

MULTILAYER CERAMIC CHIP CAPACITORS



C Series
Commercial Grade
High Temperature Application

Type: C1005 [EIA CC0402]

C1608 [EIA CC0603] C2012 [EIA CC0805] C3216 [EIA CC1206] C3225 [EIA CC1210]

C4532 [EIA CC1812]

Issue date: Jan 2014



REMINDERS

Please read before using this product

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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





C Series







High Temperature Application

Type: C1005 [EIA CC0402], C1608 [EIA CC0603], C2012 [EIA CC0805], C3216 [EIA CC1206], C3225 [EIA CC1210], C4532 [EIA CC1812]

Features



- With a maximum temperature of 150°C and a capacitance change within ±15%, the series is suited for devices that operate in high-temperature environments.
- · Excellent DC bias properties.

Parameters	Specifications
Temperature	-55 to 150°C
Characteristics	Δ C/C: ±15% or 0 ± 30ppm
Operating Temperature	-55 to +150°C
Dissipation Factor	5% maximum
Insulation Resistance	10 GΩ or 500 MΩ • μF minimum
Voltage Proof	2.5 • Rated Voltage or 3 • Rated Voltage for 1 to 5 seconds Charge/Discharge ≤ 50 mA

Applications



Shape &



Dimensions

- · Automotive applications (engine rooms)
- Measurement instruments used at high temperature environments
- LCD display
- · Sensor Module
- Smoothing and decoupling applications for other devices that operate at high temperature



L	Body Length
W	Body Width
Т	Body Height
В	Terminal Width
G	Terminal Spacing

Catalog Number Construction

C • 3225 • X8R • 1C • 106 • K • 250 • A • B

Series Name

Dimensions L x W (mm)

Code	Length	Width	Terminal
C1005	1.00 ± 0.05	0.50 ± 0.05	0.10 min.
C1608	1.60 ± 0.10	0.80 ± 0.10	0.20 min.
C2012	2.00 ± 0.20	1.25 ± 0.20	0.20 min.
C3216	3.20 ± 0.20	1.60 ± 0.20	0.20 min.
C3225	3.20 ± 0.40	2.50 ± 0.30	0.20 min.
C4532	4.50 ± 0.40	3.20 ± 0.40	0.20 min.
*Dimensional tolerances are typical values.			

Temperature Characteristics •

Temperature Characteristics	Temperature Coefficient or Capacitance Change	Temperature Range
NP0	0 ± 30ppm/°C	-55 to +150°C
X8R	+15%	-55 to +150°C

Rated Voltage (DC)

Code	Voltage (DC)	Code	Voltage (DC)
1C	16V	1H	50V
1E	25V	2A	100V

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 = 1,000pF

Capacitance Tolerance

Code	lolerance
С	± 0.25pF
D	± 0.50pF
J	± 5%
K	± 10%
N.4	1 200/

Nominal Thickness •

Co	de	Inickness
05	0	0.50 mm
06	iO	0.60 mm
08	0	0.80 mm
08	5	0.85 mm
_11	5	1.15 mm
_12	.5	1.25 mm
16	0	1.60 mm
20	0	2.00 mm
25	0	2.50 mm

Code		Thickness
	230	2.30 mm
	250	2.50 mm
	320	3.20 mm

Special Reserved Code

Code	Description
A, B	TDK Internal Code

Code Toleran

	Packaging Style	•
_	Code	Style
	A	178" Reel 4mm Pito

Code	Style
Α	178" Reel, 4mm Pitch
В	178" Reel, 2mm Pitch
K	178" Reel, 8mm Pitch

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EIA CC0402 [C1005]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (± 15%) Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C)

Canacitanas			NP0		X	8R	
Capacitance (pF)	Code	Tolerance	1H (50V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
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						
	330						
33							
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						

Standard Thickness 0.50 mm





EIA CC0603 [C1608]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (±15%) Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C)

0			NF	20
Capacitance (pF)	Code	Tolerance	2A (100V)	1H (50V)
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			

Canasitanas			NI	20		X	3R	
Capacitance (pF)	Code	Tolerance	2A (100V)	1H (50V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
1,000	102	C: ± 0.25pF						
1,200	122	D: ± 0.50pF						
1,500	152	J: ± 5%						
1,800	182	K: ± 10%						
2,200	222	M: ± 20%						
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							

Standard Thickness

0.80 mm





EIA CC0805 [C2012]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (±15%) Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C)

Canacitanas			N	P0		X	3R	
Capacitance (pF)	Code	Tolerance	2A (100V)	1H (50V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
1,000	102	J: ± 5%						
1,200	122	K: ± 10%						
1,500	152	M: ± 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							







EIA CC1206 [C3216]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (±15%) Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C)

Canacitanas			N	20		X	BR .		
Capacitance (pF)	Code	Tolerance	2A (100V)	1H (50V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)	
3,900	392	J: ± 5%							
4,700	472	K: ± 10%							
5,600	562	M: ± 20%							
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								Standard Thickness
680,000	684								0.60 mm
1,000,000	105								
1,500,000	155								0.85 mm
2,200,000	225								1.15 mm
3,300,000	335								
4,700,000	475								1.60 mm



EIA CC1210 [C3225]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (±15%) Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C)

