0.30	± 5%	CGA8R2C0G1H224J320KA	

Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 50V	Rated Voltage Edc: 35V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
220 pF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H221K050BA			
			± 20%	CGA2B2X5R1H221M050BA			
330 pF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H331K050BA			
			± 20%	CGA2B2X5R1H331M050BA			
470 pF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H471K050BA			
			± 20%	CGA2B2X5R1H471M050BA			
680 pF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H681K050BA			
			± 20%	CGA2B2X5R1H681M050BA			
1 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H102K050BA			
			± 20%	CGA2B2X5R1H102M050BA			
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H102K080AA			
			± 20%	CGA3E2X5R1H102M080AA			
1.5 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H152K050BA			
			± 20%	CGA2B2X5R1H152M050BA			
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H152K080AA			
			± 20%	CGA3E2X5R1H152M080AA			
2.2 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H222K050BA			
			± 20%	CGA2B2X5R1H222M050BA			
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H222K080AA			
			± 20%	CGA3E2X5R1H222M080AA			



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 50V	Rated Voltage Edc: 35V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
3.3 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H332K050BA			
			± 20%	CGA2B2X5R1H332M050BA			
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H332K080AA			
			± 20%	CGA3E2X5R1H332M080AA			
4.7 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H472K050BA			
			± 20%	CGA2B2X5R1H472M050BA			
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H472K080AA			
			± 20%	CGA3E2X5R1H472M080AA			
6.8 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1H682K050BA			
			± 20%	CGA2B2X5R1H682M050BA			
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H682K080AA			
			± 20%	CGA3E2X5R1H682M080AA			
10 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H103K050BB	CGA2B3X5R1V103K050BB	CGA2B2X5R1E103K050BA	
			± 20%	CGA2B3X5R1H103M050BB	CGA2B3X5R1V103M050BB	CGA2B2X5R1E103M050BA	
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H103K080AA			
			± 20%	CGA3E2X5R1H103M080AA			
15 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H153K050BB	CGA2B3X5R1V153K050BB	CGA2B2X5R1E153K050BA	
			± 20%	CGA2B3X5R1H153M050BB	CGA2B3X5R1V153M050BB	CGA2B2X5R1E153M050BA	
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H153K080AA			
			± 20%	CGA3E2X5R1H153M080AA			
22 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H223K050BB	CGA2B3X5R1V223K050BB	CGA2B2X5R1E223K050BA	
