

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/CUK

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

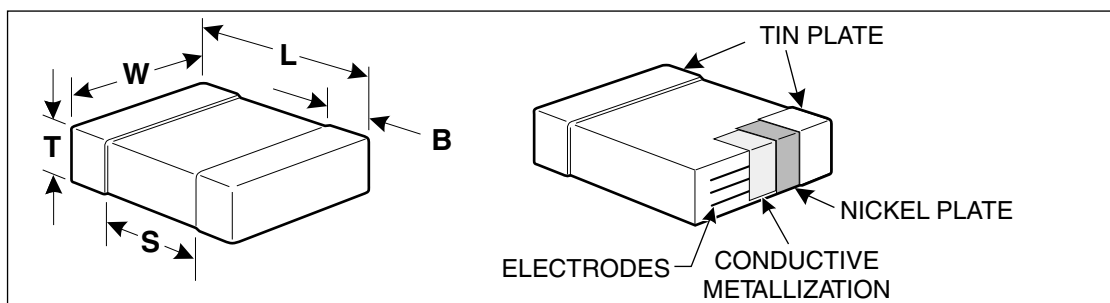


TABLE 1 - DIMENSIONS - MILLIMETERS (in.)

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



CERAMIC CHIP / HIGH VOLTAGE

X7R DIELECTRIC CAPACITANCE VALUES AND THICKNESS TARGETS (in.)

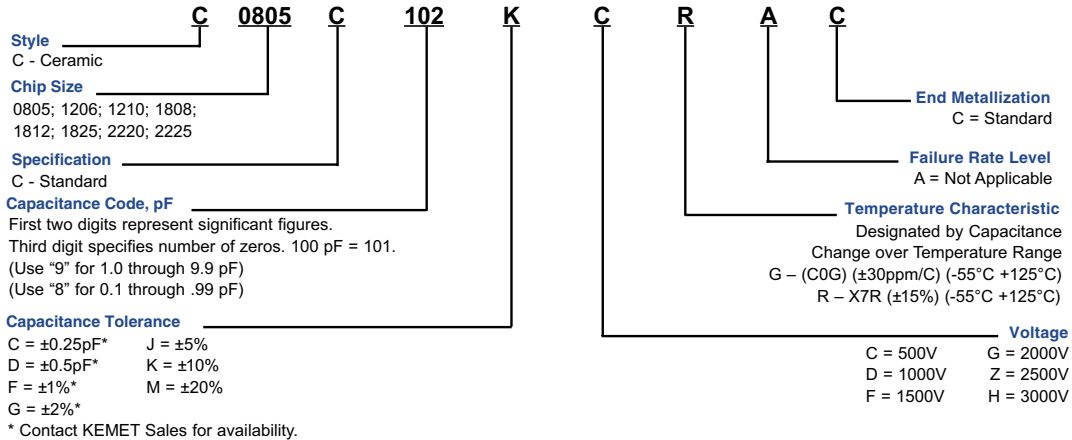
Cap pF	Capacitance Tolerance	Series	0805		1206		1210		1808		1812		1825		2220		2225			
			Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage	Max Thickness (in)	Cap Code/ Voltage
			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																		
36	J,K,M	360																		
39	J,K,M	390																		
43	J,K,M	430																		
47	J,K,M	470																		
51	J,K,M	510																		
56	J,K,M	560																		
62	J,K,M	620																		
68	J,K,M	680																		
75	J,K,M	750																		
82	J,K,M	820																		
91	J,K,M	910																		
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 ± 0.2 Vrms, 1 kHz (1 MHz for ≤ 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 GΩ or 1000 MΩ-µF, whichever is less
125°C IR @ 500V	10 GΩ or 100 MΩ-µF, whichever is less
-55°C TCC +125°C TCC	X7R: ± 15% C0G: ± 30 ppm / °C
Dielectric Strength	150% of Rated Voltage for Rated Voltage <1000 V 120% of Rated Voltage for Rated Voltage ≥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