Canacitanas			N	20		X8R		
Capacitance (pF)	Code	Tolerance	2A (100V)	1H (50V)	2A (100V)	1E (25V)	1C (16V)	
15,000	153	J: ± 5%						
22,000	223	K: ± 10%						
33,000	333	M: ± 20%						
47,000	473							
68,000	683							
100,000	104							
470,000	474							Standard Thickness
680,000	684							1.25 mm
1,500,000	155							
2,200,000	225							1.60 mm
3,300,000	335							2.00 mm
4,700,000	475							2.30 mm
6,800,000	685							
10,000,000	106							2.50 mm

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EIA CC1812 [C4532]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C) Rated Voltage: 100V (2A), 50V (1H)

Consoltones			NI	P0	
Capacitance (pF)	Code	Tolerance	2A (100V)	1H (50V)	Standard Thickness
47,000	473	J: ± 5%			1.60 mm
68,000	683				2.00 mm
100,000	104				2.50 mm
150,000	154				
220,000	224				3.20 mm



EIA CC2220 [C5750]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C)

Rated Voltage: 100V (2A)

Canacitanas			NP0
Capacitance (pF)	Code	Tolerance	2A (100V)
150,000	154	J: ± 5%	

Standard Thickness 2.30 mm





Class 1 (Temperature Compensating)

Temperature Characteristics: NP0 (-55 to +150°C, 0±30 ppm/°C)

Capacitance	Size	Thickness	Capacitance	Catalog Number			
Capacitario		(mm)	Tolerance	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16
1 pF	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H010C050BA		
· p.	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A010C080AA	C1608NP01H010C080AA		
1.5 pF	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H1R5C050BA		
1.0 βι	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A1R5C080AA	C1608NP01H1R5C080AA		
2 pF	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H020C050BA		
Z þi	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A020C080AA	C1608NP01H020C080AA		
2.2 pF	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H2R2C050BA		
Ζ.Ζ ΡΙ	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A2R2C080AA	C1608NP01H2R2C080AA		
2 nE	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H030C050BA		
3 pF	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A030C080AA	C1608NP01H030C080AA		
2.2 [1005	0.50 ± 0.05	± 0.25pF		C1005NP01H3R3C050BA		
3.3 pF	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A3R3C080AA	C1608NP01H3R3C080AA		
	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H040C050BA		
4 pF	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A040C080AA	C1608NP01H040C080AA		
	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H4R7C050BA		
4.7 pF	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A4R7C080AA	C1608NP01H4R7C080AA		
	1005	0.50 ± 0.05	± 0.25pF		C1005NP01H050C050BA		
5 pF	1608	0.80 ± 0.10	± 0.25pF	C1608NP02A050C080AA	C1608NP01H050C080AA		
	1005	0.50 ± 0.05	± 0.50pF	0.1000141.027.000000007.01	C1005NP01H060D050BA		
6 pF	1608	0.80 ± 0.10	± 0.50pF	C1608NP02A060D080AA	C1608NP01H060D080AA		
	1005	0.50 ± 0.05	± 0.50pF	C 1000141 02/10002000/1/1	C1005NP01H6R8D050BA		
6.8 pF	1608	0.80 ± 0.10	± 0.50pF	C1608NP02A6R8D080AA	C1608NP01H6R8D080AA		
		0.50 ± 0.10	± 0.50pF	C 1006NFUZAGNODUGUAA			
7 pF	1005			C1000NID00A070D000AA	C1005NP01H070D050BA		
	1608	0.80 ± 0.10	± 0.50pF	C1608NP02A070D080AA	C1608NP01H070D080AA		
8 pF	1005	0.50 ± 0.05	± 0.50pF	0.0001100010000000000000000000000000000	C1005NP01H080D050BA		
	1608	0.80 ± 0.10	± 0.50pF	C1608NP02A080D080AA	C1608NP01H080D080AA		
9 pF	1005	0.50 ± 0.05	± 0.50pF		C1005NP01H090D050BA		
- 1-	1608	0.80 ± 0.10	± 0.50pF	C1608NP02A090D080AA	C1608NP01H090D080AA		
10 pF	1005	0.50 ± 0.05	± 0.50pF		C1005NP01H100D050BA		
.σρ.	1608	0.80 ± 0.10	± 0.50pF	C1608NP02A100D080AA	C1608NP01H100D080AA		
12 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H120J050BA		
12 pi	1608	0.80 ± 0.10	± 5%	C1608NP02A120J080AA	C1608NP01H120J080AA		
15 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H150J050BA		
15 βι	1608	0.80 ± 0.10	± 5%	C1608NP02A150J080AA	C1608NP01H150J080AA		
10 nE	1005	0.50 ± 0.05	± 5%		C1005NP01H180J050BA		
18 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A180J080AA	C1608NP01H180J080AA		
00 - F	1005	0.50 ± 0.05	± 5%		C1005NP01H220J050BA		
22 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A220J080AA	C1608NP01H220J080AA		
	1005	0.50 ± 0.05	± 5%		C1005NP01H270J050BA		
27 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A270J080AA	C1608NP01H270J080AA		
	1005	0.50 ± 0.05	± 5%		C1005NP01H330J050BA		
33 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A330J080AA	C1608NP01H330J080AA		
	1005	0.50 ± 0.05	± 5%	0.1000141 027.100000007.81	C1005NP01H390J050BA		
39 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A390J080AA	C1608NP01H390J080AA		
	1005	0.50 ± 0.10	± 5%	S TOUGHT GEAGSOUGGAA	C1005NP01H470J050BA		
47 pF	1608	0.80 ± 0.03	± 5%	C1608NP02A470J080AA	C1608NP01H470J080AA		
		0.50 ± 0.10		O TOUGINI UZA47 UJUUUAA	C1005NP01H560J050BA		
56 pF	1005		± 5%	C1600NID00AF00 1000AA			
	1608	0.80 ± 0.10	± 5%	C1608NP02A560J080AA	C1608NP01H560J080AA		
68 pF	1005	0.50 ± 0.05	± 5%	0.10001/2001/2001	C1005NP01H680J050BA		
•	1608	0.80 ± 0.10	± 5%	C1608NP02A680J080AA	C1608NP01H680J080AA		
82 pF	1005	0.50 ± 0.05	± 5%	0.000015	C1005NP01H820J050BA		
. IL.	1608	0.80 ± 0.10	± 5%	C1608NP02A820J080AA	C1608NP01H820J080AA		
100 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H101J050BA		
100 pi	1608	0.80 ± 0.10	± 5%	C1608NP02A101J080AA	C1608NP01H101J080AA		
120 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H121J050BA		
120 μι	1608	0.80 ± 0.10	± 5%	C1608NP02A121J080AA	C1608NP01H121J080AA		
150 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H151J050BA		
	1608	0.80 ± 0.10	± 5%	C1608NP02A151J080AA	C1608NP01H151J080AA		
130 pi	1000						
180 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H181J050BA		