			± 20%	CGA2B3X5R1H223M050BB	CGA2B3X5R1V223M050BB	CGA2B2X5R1E223M050BA	
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H223K080AA			
			± 20%	CGA3E2X5R1H223M080AA			
33 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H333K050BB	CGA2B3X5R1V333K050BB	CGA2B2X5R1E333K050BA	CGA2B2X5R1C333K050BA
			± 20%	CGA2B3X5R1H333M050BB	CGA2B3X5R1V333M050BB	CGA2B2X5R1E333M050BA	CGA2B2X5R1C333M050BA
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H333K080AA			
			± 20%	CGA3E2X5R1H333M080AA			
47 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H473K050BB	CGA2B3X5R1V473K050BB	CGA2B2X5R1E473K050BA	CGA2B2X5R1C473K050BA
			± 20%	CGA2B3X5R1H473M050BB	CGA2B3X5R1V473M050BB	CGA2B2X5R1E473M050BA	CGA2B2X5R1C473M050BA
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H473K080AA			
			± 20%	CGA3E2X5R1H473M080AA			
68 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H683K050BB	CGA2B3X5R1V683K050BB	CGA2B3X5R1E683K050BB	CGA2B2X5R1C683K050BA
			± 20%	CGA2B3X5R1H683M050BB	CGA2B3X5R1V683M050BB	CGA2B3X5R1E683M050BB	CGA2B2X5R1C683M050BA
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H683K080AA			
			± 20%	CGA3E2X5R1H683M080AA			
100 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1H104K050BB	CGA2B3X5R1V104K050BB	CGA2B3X5R1E104K050BB	CGA2B2X5R1C104K050BA
			± 20%	CGA2B3X5R1H104M050BB	CGA2B3X5R1V104M050BB	CGA2B3X5R1E104M050BB	CGA2B2X5R1C104M050BA
	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1H104K080AA		CGA3E2X5R1E104K080AA	
			± 20%	CGA3E2X5R1H104M080AA		CGA3E2X5R1E104M080AA	
150 nF	1005	0.50 ± 0.05	± 10%				CGA2B1X5R1C154K050BC
			± 20%				CGA2B1X5R1C154M050BC
	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1H154K080AB	CGA3E3X5R1V154K080AB	CGA3E2X5R1E154K080AA	
			± 20%	CGA3E3X5R1H154M080AB	CGA3E3X5R1V154M080AB	CGA3E2X5R1E154M080AA	
2012	1.25 ± 0.20	± 10%	CGA4J2X5R1H154K125AA				
		± 20%	CGA4J2X5R1H154M125AA				
220 nF	1005	0.50 ± 0.05	± 10%				CGA2B1X5R1C224K050BC
			± 20%				CGA2B1X5R1C224M050BC
	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1H224K080AB	CGA3E3X5R1V224K080AB	CGA3E2X5R1E224K080AA	CGA3E2X5R1C224K080AA
			± 20%	CGA3E3X5R1H224M080AB	CGA3E3X5R1V224M080AB	CGA3E2X5R1E224M080AA	CGA3E2X5R1C224M080AA
2012	1.25 ± 0.20	± 10%	CGA4J2X5R1H224K125AA				
		± 20%	CGA4J2X5R1H224M125AA				
330 nF	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1H334K080AB	CGA3E3X5R1V334K080AB	CGA3E3X5R1E334K080AB	CGA3E2X5R1C334K080AA
			± 20%	CGA3E3X5R1H334M080AB	CGA3E3X5R1V334M080AB	CGA3E3X5R1E334M080AB	CGA3E2X5R1C334M080AA
	2012	1.25 ± 0.20	± 10%	CGA4J2X5R1H334K125AA			
