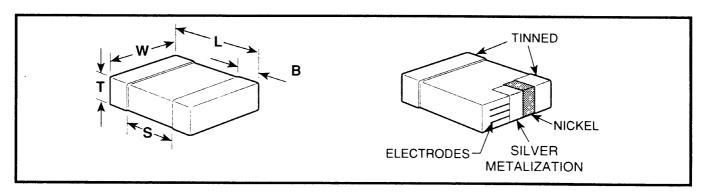# KEMET

CERAMIC CHIP/STANDARD

FEATURES

- C0G (NP0), X7R, Z5U and Y5V dielectrics
- 10, 16, 25, 50, 100 and 200 Volts
- End Metalization – tin-plate over nickel barrier
- ±0.10 pF; ±0.25 pF; ±0.5 pF; ±1%; ±2%; ±5%; ±10%; ±20%; and +80%-20% capacitance tolerance available

- Tape and Reel Packaging per EIA 481-1. (See page 101-103 for specific tape and reel information) Bulk Cassette Packaging (0402, 0603, 0805) per IEC286-6 and EIAJ7201
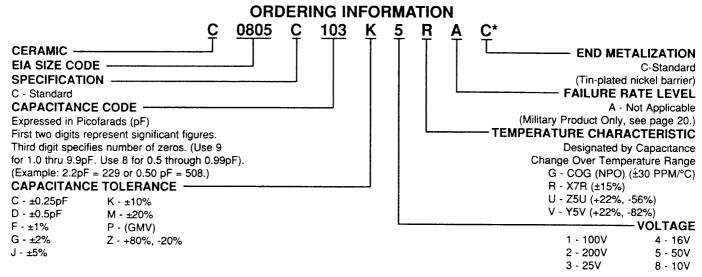
CAPACITOR OUTLINE DRAWINGS

DIMENSIONS–MILLIMETERS AND (INCHES)

METRIC SIZE CODE	EIA SIZE CODE	L LENGTH	W WIDTH	T THICKNESS MAX.	B BANDWIDTH	S MIN. SEPARATION	MOUNTING TECHNIQUE
1005	0402*	1.0 (04) ± 05 (.002)	0.5 (.02) ± 05 (002)	0 55 (022)	0.20 (008) - 0.40 (0 016)	0.3 (012)	Solder Reflow
1608	0603*	1.6 (063) ± 0 15 (006)	0 8 (032) ± 0 15 (006)	0 9 (.035)	0 35 (014) ± 0 15 (006)	0.7 (028)	
2012	0805*	2 0 (.079) ± 0 2 (008)	1 25 (.049) ± 0.2 (.008)	1 3 (.051)	0 5 (02) ± 25 (010)	0 75 (030)	Solder Wave
3216	1206*	3 2 (126) ± 0 2 (008)	1.6 (063) ± 0 2 (008)	1 5 (.059)	0 5 (02) ± .25 (010)	N/A	or
3225	1210	3.2 (126) ± 0.2 (.008)	2 5 (098) ± 0.2 (.008)	1 7 (.067)	0 5 (02) ± 25 (010)	N/A	Solder Reflow
4532	1812*	4.5 (177) ± 0.3 (012)	3.2 (126) ± 0.3 (.012)	1 7 (067)	0 6 (024) ± 35 (014)	N/A	
4564	1825*	4.5 (.177) ± 0.3 (.012)	6 4 (.252) ± 0 4 (016)	1 7 (067)	0 6 (024) ± 35 (014)	N/A	Solder
5650	2220	5.6 (.220) ± 0 4 (.016)	5 0 (197) ± 0.4 (.016)	1.8 (.071)	0.6 (024) ± 35 (014)	N/A	Reflow
5664	2225	5.6 (220) ± 0 4 (.016)	6 3 (.248) ± 0 4 (016)	2.0 (079)	0 6 (.024) ± .35 (.014)	N/A	

Metric size code given for reference only.