Class 1 (Temperature Compensating)

Temperature Characteristics: NP0 (-55 to +150°C, 0±30 ppm/°C)

1005	Capacitance	Size	Thickness	Capacitance	Catalog Number			
200 1688 0.00 0.00 0.9% 0.9% 0	Сараспансе	Size	(mm)	Tolerance	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16
1008	220 nF				,			
270 February Feb		1608	0.80 ± 0.10	± 5%	C1608NP02A221J080AA	C1608NP01H221J080AA		
1006	270 pF	1005	0.50 ± 0.05			C1005NP01H271J050BA		
180 P	270 pi	1608	0.80 ± 0.10		C1608NP02A271J080AA	C1608NP01H271J080AA		
1005	330 pF	1005	0.50 ± 0.05	± 5%		C1005NP01H331J050BA		
1470 pt 1688	330 pi	1608	0.80 ± 0.10	± 5%	C1608NP02A331J080AA	C1608NP01H331J080AA		
1005	200 pE	1005	0.50 ± 0.05	± 5%		C1005NP01H391J050BA		
160	390 pr	1608	0.80 ± 0.10	± 5%	C1608NP02A391J080AA	C1608NP01H391J080AA		
1006 1006	470 pE	1005	0.50 ± 0.05	± 5%		C1005NP01H471J050BA		
1580 pt 1609 1609 1609 100 15 5% C1608NP02AS51J80BAA C1608NP01H561J00DAA 1609 1609 1009 0.50 pt - 0.50 kg 5% 1609 1609 1009 0.50 pt - 0.50 kg 5% 1609 1609 1009 0.50 pt - 0.50 kg 5% 1609 1609 1009 0.50 pt - 0.50 kg 5% 1609 1609 1009 1.50 pt - 0.50 kg 1008NP02H881J00DAA 1609 1609 1009 1.50 pt - 0.50 kg 1008NP02H881J00DAA 1609 1609 1609 1.50 pt - 0.50 kg 1008NP02H881J00DAA 17 1609 1609 1609 1.50 pt - 0.50 kg 1008NP02H881J00DAA 18 1609 1609 1609 1.50 pt - 0.50 kg 1008NP02H881J00DAA 18	470 pr	1608	0.80 ± 0.10	± 5%	C1608NP02A471J080AA	C1608NP01H471J080AA		
1086 08 0.00 0.	F00 ~F	1005	0.50 ± 0.05	± 5%		C1005NP01H561J050BA		
1880 pt 1608 0.80 ± 0.10 ± 5% C1008NP[024851L080AA C1608NPD1H82 L0060AA 1808 0.80 ± 0.10 ± 5% C1008NP[024852 L080AA C1608NPD1H82 L0060AA 1808 0.80 ± 0.10 ± 5% C1008NP[02482 L080AA C1608NPD1H82 L0060AA 1808 0.80 ± 0.10 ± 5% C1008NP[02482 L080AA C1608NPD1H82 L0060AA 1207 0.80 ± 0.10 ± 5% C1008NP[02482 L080AA C1608NPD1H102 L0060AA 1207 0.80 ± 0.10 ± 5% C2012NP[02A102,000AA C1608NPD1H102 L0060AA 1207 0.80 ± 0.10 ± 5% C2012NP[02A102,000AA C1608NPD1H102 L0060AA 15 n	560 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A561J080AA	C1608NP01H561J080AA		
1005	000 - F	1005	0.50 ± 0.05	± 5%		C1005NP01H681J050BA		
1608 0.30 ± 0.10	680 pF	1608	0.80 ± 0.10	± 5%	C1608NP02A681J080AA	C1608NP01H681J080AA		
1608	=	1005	0.50 ± 0.05	± 5%		C1005NP01H821J050BA		
105	820 pF	1608	0.80 ± 0.10		C1608NP02A821J080AA	C1608NP01H821J080AA		
1608								
12 nF 1608	1 nF				C1608NP02A102J080AA			
1.2 n						0.000.11.01.11.02.000.07.11.		
1.5						C1608NP01H122J080AA		
1.5 nF	1.2 nF					0 1000141 0 11 11 22 00007 V C		
1.8 nF 2012						C1609NIP01H153 I090AA		