			± 20%	CGA4J2X5R1H334M125AA			



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number				
				Rated Voltage Edc: 50V	Rated Voltage Edc: 35V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	
470 nF	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1H474K080AB	CGA3E3X5R1V474K080AB	CGA3E3X5R1E474K080AB	CGA3E2X5R1C474K080AA	
			± 20%	CGA3E3X5R1H474M080AB	CGA3E3X5R1V474M080AB	CGA3E3X5R1E474M080AB	CGA3E2X5R1C474M080AA	
	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H474K125AB	CGA4J3X5R1V474K125AB	CGA4J2X5R1E474K125AA		
			± 20%	CGA4J3X5R1H474M125AB	CGA4J3X5R1V474M125AB	CGA4J2X5R1E474M125AA		
	3216	1.60 +0.30/-0.10	± 10%	CGA5L2X5R1H474K160AA				
			± 20%	CGA5L2X5R1H474M160AA				
680 nF	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1V684K080AB	CGA3E3X5R1H684K080AB	CGA3E3X5R1E684K080AB	CGA3E2X5R1C684K080AA	
			± 20%	CGA3E3X5R1H684M080AB	CGA3E3X5R1V684M080AB	CGA3E3X5R1E684M080AB	CGA3E2X5R1C684M080AA	
	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H684K125AB	CGA4J3X5R1V684K125AB	CGA4J2X5R1E684K125AA	CGA4J2X5R1C684K125AA	
			± 20%	CGA4J3X5R1H684M125AB	CGA4J3X5R1V684M125AB	CGA4J2X5R1E684M125AA	CGA4J2X5R1C684M125AA	
	3216	1.60 +0.30/-0.10	± 10%	CGA5L2X5R1H684K160AA				
			± 20%	CGA5L2X5R1H684M160AA				
1 µF	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1H105K080AB	CGA3E3X5R1V105K080AB	CGA3E3X5R1E105K080AB	CGA3E1X5R1C105K080AC	
			± 20%	CGA3E3X5R1H105M080AB	CGA3E3X5R1V105M080AB	CGA3E3X5R1E105M080AB	CGA3E1X5R1C105M080AC	
	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H105K125AB	CGA4J3X5R1V105K125AB	CGA4J2X5R1E105K125AA	CGA4J2X5R1C105K125AA	
			± 20%	CGA4J3X5R1H105M125AB	CGA4J3X5R1V105M125AB	CGA4J2X5R1E105M125AA	CGA4J2X5R1C105M125AA	
	3216	1.60 +0.30/-0.10	± 10%	CGA5L2X5R1H105K160AA				
			± 20%	CGA5L2X5R1H105M160AA				
1.5 µF	1608	0.80 ± 0.10	± 10%				CGA3E1X5R1C155K080AC	
			± 20%				CGA3E1X5R1C155M080AC	
	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H155K125AB	CGA4J3X5R1V155K125AB	CGA4J3X5R1E155K125AB	CGA4J2X5R1C155K125AA	
			± 20%	CGA4J3X5R1H155M125AB	CGA4J3X5R1V155M125AB	CGA4J3X5R1E155M125AB	CGA4J2X5R1C155M125AA	
	3216	1.60 +0.30/-0.10	± 10%	CGA5L3X5R1H155K160AB	CGA5L3X5R1V155K160AB	CGA5L2X5R1E155K160AA		
			± 20%	CGA5L3X5R1H155M160AB	CGA5L3X5R1V155M160AB	CGA5L2X5R1E155M160AA		
2.2 µF	1608	0.80 ± 0.10	± 10%				CGA3E1X5R1C225K080AC	
			± 20%				CGA3E1X5R1C225M080AC	
	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H225K125AB	CGA4J3X5R1V225K125AB	CGA4J3X5R1E225K125AB	CGA4J2X5R1C225K125AA	
			± 20%	CGA4J3X5R1H225M125AB	CGA4J3X5R1V225M125AB	CGA4J3X5R1E225M125AB	CGA4J2X5R1C225M125AA	
