

KEMET's High Voltage Surface Mount Capacitors are designed to withstand high voltage applications. They offer high capacitance with low leakage current and low ESR at high frequency. The capacitors have pure tin (Sn) plated external electrodes for good solderability. X7R dielectrics are not designed for AC line filtering applications. An insulating coating may be required to prevent surface arcing. These components are RoHS compliant.

APPLICATIONS

- Switch Mode Power Supply
 - Input Filter
 - Resonators
 - Tank Circuit
 - Snubber Circuit
 - Output Filter
- High Voltage Coupling
- High Voltage DC Blocking
- Lighting Ballast
- Voltage Multiplier Circuits
- Coupling Capacitor/CLK

MARKETS

- Power Supply
- High Voltage Power Supply
- DC-DC Converter
- LCD Fluorescent Backlight Ballast
- HID Lighting
- Telecommunications Equipment
- Industrial Equipment/Control
- Medical Equipment/Control
- Computer (LAN/WAN Interface)
- Analog and Digital Modems
- Automotive

OUTLINE DRAWING

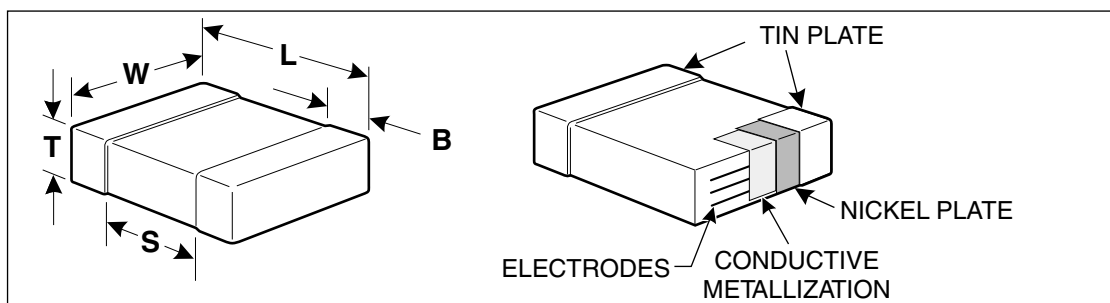


TABLE 1 - DIMENSIONS - MILLIMETERS (in.)

Metric Code	EIA Size Code	L - Length	W - Width	B - Bandwidth	Band Separation
2012	0805	2.0 (0.079) ± 0.2 (0.008)	1.2 (0.049) ± 0.2 (0.008)	0.5 (0.02) ± 0.25 (0.010)	0.75 (0.030)
3216	1206	3.2 (0.126) ± 0.2 (0.008)	1.6 (0.063) ± 0.2 (0.008)	0.5 (0.02) ± 0.25 (0.010)	N/A
3225	1210	3.2 (0.126) ± 0.2 (0.008)	2.5 (0.098) ± 0.2 (0.008)	0.5 (0.02) ± 0.25 (0.010)	N/A
4520	1808	4.5 (0.177) ± 0.3 (0.012)	2.0 (0.079) ± 0.2 (0.008)	0.6 (0.024) ± 0.35 (0.014)	N/A
4532	1812	4.5 (0.177) ± 0.3 (0.012)	3.2 (0.126) ± 0.3 (0.012)	0.6 (0.024) ± 0.35 (0.014)	N/A
4564	1825	4.5 (0.177) ± 0.3 (0.012)	6.4 (0.250) ± 0.4 (0.016)	0.6 (0.024) ± 0.35 (0.014)	N/A
5650	2220	5.6 (0.224) ± 0.4 (0.016)	5.0 (0.197) ± 0.4 (0.016)	0.6 (0.024) ± 0.35 (0.014)	N/A
5664	2225	5.6 (0.224) ± 0.4 (0.016)	6.4 (0.250) ± 0.4 (0.016)	0.6 (0.024) ± 0.35 (0.014)	N/A