18.8 F	1.5 nF					C 1000141 0 11 113230000AA		
2 or 2012 0.85 ± 0.15						C1609NID01H192 I090AA		
2.2 nF 1608	1.8 nF					C 1608NP0 1H 182J080AA		
2.7 nF						040001/004/1000/10004		
2.7 nF	2.2 nF					C1608NP01H222J080AA		
2.7 nF		2012			C2012NP02A222J085AA			
2.7 nF		1608				C1608NP01H272J080AA		
2012 0.60 ± 0.15 ± 5% C2012NP02A272J125AA 3.3 nF	2.7 nF				C1608NP02A272J080AA			
1.5 ± 0.20	2.7 111	2012				C2012NP01H272J060AA		
1608		2012	1.25 ± 0.20	± 5%	C2012NP02A272J125AA			
3.3 nF		1608	0.80 ± 0.10	± 5%		C1608NP01H332J080AA		
1608 0.80 ± 0.15	2 2 nE	1000	0.80 +0.15/-0.1	± 5%	C1608NP02A332J080AA			
1.25 ± 0.20	3.3111	0010	0.60 ± 0.15	± 5%		C2012NP01H332J060AA		
3.9 nF		2012	1.25 ± 0.20	± 5%	C2012NP02A332J125AA			
1		1608	0.80 ± 0.10	± 5%		C1608NP01H392J080AA		
1.25 ± 0.20	0.0 5	0040	0.60 ± 0.15	± 5%		C2012NP01H392J060AA		
1608	3.9 11F	2012	1.25 ± 0.20	± 5%	C2012NP02A392J125AA			
4.7 nF 2012		3216	0.60 ± 0.15	± 5%	C3216NP02A392J060AA			
4.7 nF 2012		1608	0.80 ± 0.10	± 5%		C1608NP01H472J080AA		
4.7 nF								
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4 7 nF	2012			C2012NP02A472J125AA			
1608					02012111 02711120120701	C3216NP01H472J060AA		
5.6 nF 1608 0.80 ± 0.10 ± 5% C1608NP01H562J080AA 2012 0.60 ± 0.15 ± 5% C2012NP02A562J125AA 3216 0.60 ± 0.15 ± 5% C3216NP02A562J085AA 6.8 nF 1608 0.80 ± 0.10 ± 5% C3216NP02A562J085AA 6.8 nF 2012 1608 0.80 ± 0.10 ± 5% C2012NP02A682J125AA 8.2 nF 1608 0.80 ± 0.15 ± 5% C3216NP02A682J125AA 8.2 nF 1608 0.80 ± 0.10 ± 5% C3216NP02A682J115AA 8.2 nF 1608 0.80 ± 0.10 ± 5% C3216NP02A682J115AA 8.2 nF 1608 0.80 ± 0.10 ± 5% C2012NP02A822J125AA 10 nF 1608 0.80 ± 0.15 ± 5% C3216NP02A822J15AA 10 nF 1608 0.80 ± 0.15 ± 5% C3216NP02A822J15AA 10 nF 1608 0.80 ± 0.15 ± 5% C3216NP02A822J15AA 10 nF 1608 0.80 ± 0.15 ± 5% C3216NP02A822J15AA 10 nF 1608 0.80 ± 0.15 <td></td> <td>3216</td> <td></td> <td></td> <td>C3216NIP024472 I08544</td> <td>0021014101111120000741</td> <td></td> <td></td>		3216			C3216NIP024472 I08544	0021014101111120000741		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		1602			332 10141 02141 20000AA	C1608NP01H562 I0804A		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		-1300						
$ \begin{array}{c} 3216 \\ \hline \\ 0.80 \pm 0.15 \\ \hline \\ 0.85 \pm 0.15 \\ \hline \\ 0.85 \pm 0.15 \\ \hline \\ 0.85 \pm 0.15 \\ \hline \\ 1608 \\ \hline \\ 0.80 \pm 0.10 \\ \hline \\ 1.25 \pm 0.20 \\ \hline \\ 1.25 \pm 0.20 \\ \hline \\ 2012 \\ \hline \\ 0.60 \pm 0.15 \\ \hline \\ 1.25 \pm 0.20 \\ \hline \\ 1.25 \pm 0.20 \\ \hline \\ 1.15 \pm 0.15 \\ \hline \\ 0.60 \pm 0.15 \\ \hline \\ 1.15 \pm 0.15 \\ \hline \\ 0.60 \pm 0.10 \\ \hline \\ 1.15 \pm 0.15 \\ \hline \\ 0.60 \pm 0.15 \\ \hline \\ 1.15 \pm 0.15 \\ \hline \\ 0.60 \pm 0.15 \\ \hline \\ 1.15 \pm 0.15 \\ \hline \\ 0.60 \pm 0.15 \\ \hline \\ 1.15 \pm 0.15 \\ \hline \\ 0.60 \pm $	5 6 nE	2012			C2012NIP02A562 1125AA	OZUTZINI UTITOUZUUUAA		