	3216	1.60 +0.30/-0.10	± 10%	CGA5L3X5R1H225K160AB	CGA5L3X5R1V225K160AB	CGA5L2X5R1E225K160AA		
			± 20%	CGA5L3X5R1H225M160AB	CGA5L3X5R1V225M160AB	CGA5L2X5R1E225M160AA		
3.3 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H335K125AB	CGA4J3X5R1V335K125AB	CGA4J3X5R1E335K125AB	CGA4J3X5R1C335K125AB	
			± 20%	CGA4J3X5R1H335M125AB	CGA4J3X5R1V335M125AB	CGA4J3X5R1E335M125AB	CGA4J3X5R1C335M125AB	
	3216	1.60 +0.30/-0.10	± 10%	CGA5L3X5R1H335K160AB	CGA5L3X5R1V335K160AB	CGA5L2X5R1E335K160AA		
			± 20%	CGA5L3X5R1H335M160AB	CGA5L3X5R1V335M160AB	CGA5L2X5R1E335M160AA		
	4.7 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1H475K125AB	CGA4J3X5R1V475K125AB	CGA4J3X5R1E475K125AB	CGA4J3X5R1C475K125AB
				± 20%	CGA4J3X5R1H475M125AB	CGA4J3X5R1V475M125AB	CGA4J3X5R1E475M125AB	CGA4J3X5R1C475M125AB
3216	1.60 +0.30/-0.10	± 10%	CGA5L3X5R1H475K160AB	CGA5L3X5R1V475K160AB	CGA5L2X5R1E475K160AA	CGA5L2X5R1C475K160AA		
		± 20%	CGA5L3X5R1H475M160AB	CGA5L3X5R1V475M160AB	CGA5L2X5R1E475M160AA	CGA5L2X5R1C475M160AA		
6.8 µF	2012	1.25 ± 0.20	± 10%				CGA4J1X5R1C685K125AC	
			± 20%				CGA4J1X5R1C685M125AC	
	3216	1.60 +0.30/-0.10	± 10%	CGA5L3X5R1H685K160AB	CGA5L3X5R1V685K160AB	CGA5L3X5R1E685K160AB	CGA5L2X5R1C685K160AA	
			± 20%	CGA5L3X5R1H685M160AB	CGA5L3X5R1V685M160AB	CGA5L3X5R1E685M160AB	CGA5L2X5R1C685M160AA	
10 µF	2012	1.25 ± 0.20	± 10%				CGA4J1X5R1C106K125AC	
			± 20%				CGA4J1X5R1C106M125AC	
3216	1.60 +0.30/-0.10	± 10%	CGA5L3X5R1H106K160AB	CGA5L3X5R1V106K160AB	CGA5L3X5R1E106K160AB	CGA5L1X5R1C106K160AC		
		± 20%	CGA5L3X5R1H106M160AB	CGA5L3X5R1V106M160AB	CGA5L3X5R1E106M160AB	CGA5L1X5R1C106M160AC		
15 µF	3216	1.60 +0.30/-0.10	± 20%				CGA5L1X5R1C156M160AC	
22 µF	3216	1.60 +0.30/-0.10	± 20%				CGA5L1X5R1C226M160AC	



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number	
				Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
100 nF	1005	0.50 ± 0.05	± 10%	CGA2B2X5R1A104K050BA	
			± 20%	CGA2B2X5R1A104M050BA	
150 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1A154K050BB	
			± 20%	CGA2B3X5R1A154M050BB	
220 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X5R1A224K050BB	
			± 20%	CGA2B3X5R1A224M050BB	
330 nF	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1A334K080AA	
			± 20%	CGA3E2X5R1A334M080AA	
470 nF	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1A474K080AA	
			± 20%	CGA3E2X5R1A474M080AA	
680 nF	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1A684K080AA	
			± 20%	CGA3E2X5R1A684M080AA	
1 µF	1608	0.80 ± 0.10	± 10%	CGA3E2X5R1A105K080AA	
			± 20%	CGA3E2X5R1A105M080AA	
1.5 µF	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1A155K080AB	