Extended value maximum thickness 1.3 (.051)

* Indicates EIA preferred case sizes

ORDERING INFORMATION

C 0805 C 103 K 5 R A C*

CERAMIC
EIA SIZE CODE
SPECIFICATION
C - Standard
CAPACITANCE CODE
Expressed in Picofarads (pF)
First two digits represent significant figures.
Third digit specifies number of zeros. (Use 9 for 1.0 thru 9.9pF. Use 8 for 0.5 through 0.99pF).
(Example: 2.2pF = 229 or 0.50 pF = 508.)
CAPACITANCE TOLERANCE

C - ±0.25pF	K - ±10%
D - ±0.5pF	M - ±20%
F - ±1%	P - (GMV)
G - ±2%	Z - +80%, -20%
J - ±5%	

END METALIZATION
C-Standard
(Tin-plated nickel barrier)
FAILURE RATE LEVEL
A - Not Applicable
(Military Product Only, see page 20.)
TEMPERATURE CHARACTERISTIC
Designated by Capacitance Change Over Temperature Range
G - COG (NP0) (±30 PPM/°C)
R - X7R (±15%)
U - Z5U (+22%, -56%)
V - Y5V (+22%, -82%)
VOLTAGE

1 - 100V	4 - 16V
2 - 200V	5 - 50V
3 - 25V	8 - 10V

*Part number example: C0805C103K5RAC (14 digits - no spaces)