10 10 10 10 10 10 10 10	3.0 IIF				OZUTZINEUZADOZUTZDAA	C2016NID01HE60 10004 4		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		3216			C0040NID00AE00 100E * *	COZ TOTALO THOUSANDO		
$\begin{array}{llllllllllllllllllllllllllllllllllll$		1000			U32 16NPU2A562JU85AA	O4000NID04L1000 1000 * *		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		1608						
8.2 nF		2012				C2012NP01H682J060AA		
8.2 nF	6.8 nF				C2012NP02A682J125AA			
1.15 ± 0.15 ± 5% C3216NP02A682J115AA 8.2 nF 1608		3216				C3216NP01H682J060AA		
$ 8.2 \mathrm{nF} = \begin{bmatrix} 2012 & 0.60 \pm 0.15 & \pm 5\% & C2012 \mathrm{NPO1H822J060AA} \\ 1.25 \pm 0.20 & \pm 5\% & C2012 \mathrm{NPO2A822J125AA} \\ \\ 3216 & 0.60 \pm 0.15 & \pm 5\% & C3216 \mathrm{NPO2A822J115AA} \\ \hline 1.15 \pm 0.15 & \pm 5\% & C3216 \mathrm{NPO2A822J115AA} \\ \hline 1608 & 0.80 \pm 0.10 & \pm 5\% & C1608 \mathrm{NPO1H103J080AA} \\ \hline 2012 & 0.60 \pm 0.15 & \pm 5\% & C2012 \mathrm{NPO2A103J125AA} \\ \hline 10 \mathrm{nF} = \begin{bmatrix} 2012 & 0.60 \pm 0.15 & \pm 5\% & C2012 \mathrm{NPO2A103J125AA} \\ & & & & & & & & & & & & & & & & & & $		JL 10	1.15 ± 0.15	± 5%	C3216NP02A682J115AA			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		1608	0.80 ± 0.10	± 5%		C1608NP01H822J080AA		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		2012	0.60 ± 0.15	± 5%		C2012NP01H822J060AA		
10 nF 1.15 ± 0.15 ± 5% C3216NP02A822J115AA 1608 0.80 ± 0.10 ± 5% C1608NP01H103J080AA C2012NP01H103J060AA 1.25 ± 0.20 ± 5% C2012NP02A103J125AA	8.2 nF	2012	1.25 ± 0.20	± 5%	C2012NP02A822J125AA			
10 nF 1.15 ± 0.15 ± 5% C3216NP02A822J115AA 1.15 ± 0.15 ± 5% C3216NP02A822J115AA 1.15 ± 0.15 ± 5% C1608NP01H103J080AA 1.10 nF 1.15 ± 0.15 ± 5% C2012NP02A103J125AA		0010		± 5%		C3216NP01H822J060AA		
10 nF		3216			C3216NP02A822J115AA			
10 nF 2012 0.60 ± 0.15 ± 5% C2012NP01H103J060AA		1608				C1608NP01H103J080AA		
10 nF 2012 1.25 ± 0.20 ± 5% C2012NP02A103J125AA								
	10 nF	2012			C2012NP02A103 I125AA	320.2.2.0111000000/M		
$0.60 \pm 0.15 \pm 5\%$ C3216NP01H103J060AA	10 111				02012NI 02A1000120AA	C3316NID01H103 I0604 4		
3216 0.60 ± 0.15 ± 5% C3216NP01H103J060AA		3216			C2010NID000440014454	OSZ TOTAT O THI TOSJUDUAA		