			± 20%	CGA3E3X5R1A155M080AB	
	2012	1.25 ± 0.20	± 10%	CGA4J2X5R1A155K125AA	
			± 20%	CGA4J2X5R1A155M125AA	
2.2 µF	1608	0.80 ± 0.10	± 10%	CGA3E3X5R1A225K080AB	
			± 20%	CGA3E3X5R1A225M080AB	
	2012	1.25 ± 0.20	± 10%	CGA4J2X5R1A225K125AA	
			± 20%	CGA4J2X5R1A225M125AA	
3.3 µF	1608	0.80 ± 0.10	± 10%	CGA3E1X5R1A335K080AC	CGA3E3X5R0J335K080AB
			± 20%	CGA3E1X5R1A335M080AC	CGA3E3X5R0J335M080AB
	2012	1.25 ± 0.20	± 10%	CGA4J2X5R1A335K125AA	
			± 20%	CGA4J2X5R1A335M125AA	
4.7 µF	1608	0.80 ± 0.10	± 10%		CGA3E1X5R0J475K080AC
			± 20%		CGA3E1X5R0J475M080AC
	2012	1.25 ± 0.20	± 10%	CGA4J2X5R1A475K125AA	
			± 20%	CGA4J2X5R1A475M125AA	
6.8 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1A685K125AB	
			± 20%	CGA4J3X5R1A685M125AB	
10 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X5R1A106K125AB	
			± 20%	CGA4J3X5R1A106M125AB	



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 50V	Rated Voltage Edc: 35V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
100 pF	0603	0.30 ± 0.03	± 10%	CGA1A2X7R1H101K030BA		CGA1A2X7R1E101K030BA	CGA1A2X7R1C101K030BA
			± 20%	CGA1A2X7R1H101M030BA		CGA1A2X7R1E101M030BA	CGA1A2X7R1C101M030BA
150 pF	0603	0.30 ± 0.03	± 10%	CGA1A2X7R1H151K030BA		CGA1A2X7R1E151K030BA	CGA1A2X7R1C151K030BA
			± 20%	CGA1A2X7R1H151M030BA		CGA1A2X7R1E151M030BA	CGA1A2X7R1C151M030BA
220 pF	0603	0.30 ± 0.03	± 10%	CGA1A2X7R1H221K030BA		CGA1A2X7R1E221K030BA	CGA1A2X7R1C221K030BA
			± 20%	CGA1A2X7R1H221M030BA		CGA1A2X7R1E221M030BA	CGA1A2X7R1C221M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H221K050BA			
			± 20%	CGA2B2X7R1H221M050BA			
330 pF	0603	0.30 ± 0.03	± 10%	CGA1A2X7R1H331K030BA		CGA1A2X7R1E331K030BA	CGA1A2X7R1C331K030BA
			± 20%	CGA1A2X7R1H331M030BA		CGA1A2X7R1E331M030BA	CGA1A2X7R1C331M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H331K050BA			
			± 20%	CGA2B2X7R1H331M050BA			
470 pF	0603	0.30 ± 0.03	± 10%	CGA1A2X7R1H471K030BA		CGA1A2X7R1E471K030BA	CGA1A2X7R1C471K030BA
			± 20%	CGA1A2X7R1H471M030BA		CGA1A2X7R1E471M030BA	CGA1A2X7R1C471M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H471K050BA			
			± 20%	CGA2B2X7R1H471M050BA			
680 pF	0603	0.30 ± 0.03	± 10%			CGA1A2X7R1E681K030BA	CGA1A2X7R1C681K030BA
			± 20%			CGA1A2X7R1E681M030BA	CGA1A2X7R1C681M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H681K050BA			
			± 20%	CGA2B2X7R1H681M050BA			
1 nF	0603	0.30 ± 0.03	± 10%			CGA1A2X7R1E102K030BA	CGA1A2X7R1C102K030BA
			± 20%			CGA1A2X7R1E102M030BA	CGA1A2X7R1C102M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H102K050BA			
			± 20%	CGA2B2X7R1H102M050BA			