Cap pF	Capacitance Tolerance *	Series	0805		1206		1210		1808		1812		1825		2220		2225	
		Max Thickness (in)	0.050	0.050	0.065													
		Cap Code/ Voltage	500	1000	500	1000	0.065	2000	0.101	1000	0.101	2000	0.101	500	0.080	1000	0.080	2000
1.0-2.4	C,D	K,M	109-249															
2.7-5.1	C,D	K,M	279-519															
5.6-9.1	C,D	J,K,M	569-919															
10	C,D	J,K,M	100															
11	C,D	J,K,M	110															
12	C,D	J,K,M	120															
13	C,D	J,K,M	130															
15	C,D	G,J,K,M	150															
16	C,D	G,J,K,M	160															
18	C,D	G,J,K,M	180															
20	C,D	G,J,K,M	200															
22	C,D	G,J,K,M	220															
24	C,D	G,J,K,M	240															
27	D,F,G,J,K,M		270															
30	D,F,G,J,K,M		300															
33	D,F,G,J,K,M		330															
36	D,F,G,J,K,M		360															
39	D,F,G,J,K,M		390															
43	D,F,G,J,K,M		430															
47	D,F,G,J,K,M		470															
51	D,F,G,J,K,M		510															
56	F,G,J,K,M		560															
62	F,G,J,K,M		620															
68	F,G,J,K,M		680															
75	F,G,J,K,M		750															
82	F,G,J,K,M		820															
91	F,G,J,K,M		910															
100	F,G,J,K,M		101															
110	F,G,J,K,M		111															
120	F,G,J,K,M		121															
130	F,G,J,K,M		131															
150	F,G,J,K,M		151															
160	F,G,J,K,M		161															
180	F,G,J,K,M		181															
200	F,G,J,K,M		201															
220	F,G,J,K,M		221															
240	F,G,J,K,M		241															
270	F,G,J,K,M		271															
300	F,G,J,K,M		301															
330	F,G,J,K,M		331															

Note: Actual thickness dimensions may be less than stated maximum. Check the KEMET website, www.kemet.com, for additional values and chip sizes available.

X7R DIELECTRIC CAPACITANCE VALUES AND THICKNESS TARGETS (in.)

Cap pF	Capacitance Tolerance	Series	0805		1206		1210		1808		1812		1825		2220		2225	
		Max Thickness (in)	0.050		0.050		0.065		0.080		0.067		0.067		0.067		0.067	
		Cap Code/ Voltage	500	1000	500	1000	1500	2000	500	1000	1500	2000	500	1000	1500	2000	500	1000
10	J,K,M	100																
11	J,K,M	110																
12	J,K,M	120																
13	J,K,M	130																
15	J,K,M	150																
16	J,K,M	160																
18	J,K,M	180																
20	J,K,M	200																
22	J,K,M	220																
24	J,K,M	240																
27	J,K,M	270																
30	J,K,M	300																
33	J,K,M	330																
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100	J,K,M	101																
110	J,K,M	111																
120	J,K,M	121																
130	J,K,M	131																
150	J,K,M	151																
180	J,K,M	181																
220	J,K,M	221																
270	J,K,M	271																
330	J,K,M	331																
390	J,K,M	391																
470	J,K,M	471																
560	J,K,M	561																
680	J,K,M	681																
820	J,K,M	821																
1000	J,K,M	102																
1200	J,K,M	122																
1500	J,K,M	152																
1800	J,K,M	182																
2000	J,K,M	202																
2200	J,K,M	222																
2700	J,K,M	272																
3300	J,K,M	332																
3900	J,K,M	392																
4700	J,K,M	472																
5600	J,K,M	562																
6800	J,K,M	682																
8200	J,K,M	822																
10,000	J,K,M	103																
12,000	J,K,M	123																
15,000	J,K,M	153																
18,000	J,K,M	183																
22,000	J,K,M	223																
27,000	J,K,M	273																
33,000	J,K,M	333																
39,000	J,K,M	393																
47,000	J,K,M	473																
56,000	J,K,M	563																
62,000	J,K,M	623																
68,000	J,K,M	683																
82,000	J,K,M	823																
100,000	J,K,M	104																
120,000	J,K,M	124																
150,000	J,K,M	154																
180,000	J,K,M	184																
220,000	J,K,M	224																

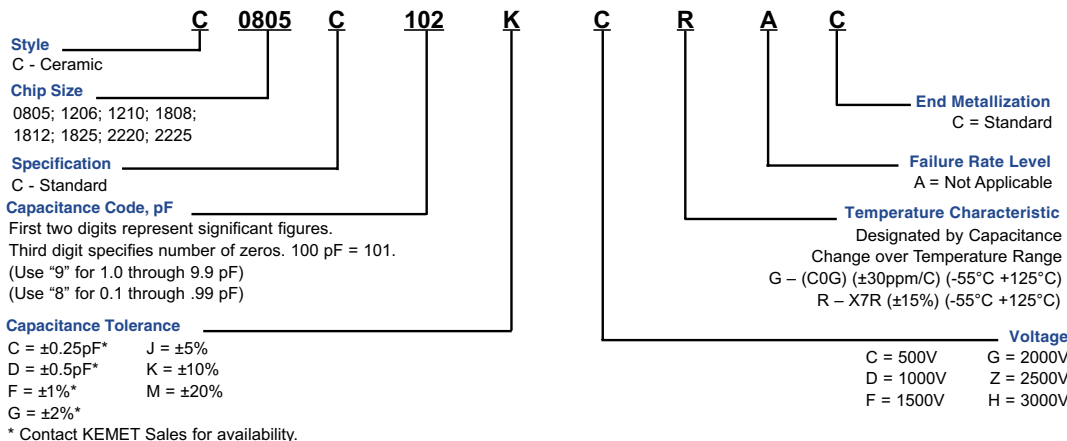
Note: Actual thickness dimensions may be less than stated maximum.