Class 1 (Temperature Compensating)

Temperature Characteristics: NP0 (-55 to +150°C, 0±30 ppm/°C)

Conneitones	Size	Thickness	Capacitance	Catalog Number			
Capacitance	Size	(mm)	Tolerance	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
	2012	0.85 ± 0.15	± 5%		C2012NP01H153J085AA		
15 nF	3216	0.60 ± 0.15	± 5%		C3216NP01H153J060AA		
13111	3210	1.15 ± 0.15	± 5%	C3216NP02A153J115AA			
	3225	1.25 ± 0.20	± 5%	C3225NP02A153J125AA			
	2012	1.25 ± 0.20	± 5%		C2012NP01H223J125AA		
	3216	0.60 ± 0.15	± 5%		C3216NP01H223J060AA		
22 nF	3210	1.60 ± 0.20	± 5%	C3216NP02A223J160AA			
	2005	1.25 ± 0.20	± 5%		C3225NP01H223J125AA		
	3225	1.60 ± 0.20	± 5%	C3225NP02A223J160AA			
	2012	1.25 ± 0.20	± 5%		C2012NP01H333J125AA		
	0040	0.85 ± 0.15	± 5%		C3216NP01H333J085AA		
33 nF	3216	1.60 +0.3/-0.1	± 5%	C3216NP02A333J160AA			
	0005	1.60 ± 0.20	± 5%		C3225NP01H333J160AA		
	3225	2.00 ± 0.20	± 5%	C3225NP02A333J200AA			
	3216	1.15 ± 0.15	± 5%		C3216NP01H473J115AA		
	0005	2.00 ± 0.20	± 5%		C3225NP01H473J200AA		
47 nF	3225	2.30 ± 0.20	± 5%	C3225NP02A473J230AA			
	4532	1.60 ± 0.20	± 5%		C4532NP01H473J160KA		
	4532	2.00 ± 0.20	± 5%	C4532NP02A473J200KA			
	3216	1.60 ± 0.20	± 5%		C3216NP01H683J160AA		
	0005	2.00 ± 0.20	± 5%		C3225NP01H683J200AA		
68 nF	3225 -	2.30 ± 0.20	± 5%	C3225NP02A683J230AA			
	4500	1.60 ± 0.20	± 5%		C4532NP01H683J160KA		
	4532	2.50 ± 0.30	± 5%	C4532NP02A683J250KA			
	3216	1.60 ± 0.20	± 5%		C3216NP01H104J160AA		
100	3225	2.50 ± 0.30	± 5%		C3225NP01H104J250AA		
100 nF	4500	2.00 ± 0.20	± 5%		C4532NP01H104J200KA		
	4532	3.20 ± 0.30	± 5%	C4532NP02A104J320KA			
150 - 5	4532	2.50 ± 0.30	± 5%		C4532NP01H154J250KA		
150 nF	5750	2.30 ± 0.20	± 5%	C5750NP02A154J230KA			
220 nF	4532	3.20 ± 0.30	± 5%		C4532NP01H224J320KA		

Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

Capacitance	Size	Thickness	Capacitance	Catalog Number			
Сараспапсе	Size	(mm)	Tolerance	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
150 pF	1005	0.50 ± 0.05	± 10%	C1005X8R2A151K050BA	C1005X8R1H151K050BA		
150 pi	1003	0.50 ± 0.05	± 20%	C1005X8R2A151M050BA	C1005X8R1H151M050BA		
220 pF	1005	0.50 ± 0.05	± 10%	C1005X8R2A221K050BA	C1005X8R1H221K050BA		
220 pr	1005	0.50 ± 0.05	± 20%	C1005X8R2A221M050BA	C1005X8R1H221M050BA		
330 pF	1005	0.50 ± 0.05	± 10%	C1005X8R2A331K050BA	C1005X8R1H331K050BA		
330 pr	1005	0.50 ± 0.05	± 20%	C1005X8R2A331M050BA	C1005X8R1H331M050BA		
470 mF	1005	0.50 ± 0.05	± 10%	C1005X8R2A471K050BA	C1005X8R1H471K050BA		
470 pF	1005	0.50 ± 0.05	± 20%	C1005X8R2A471M050BA	C1005X8R1H471M050BA		
C00 F	1005	0.50 ± 0.05	± 10%	C1005X8R2A681K050BA	C1005X8R1H681K050BA		
680 pF	1005	0.50 ± 0.05	± 20%	C1005X8R2A681M050BA	C1005X8R1H681M050BA		
	1005	0.50 . 0.05	± 10%	C1005X8R2A102K050BA	C1005X8R1H102K050BA		
1	1005	0.50 ± 0.05	± 20%	C1005X8R2A102M050BA	C1005X8R1H102M050BA		
1 nF	1608	0.80 ± 0.10	± 10%	C1608X8R2A102K080AA	C1608X8R1H102K080AA		
	1608	0.80 ± 0.10	± 20%	C1608X8R2A102M080AA	C1608X8R1H102M080AA		
	1005	0.50 ± 0.05	± 10%	C1005X8R2A152K050BA	C1005X8R1H152K050BA		
1.5 nF	1005	0.50 ± 0.05	± 20%	C1005X8R2A152M050BA	C1005X8R1H152M050BA		
1.5 NF	1608	0.80 ± 0.10	± 10%	C1608X8R2A152K080AA	C1608X8R1H152K080AA		
	1608	0.80 ± 0.10	± 20%	C1608X8R2A152M080AA	C1608X8R1H152M080AA		
	1005	0.50 ± 0.05	± 10%	C1005X8R2A222K050BA	C1005X8R1H222K050BA		
0.0 - 5	1005	0.50 ± 0.05	± 20%	C1005X8R2A222M050BA	C1005X8R1H222M050BA		
2.2 nF	4000	0.00 0.10	± 10%	C1608X8R2A222K080AA	C1608X8R1H222K080AA		
	1608	0.80 ± 0.10	± 20%	C1608X8R2A222M080AA	C1608X8R1H222M080AA		
	1005	0.50 - 0.05	± 10%	C1005X8R2A332K050BB	C1005X8R1H332K050BA		
0.0 - 5	1005	0.50 ± 0.05	± 20%	C1005X8R2A332M050BB	C1005X8R1H332M050BA		
3.3 nF	1000	0.00 0.40	± 10%	C1608X8R2A332K080AA	C1608X8R1H332K080AA		
	1608	0.80 ± 0.10	± 20%	C1608X8R2A332M080AA	C1608X8R1H332M080AA		