1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H102K080AA				
		± 20%	CGA3E2X7R1H102M080AA				
1.5 nF	0603	0.30 ± 0.03	± 10%			CGA1A2X7R1E152K030BA	CGA1A2X7R1C152K030BA
			± 20%			CGA1A2X7R1E152M030BA	CGA1A2X7R1C152M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H152K050BA			
			± 20%	CGA2B2X7R1H152M050BA			
1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H152K080AA				
		± 20%	CGA3E2X7R1H152M080AA				
2.2 nF	0603	0.30 ± 0.03	± 10%			CGA1A2X7R1E222K030BA	CGA1A2X7R1C222K030BA
			± 20%			CGA1A2X7R1E222M030BA	CGA1A2X7R1C222M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H222K050BA			
			± 20%	CGA2B2X7R1H222M050BA			
1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H222K080AA				
		± 20%	CGA3E2X7R1H222M080AA				
3.3 nF	0603	0.30 ± 0.03	± 10%			CGA1A2X7R1E332K030BA	CGA1A2X7R1C332K030BA
			± 20%			CGA1A2X7R1E332M030BA	CGA1A2X7R1C332M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H332K050BA			
			± 20%	CGA2B2X7R1H332M050BA			
1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H332K080AA				
		± 20%	CGA3E2X7R1H332M080AA				
4.7 nF	0603	0.30 ± 0.03	± 10%				CGA1A2X7R1C472K030BA
			± 20%				CGA1A2X7R1C472M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H472K050BA			
			± 20%	CGA2B2X7R1H472M050BA			
1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H472K080AA				
		± 20%	CGA3E2X7R1H472M080AA				
6.8 nF	0603	0.30 ± 0.03	± 10%				CGA1A2X7R1C682K030BA
			± 20%				CGA1A2X7R1C682M030BA
	1005	0.50 ± 0.05	± 10%	CGA2B2X7R1H682K050BA			
			± 20%	CGA2B2X7R1H682M050BA			
1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H682K080AA				
		± 20%	CGA3E2X7R1H682M080AA				
10 nF	1005	0.50 ± 0.05	± 10%	CGA2B3X7R1H103K050BB	CGA2B3X7R1V103K050BB	CGA2B2X7R1E103K050BA	
			± 20%	CGA2B3X7R1H103M050BB	CGA2B3X7R1V103M050BB	CGA2B2X7R1E103M050BA	
	1608	0.80 ± 0.10	± 10%	CGA3E2X7R1H103K080AA			
			± 20%	CGA3E2X7R1H103M080AA			



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 50V	Rated Voltage Edc: 35V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
1.5 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X7R1H155K125AB	CGA4J1X7R1V155K125AC	CGA4J3X7R1E155K125AB	CGA4J3X7R1C155K125AB
			± 20%	CGA4J3X7R1H155M125AB	CGA4J1X7R1V155M125AC	CGA4J3X7R1E155M125AB	CGA4J3X7R1C155M125AB
	3216	1.60 +0.30/-0.10	± 10%	CGA5L3X7R1H155K160AB	CGA5L3X7R1V155K160AB	CGA5L2X7R1E155K160AA	
			± 20%	CGA5L3X7R1H155M160AB	CGA5L3X7R1V155M160AB	CGA5L2X7R1E155M160AA	
	3225	2.00 ± 0.20	± 10%	CGA6M2X7R1H155K200AA			
	4532	1.60 ± 0.20	± 10%	CGA8L2X7R1H155K160KA			
2.2 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X7R1H225K125AB	CGA4J1X7R1V225K125AC	CGA4J3X7R1E225K125AB	CGA4J3X7R1C225K125AB