Tantalum and Ceramic Surface Mount

C0G CAPACITANCE RANGE – C0402, C0603, C0805, C1206 & C1210

CAP. PF	KEMET PART NUMBER	CAP. TOL.	C0402* 10V	16V	25V	50V	C0603* 50V	100V	200V	C0805* 50V	100V	200V	C1206* 50V	100V	200V	C1210* 50V	100V	200V
50	C_ _(1)_ _C508(2)(3)GAC	C,D	508	508	508	508	508	508	508	508	508	508						
75	C_ _(1)_ _C758(2)(3)GAC	C,D	758	758	758	758	758	758	758	758	758	758						
1 0	C_ _(1)_ _C109(2)(3)GAC	C,D	109	109	109	109	109	109	109	109	109	109	109	109	109			
1.2	C_ _(1)_ _C129(2)(3)GAC	C,D	129	129	129	129	129	129	129	129	129	129	129	129	129			
1 5	C_ _(1)_ _C159(2)(3)GAC	C,D	159	159	159	159	159	159	159	159	159	159	159	159	159			
1 8	C_ _(1)_ _C189(2)(3)GAC	C,D	189	189	189	189	189	189	189	189	189	189	189	189	189			
2 2	C_ _(1)_ _C229(2)(3)GAC	C,D	229	229	229	229	229	229	229	229	229	229	229	229	229			
2 7	C_ _(1)_ _C279(2)(3)GAC	C,D K	279	279	279	279	279	279	279	279	279	279	279	279	279			
3.3	C_ _(1)_ _C339(2)(3)GAC	C,D K	339	339	339	339	339	339	339	339	339	339	339	339	339			
3 9	C_ _(1)_ _C399(2)(3)GAC	C,D K	399	399	399	399	399	399	399	399	399	399	399	399	399			
4 7	C_ _(1)_ _C479(2)(3)GAC	C,D K	479	479	479	479	479	479	479	479	479	479	479	479	479			
5 6	C_ _(1)_ _C569(2)(3)GAC	C,D J,K	569	569	569	569	569	569	569	569	569	569	569	569	569			
6 8	C_ _(1)_ _C689(2)(3)GAC	C,D J,K	689	689	689	689	689	689	689	689	689	689	689	689	689			
8 2	C_ _(1)_ _C829(2)(3)GAC	C,D J,K	829	829	829	829	829	829	829	829	829	829	829	829	829			
10 0	C_ _(1)_ _C100(2)(3)GAC	C,D J,K	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
12 0	C_ _(1)_ _C120(2)(3)GAC	C,D J,K	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
15 0	C_ _(1)_ _C150(2)(3)GAC	G,J,K	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
18.0	C_ _(1)_ _C180(2)(3)GAC	G,J,K	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
22 0	C_ _(1)_ _C220(2)(3)GAC	C,D G,J,K	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
27 0	C_ _(1)_ _C270(2)(3)GAC	D,F,G,J,K	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
33 0	C_ _(1)_ _C330(2)(3)GAC	D,F,G,J,K	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330
39 0	C_ _(1)_ _C390(2)(3)GAC	D,F,G,J,K	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
47 0	C_ _(1)_ _C470(2)(3)GAC	D,F,G,J,K	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470
56 0	C_ _(1)_ _C560(2)(3)GAC	F,G,J,K	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
68.0	C_ _(1)_ _C680(2)(3)GAC	F,G,J,K	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680
82.0	C_ _(1)_ _C820(2)(3)GAC	F,G,J,K	820	820	820		820	820	820	820	820	820	820	820	820	820	820	820
100.0	C_ _(1)_ _C101(2)(3)GAC	F,G,J,K	101	101	101		101	101	101	101	101	101	101	101	101	101	101	101
120.0	C_ _(1)_ _C121(2)(3)GAC	F,G,J,K					121	121		121	121	121	121	121	121	121	121	121
150.0	C_ _(1)_ _C151(2)(3)GAC	F,G,J,K					151	151		151	151	151	151	151	151	151	151	151
180.0	C_ _(1)_ _C181(2)(3)GAC	F,G,J,K					181	181		181	181	181	181	181	181	181	181	181
220.0	C_ _(1)_ _C221(2)(3)GAC	F,G,J,K					221			221	221	221	221	221	221	221	221	221
270.0	C_ _(1)_ _C271(2)(3)GAC	F,G,J,K					271			271	271	271	271	271	271	271	271	271
330 0	C_ _(1)_ _C331(2)(3)GAC	F,G,J,K					331			331	331	331#	331	331	331	331	331	331
390 0	C_ _(1)_ _C391(2)(3)GAC	F,G,J,K					391			391	391	391#	391	391	391	391	391	391
470.0	C_ _(1)_ _C471(2)(3)GAC	F,G,J,K					471			471	471	471#	471	471	471	471	471	471
560 0	C_ _(1)_ _C561(2)(3)GAC	F,G,J,K								561	561		561	561	561	561	561	561
680 0	C_ _(1)_ _C681(2)(3)GAC	F,G,J,K								681	681#		681	681	681	681	681	681
820 0	C_ _(1)_ _C821(2)(3)GAC	F,G,J,K								821	821#		821	821	821	821	821	821
1000.0	C_ _(1)_ _C102(2)(3)GAC	F,G,J,K								102	102#		102	102	102	102	102	102
1200 0	C_ _(1)_ _C122(2)(3)GAC	F,G,J,K								122			122	122	122	122	122	122
1500 0	C_ _(1)_ _C152(2)(3)GAC	F,G,J,K								152			152	152	152	152	152	152
1800.0	C_ _(1)_ _C182(2)(3)GAC	F,G,J,K								182			182	182	182	182	182	182
2200.0	C_ _(1)_ _C222(2)(3)GAC	F,G,J,K											222	222		222	222	222
2700.0	C_ _(1)_ _C272(2)(3)GAC	F,G,J,K											272	272		272	272	272
3300 0	C_ _(1)_ _C332(2)(3)GAC	F,G,J,K											332	332		332	332	332
3900.0	C_ _(1)_ _C392(2)(3)GAC	F,G,J,K											392	392		392	392	
4700 0	C_ _(1)_ _C472(2)(3)GAC	F,G,J,K											472			472	472	
5600 0	C_ _(1)_ _C562(2)(3)GAC	F,G,J,K											562			562	562	
6800 0	C_ _(1)_ _C682(2)(3)GAC	F,G,J,K														682	682	
8200 0	C_ _(1)_ _C822(2)(3)GAC	F,G,J,K														822		
10,000 0	C_ _(1)_ _C103(2)(3)GAC	F,G,J,K														103		
12,000.0	C_ _(1)_ _C123(2)(3)GAC	F,G,J,K														123		