MULTILAYER CERAMIC CHIP CAPACITORS





Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

Capacitance	Size	Thickness	Capacitance	Catalog Number			
Capacitatice	Size	(mm)	Tolerance	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
	1005	0.50 ± 0.05	± 10%		C1005X8R1H472K050BA		
4.7 nF		0.00 = 0.00	± 20%		C1005X8R1H472M050BA		
	1608	0.80 ± 0.10	± 10%	C1608X8R2A472K080AA	C1608X8R1H472K080AA		
	1000		± 20%	C1608X8R2A472M080AA	C1608X8R1H472M080AA		
	1005	0.50 ± 0.05	± 10%		C1005X8R1H682K050BB	C1005X8R1E682K050BA	
6.8 nF			± 20%		C1005X8R1H682M050BB	C1005X8R1E682M050BA	
0.0111	1608	0.80 ± 0.10	± 10%	C1608X8R2A682K080AA	C1608X8R1H682K080AA		
			± 20%	C1608X8R2A682M080AA	C1608X8R1H682M080AA		
	1005	0.50 ± 0.05	± 10%		C1005X8R1H103K050BB	C1005X8R1E103K050BA	
10 nF			± 20%		C1005X8R1H103M050BB	C1005X8R1E103M050BA	
10 111	1608	0.80 ± 0.10	± 10%	C1608X8R2A103K080AA	C1608X8R1H103K080AA		
			± 20%	C1608X8R2A103M080AA	C1608X8R1H103M080AA		
	1005	0.50 . 0.05	± 10%			C1005X8R1E153K050BB	
15 pE	1005	0.50 ± 0.05	± 20%			C1005X8R1E153M050BB	
15 nF	1608	0.80 ± 0.10	± 10%	C1608X8R2A153K080AA	C1608X8R1H153K080AA		
			± 20%	C1608X8R2A153M080AA	C1608X8R1H153M080AA		
	1005	0.50 ± 0.05	± 10%			C1005X8R1E223K050BB	
			± 20%			C1005X8R1E223M050BB	
00 F	1608	0.80 ± 0.10	± 10%	C1608X8R2A223K080AB	C1608X8R1H223K080AA		
22 nF			± 20%	C1608X8R2A223M080AB	C1608X8R1H223M080AA		
	0010	1.25 ± 0.20	± 10%	C2012X8R2A223K125AA			
	2012		± 20%	C2012X8R2A223M125AA			
	1005	0.50 ± 0.05	± 10%				C1005X8R1C333K050B
			± 20%				C1005X8R1C333M050B
	1608	0.80 ± 0.10	± 10%	C1608X8R2A333K080AB	C1608X8R1H333K080AA		
			± 20%	C1608X8R2A333M080AB	C1608X8R1H333M080AA		
33 nF	2012	1.25 ± 0.20	± 10%	C2012X8R2A333K125AB			
			± 20%	C2012X8R2A333M125AB			
	3216	0.85 ± 0.15	± 10%	C3216X8R2A333K085AA			
			± 20%	C3216X8R2A333M085AA			
	1005	0.50 ± 0.05	± 10%				C1005X8R1C473K050BB
			± 20%				C1005X8R1C473M050B
			± 10%		C1608X8R1H473K080AA		
	1608	0.80 ± 0.10	± 20%		C1608X8R1H473M080AA		
47 nF		1.25 ± 0.20	± 10%	C2012X8R2A473K125AB	0.1000/10111111000/101		
	2012		± 20%	C2012X8R2A473M125AB			
			± 10%	C3216X8R2A473K085AA			
	3216	0.85 ± 0.15	± 20%	C3216X8R2A473M085AA			
68 nF		0.80 ± 0.10	± 10%	002 10X01127 (47 01V10007 V Y	C1608X8R1H683K080AB	C1608X8R1E683K080AA	
	1608		± 20%		C1608X8R1H683M080AB	C1608X8R1E683M080AA	
	2012		± 10%	C2012X8R2A683K125AB	C2012X8R1H683K125AA	CTOOOXOTTEOOSIVIOOOAA	
			± 10% ± 20%	C2012X8R2A683M125AB	C2012X8R1H683M125AA		
			± 20%	C3216X8R2A683K115AA	OZUTZAULI I IUOSIVI IZSAA		
			± 10% ± 20%	C3216X8R2A683M115AA			
				032 10A0NZA003IVI I 13AA	C1600V0D1H104V000AD	C1600V0D1E104V000AA	
100 nF	1608	0.80 ± 0.10 1.25 ± 0.20	± 10% ± 20%		C1608X8R1H104K080AB	C1608X8R1E104K080AA	
					C1608X8R1H104M080AB	C1608X8R1E104M080AA	
	2012		± 10%		C2012X8R1H104K125AA		
	3216	1.15 ± 0.15	± 20%	00010//00001101//11511	C2012X8R1H104M125AA		
			± 10%	C3216X8R2A104K115AA			
			± 20%	C3216X8R2A104M115AA		04000/0045 := ://222 :=	
	1608	0.80 ± 0.10	± 10%			C1608X8R1E154K080AB	
			± 20%			C1608X8R1E154M080AB	
150 nF	2012 -	0.85 ± 0.15 1.25 ± 0.20	± 10%			C2012X8R1E154K085AA	
			± 20%			C2012X8R1E154M085AA	
			± 10%		C2012X8R1H154K125AB		
			± 20%		C2012X8R1H154M125AB		
		0.05 0.45	± 10%		C3216X8R1H154K085AA		
		0 85 - 0 15					
	2010	0.85 ± 0.15	± 20%		C3216X8R1H154M085AA		
	3216 -	0.85 ± 0.15 1.60 ± 0.20		C3216X8R2A154K160AA	C3216X8R1H154M085AA		