			± 20%	CGA4J3X7R1H225M125AB	CGA4J1X7R1V225M125AC	CGA4J3X7R1E225M125AB	CGA4J3X7R1C225M125AB
	3216	1.60 +0.30/-0.10	± 10%	CGA5L3X7R1H225K160AB	CGA5L3X7R1V225K160AB	CGA5L2X7R1E225K160AA	
			± 20%	CGA5L3X7R1H225M160AB	CGA5L3X7R1V225M160AB	CGA5L2X7R1E225M160AA	
	3225	2.00 ± 0.20	± 10%	CGA6M3X7R1H225K200AB			
	4532	1.60 ± 0.20	± 20%	CGA6M3X7R1H225M200AB			
3.3 µF	2012	1.25 ± 0.20	± 10%		CGA4J1X7R1V335K125AC	CGA4J1X7R1E335K125AC	CGA4J3X7R1C335K125AB
			± 20%		CGA4J1X7R1V335M125AC	CGA4J1X7R1E335M125AC	CGA4J3X7R1C335M125AB
	3216	1.60 ± 0.20	± 10%	CGA5L3X7R1H335K160AB			
			± 20%	CGA5L3X7R1H335M160AB			
		1.60 +0.30/-0.10	± 10%		CGA5L1X7R1V335K160AC	CGA5L1X7R1E335K160AC	
		± 20%		CGA5L1X7R1V335M160AC	CGA5L1X7R1E335M160AC		
	3225	2.50 ± 0.30	± 10%	CGA6P3X7R1H335K250AB			
			± 20%	CGA6P3X7R1H335M250AB			
	4532	2.00 ± 0.20	± 10%	CGA8M2X7R1H335K200KA			
4.7 µF	2012	1.25 ± 0.20	± 10%		CGA4J1X7R1V475K125AC	CGA4J1X7R1E475K125AC	CGA4J3X7R1C475K125AB
			± 20%		CGA4J1X7R1V475M125AC	CGA4J1X7R1E475M125AC	CGA4J3X7R1C475M125AB
	3216	1.60 ± 0.20	± 10%	CGA5L3X7R1H475K160AB			
			± 20%	CGA5L3X7R1H475M160AB			
		1.60 +0.30/-0.10	± 10%		CGA5L1X7R1V475K160AC	CGA5L1X7R1E475K160AC	CGA5L3X7R1C475K160AB
		± 20%		CGA5L1X7R1V475M160AC	CGA5L1X7R1E475M160AC	CGA5L3X7R1C475M160AB	
	3225	2.50 ± 0.30	± 10%	CGA6P3X7R1H475K250AB			
			± 20%	CGA6P3X7R1H475M250AB			
	4532	1.60 ± 0.20	± 10%			CGA8L2X7R1E475K160KA	
			± 20%			CGA8L2X7R1E475M160KA	
	5750	2.00 ± 0.20	± 10%	CGA8M3X7R1H475K200KB			
		2.00 ± 0.20	± 10%	CGA9M2X7R1H475K200KA			
6.8 µF	3216	1.60 ± 0.20	± 10%		CGA5L1X7R1V685K160AC		
			± 20%		CGA5L1X7R1V685M160AC		
		1.60 +0.30/-0.10	± 10%			CGA5L1X7R1E685K160AC	CGA5L1X7R1C685K160AC
			± 20%			CGA5L1X7R1E685M160AC	CGA5L1X7R1C685M160AC
		3225	2.50 ± 0.30	± 10%			CGA6P3X7R1E685K250AB
			± 20%			CGA6P3X7R1E685M250AB	
	4532	2.50 ± 0.20	± 10%	CGA8P3X7R1H685K250KB			
	5750	2.50 ± 0.30	± 10%	CGA9P2X7R1H685K250KA			
10 µF	3216	1.60 ± 0.20	± 10%		CGA5L1X7R1V106K160AC		
			± 20%		CGA5L1X7R1V106M160AC		
		1.60 +0.30/-0.10	± 10%			CGA5L1X7R1E106K160AC	CGA5L1X7R1C106K160AC
			± 20%			CGA5L1X7R1E106M160AC	CGA5L1X7R1C106M160AC
		3225	2.00 ± 0.20	± 10%			CGA6M3X7R1C106K200AB
		2.50 ± 0.30	± 20%			CGA6M3X7R1C106M200AB	
		2.50 ± 0.30	± 10%			CGA6P1X7R1E106K250AC	
			± 20%			CGA6P1X7R1E106M250AC	
	4532	2.50 ± 0.20	± 10%			CGA8P2X7R1E106K250KA	
		2.00 ± 0.20	± 20%			CGA9M2X7R1E106M200KA	
	5750	2.30 ± 0.20	± 10%	CGA9N3X7R1H106K230KB			
15 µF	3225	2.50 ± 0.30	± 20%				CGA6P3X7R1C156M250AB
	4532	2.80 ± 0.30	± 20%			CGA8Q3X7R1E156M280KB	