Check the KEMET website, www.kemet.com, for additional values and chip sizes available.

KEMET HIGH VOLTAGE SURFACE MOUNT CHIP (VOLTAGE CODES C,D,F,G,H, and Z) THICKNESS AND REELING QUANTITIES

Chip size		Max. Thickness (in)	Max. Thickness (mm)	Tape Width (mm)	Qty per Reel 7" Plastic	Qty per Reel 13" Plastic
EIA	Metric					
0805	2012	0.055	1.27	8	2,500	10,000
1206	3216	0.065	1.65	8	2,000	8,000
1210	3225	0.101	2.57	8	2,000	8,000
1808	4520	0.080	2.03	12	1,000	4,000
1812/1813	4532	0.067	1.70	12	1,000	4,000
1825	4564	0.067	1.70	12	1,000	4,000
2220	5650	0.067	1.70	12	1,000	4,000
2225	5664	0.067	1.70	12	1,000	4,000

CAPACITOR ORDERING INFORMATION



ELECTRICAL PARAMETERS

Property	Specification
Capacitance	C0G: 1 pF to 0.010 μF X7R: 10 pF to 0.22 μF 25°C, 1.0 $\pm$ 0.2 Vrms, 1 kHz (1 MHz for $\leq$ 1000 pF (C0G only))
Cap Tolerance	C0G: C*, D*, F*, G*, J, K, M * Contact KEMET Sales for availability. X7R: J, K, M
DF	C0G: 0.1% Max X7R: 2.5% Max
Voltage Ratings	500 V, 1000 V, 1500 V, 2000 V, 2500 V, 3000 V
Operating Temperature Range	From -55°C to +125°C
25°C IR @ 500V	100 G Ω or 1000 M Ω - μF , whichever is less
125°C IR @ 500V	10 G Ω or 100 M Ω - μF , whichever is less
-55°C TCC +125°C TCC	X7R: $\pm 15\%$ C0G: ± 30 ppm / °C
Dielectric Strength	150% of Rated Voltage for Rated Voltage <1000 V 120% of Rated Voltage for Rated Voltage $\geq$ 1000V
Ripple Current	Consult KEMET Sales Representative

MARKING

These chips are supplied unmarked. If required, they can be supplied LASER-marked at an extra cost. Details on the marking format is located on page 96.

PACKAGING

KEMET High Voltage Surface Mount MLCC are available packaged in tape and reel configuration, or bulk bag as outlined on page 82. Please consult factory for waffle packaging options.

SOLDERING PROCESS

The 0805 and 1206 case sizes are suitable for either reflow or wave soldering processes. Sizes 1210 and larger should be limited to reflow soldering only. All sizes incorporate the standard KEMET barrier layer of pure nickel with an overplating of pure tin (Sn) for excellent solderability and resistance to solder leaching of the termination.

RECOMMENDED SOLDER PAD DIMENSIONS

Chip Size	T (Total Length)		S (Separation)		W (Pad Width)		L (Pad Length)	
	mm	in.	mm	in.	mm	in.	mm	in.
0805	3.30	0.130	0.70	0.028	1.60	0.063	1.30	0.051
1206	4.50	0.177	1.50	0.059	2.00	0.079	1.50	0.059
1210	4.50	0.177	1.50	0.059	2.90	0.114	1.50	0.059
1808	5.90	0.232	2.30	0.091	2.40	0.094	1.80	0.071
1812	5.90	0.232	2.30	0.091	3.70	0.146	1.80	0.071
1825	5.90	0.232	2.30	0.091	6.90	0.272	1.80	0.071
2220	7.00	0.276	3.30	0.130	5.50	0.217	1.85	0.073
2225	7.00	0.276	3.30	0.130	6.80	0.268	1.85	0.073