MULTILAYER CERAMIC CHIP CAPACITORS





Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

Capacitance	Size	Thickness	Capacitance	Catalog Number			
Оараспансс	OIZC	(mm)	Tolerance	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
	1608	0.80 ± 0.10	± 10%			C1608X8R1E224K080AB	
	1000	0.00 ± 0.10	± 20%			C1608X8R1E224M080AB	
	2012	1.25 ± 0.20	± 10%		C2012X8R1H224K125AB	C2012X8R1E224K125AA	
220 pE	2012		± 20%		C2012X8R1H224M125AB	C2012X8R1E224M125AA	
220 nF	3216 -	1.15 ± 0.15	± 10%		C3216X8R1H224K115AA		
			± 20%		C3216X8R1H224M115AA		
		1.60 ± 0.20	± 10%	C3216X8R2A224K160AB			
			± 20%	C3216X8R2A224M160AB			
			± 10%				C1608X8R1C334K080AB
	2012	0.80 ± 0.10 1.25 ± 0.20	± 20%	-			C1608X8R1C334M080AE
			± 10%			C2012X8R1E334K125AA	
			± 20%			C2012X8R1E334M125AA	
330 nF			± 10%			C3216X8R1E334K085AA	
	3216 -	0.85 ± 0.15 1.60 ± 0.20 0.80 ± 0.10 1.25 ± 0.20 0.85 ± 0.15	± 20%			C3216X8R1E334M085AA	
			± 10%	C3216X8R2A334K160AB	C3216X8R1H334K160AA	00210/0111200410000777	
			± 20%	C3216X8R2A334M160AB	C3216X8R1H334M160AA		
				C32 10A6H2A334W1100AB	C32 10A6H 11 1334W 100AA		C1608X8R1C474K080AB
	1608		± 10%				
	-		± 20%			00040000045474040540	C1608X8R1C474M080AE
	2012		± 10%			C2012X8R1E474K125AB	
			± 20%			C2012X8R1E474M125AB	
470 nF			± 10%			C3216X8R1E474K085AA	
	3216 -		± 20%			C3216X8R1E474M085AA	
	3225	1.60 ± 0.20 2.00 ± 0.20	± 10%		C3216X8R1H474K160AA		
			± 20%		C3216X8R1H474M160AA		
			± 10%	C3225X8R2A474K200AB			
			± 20%	C3225X8R2A474M200AB			
	2012	1.25 ± 0.20	± 10%				C2012X8R1C684K125AB
			± 20%				C2012X8R1C684M125AE
	3216 -	1.15 ± 0.15	± 10%			C3216X8R1E684K115AA	
000 - F			± 20%			C3216X8R1E684M115AA	
680 nF		1.60 ± 0.20 2.50 ± 0.30	± 10%		C3216X8R1H684K160AB		
			± 20%		C3216X8R1H684M160AB		
			± 10%	C3225X8R2A684K250AB			
			± 20%	C3225X8R2A684M250AB			
	2012	1.25 ± 0.20 1.60 ± 0.20	± 10%				C2012X8R1C105K125AB
			± 20%				C2012X8R1C105M125AE
1 µF			± 10%		C3216X8R1H105K160AB	C3216X8R1E105K160AA	
			± 20%		C3216X8R1H105M160AB	C3216X8R1E105M160AA	
			± 10%		002 10X01111100W100XB	C3216X8R1E155K160AB	
	3216	216 1.60 ± 0.20	± 10%			C3216X8R1E155M160AB	
1.5 µF							
· 	3225	1.60 ± 0.20	± 10%			C3225X8R1E155K160AA	
			± 20%			C3225X8R1E155M160AA	
2.2 µF	3216 3225		± 10%			C3216X8R1E225K160AB	
			± 20%			C3216X8R1E225M160AB	
			± 10%			C3225X8R1E225K200AA	
			± 20%			C3225X8R1E225M200AA	
3.3 µF	3216	1.60 ± 0.20	± 10%				C3216X8R1C335K160AE
		1.00 ± 0.20	± 20%				C3216X8R1C335M160AE
	3225	2.50 ± 0.30	± 10%			C3225X8R1E335K250AA	
			± 20%			C3225X8R1E335M250AA	
	3216 3225	1.60 ± 0.20 2.50 ± 0.30	± 10%				C3216X8R1C475K160AE
4 7 -			± 20%				C3216X8R1C475M160AE
4.7 µF			± 10%			C3225X8R1E475K250AB	
			± 20%			C3225X8R1E475M250AB	
			± 10%	,			C3225X8R1C685K200AE
6.8 µF	3225 3225	225 2.00 ± 0.20	± 20%				C3225X8R1C685M200AB
			± 20%				C3225X8R1C106K250AB
10 μF		2.50 ± 0.30	± 20%				C3225X8R1C106M250AB
			± 20%				COZZONON IC IUDIVIZSUAL