	5750	2.30 ± 0.20	± 20%			CGA9N2X7R1E156M230KA	
22 µF	3225	2.50 ± 0.30	± 20%				CGA6P1X7R1C226M250AC
	4532	2.30 ± 0.20	± 20%				CGA8N3X7R1C226M230KB
		2.50 ± 0.20	± 20%			CGA8P1X7R1E226M250KC	
	5750	2.50 ± 0.30	± 20%			CGA9P2X7R1E226M250KA	
33 µF	4532	2.50 ± 0.20	± 20%				CGA8P1X7R1C336M250KC
47 µF	5750	2.30 ± 0.20	± 20%				CGA9N3X7R1C476M230KB



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number	
				Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
10 nF	0603	0.30 ± 0.03	± 10%	CGA1A2X7R1A103K030BA	CGA1A2X7R0J103K030BA
			± 20%	CGA1A2X7R1A103M030BA	CGA1A2X7R0J103M030BA
150 nF	1005	0.50 ± 0.05	± 10%	CGA2B1X7R1A154K050BC	CGA2B3X7R0J154K050BB
			± 20%	CGA2B1X7R1A154M050BC	CGA2B3X7R0J154M050BB
220 nF	1005	0.50 ± 0.05	± 10%	CGA2B1X7R1A224K050BC	CGA2B3X7R0J224K050BB
			± 20%	CGA2B1X7R1A224M050BC	CGA2B3X7R0J224M050BB
1.5 µF	1608	0.80 ± 0.10	± 10%		CGA3E1X7R0J155K080AC
			± 20%		CGA3E1X7R0J155M080AC
2.2 µF	1608	0.80 ± 0.10	± 10%		CGA3E1X7R0J225K080AC
			± 20%		CGA3E1X7R0J225M080AC
3.3 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X7R1A335K125AB	
4.7 µF	2012	1.25 ± 0.20	± 10%	CGA4J3X7R1A475K125AB	
6.8 µF	2012	1.25 ± 0.20	± 10%		CGA4J1X7R0J685K125AC
			± 20%		CGA4J1X7R0J685M125AC
10 µF	2012	1.25 ± 0.20	± 10%		CGA4J1X7R0J106K125AC
			± 20%		CGA4J1X7R0J106M125AC
22 µF	3216	1.60 +0.30/-0.10	± 20%	CGA5L1X7R0J226M160AC	

Class 2 (Temperature Stable)

Temperature Characteristics: X7S (-55 to +125°C, ±22%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 50V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
330 nF	1005	0.50 ± 0.05	± 10%		CGA2B1X7S1C334K050BC	CGA2B3X7S1A334K050BB	
			± 20%		CGA2B1X7S1C334M050BC	CGA2B3X7S1A334M050BB	
470nF	1005	0.50 ± 0.05	± 10%		CGA2B1X7S1C474K050BC	CGA2B3X7S1A474K050BB	
			± 20%		CGA2B1X7S1C474M050BC	CGA2B3X7S1A474M050BB	
1.5 µF	1608	0.80 ± 0.10	± 10%		CGA3E1X7S1C155K080AC	CGA3E3X7S1A155K080AB	
			± 20%		CGA3E1X7S1C155M080AC	CGA3E3X7S1A155M080AB	
2.2 µF	1608	0.80 ± 0.10	± 10%		CGA3E1X7S1C225K080AC	CGA3E3X7S1A225K080AB	
			± 20%		CGA3E1X7S1C225M080AC	CGA3E3X7S1A225M080AB	
4.7 µF	3225	2.30 ± 0.20	± 10%	CGA6N3X7S1H475K230AB			
			± 20%				
6.8 µF	2012	1.25 ± 0.20	± 10%		CGA4J1X7S1C685K125AC	CGA4J3X7S1A685K125AB	
			± 20%		CGA4J1X7S1C685M125AC	CGA4J3X7S1A685M125AB	
10 µF	3225	2.50 ± 0.30	± 10%	CGA6P3X7S1H685K250AB			
			± 20%	CGA6P3X7S1H685M250AB			
33 µF	2012	1.25 ± 0.20	± 10%		CGA4J1X7S1C106K125AC	CGA4J3X7S1A106K125AB	
			± 20%		CGA4J1X7S1C106M125AC	CGA4J3X7S1A106M125AB	
47 µF	3225	2.50 ± 0.30	± 10%	CGA6P3X7S1H106K250AB			
			± 20%	CGA6P3X7S1H106M250AB			
							CGA6P1X7S0J336M250AC
							CGA6P1X7S0J476M250AC