C1812, C1825, C2220 & C2225

CAP. PF	KEMET PART NUMBER	CAP. TOL.	C1812* 50V	100V	200V	C1825* 50V	100V	200V	C2220 50V	100V	200V	C2225 50V	100V	200V
220 0	C_ _(1)_ _C221(2)(3)GAC	F,G,J,K												
270.0	C_ _(1)_ _C271(2)(3)GAC	F,G,J,K												
330 0	C_ _(1)_ _C331(2)(3)GAC	F,G,J,K												
390 0	C_ _(1)_ _C391(2)(3)GAC	F,G,J,K												
470 0	C_ _(1)_ _C471(2)(3)GAC	F,G,J,K	471	471	471									
560 0	C_ _(1)_ _C561(2)(3)GAC	F,G,J,K	561	561	561									
680 0	C_ _(1)_ _C681(2)(3)GAC	F,G,J,K	681	681	681									
820 0	C_ _(1)_ _C821(2)(3)GAC	F,G,J,K	821	821	821									
1000.0	C_ _(1)_ _C102(2)(3)GAC	F,G,J,K	102	102	102									
1200 0	C_ _(1)_ _C122(2)(3)GAC	F,G,J,K	122	122	122									
1500.0	C_ _(1)_ _C152(2)(3)GAC	F,G,J,K	152	152	152									
1800 0	C_ _(1)_ _C182(2)(3)GAC	F,G,J,K	182	182	182									
2200 0	C_ _(1)_ _C222(2)(3)GAC	F,G,J,K	222	222	222									
2700 0	C_ _(1)_ _C272(2)(3)GAC	F,G,J,K	272	272	272									
3300 0	C_ _(1)_ _C332(2)(3)GAC	F,G,J,K	332	332	332									
3900 0	C_ _(1)_ _C392(2)(3)GAC	F,G,J,K	392	392	392	392	392	392						
4700.0	C_ _(1)_ _C472(2)(3)GAC	F,G,J,K	472	472	472	472	472	472				472	472	472
5600 0	C_ _(1)_ _C562(2)(3)GAC	F,G,J,K	562	562	562	562	562	562				562	562	562
6800.0	C_ _(1)_ _C682(2)(3)GAC	F,G,J,K	682	682	682	682	682	682	682	682		682	682	682
8200.0	C_ _(1)_ _C822(2)(3)GAC	F,G,J,K	822	822		822	822	822	822	822		822	822	822
10,000 0	C_ _(1)_ _C103(2)(3)GAC	F,G,J,K	103	103		103	103	103	103	103		103	103	103
12,000.0	C_ _(1)_ _C123(2)(3)GAC	F,G,J,K				123	123	123	123	123		123	123	123
15,000.0	C_ _(1)_ _C153(2)(3)GAC	F,G,J,K				153	153		153	153		153	153	153
18,000 0	C_ _(1)_ _C183(2)(3)GAC	F,G,J,K				183	183		183	183		183	183	
22,000 0	C_ _(1)_ _C223(2)(3)GAC	F,G,J,K				223	223		223			223	223	
27,000 0	C_ _(1)_ _C273(2)(3)GAC	F,G,J,K				273	273		273			273	273	
33,000 0	C_ _(1)_ _C333(2)(3)GAC	F,G,J,K										333		

(1) To complete part number, insert four digit number for KEMET style desired 0402, 0603, 0805, 1206, 1210, 1812, 1825, 2220 or 2225
(2) To complete part number, insert appropriate letter for capacitance tolerance desired per table
(3) To complete part number, insert appropriate number for voltage desired "2" = 200 volts, "1" = 100 volts and "5" = 50 volts, "3" = 25 volts, "4" = 16 volts, and "8" = 10 volts
* Indicates EIA preferred chip sizes.
NOTE For non-standard capacitance values or voltages, contact your local KEMET sales representative 50 Volt Ceramic Chips can be used for 63 volt applications
DF limit for extended range is 0 15%