

## Surface Mount Ceramic Capacitor

## Y5V (2E) Dielectric

### FEATURES

- Suitable for General Purpose  
Y5V of  $-35^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Highest Capacitance up to 100 $\mu\text{F}$
- Wide Range Selections
- Ideal for Bypassing & Filtering

### APPLICATIONS

- Computer Industries
- Communication Electronics
- Consumer Electronics
- Automotive Electronics

### QUICK REFERENCE DATA

DESCRIPTION	VALUE
<b>Rated Voltage UR (DC):</b> Y5V (2E) Dielectric:	6.3V, 10V, 16V, 25V & 50V
<b>Capacitance Range (E12 series):</b> Y5V (2E):	0.01 $\mu\text{F}$ to 47 $\mu\text{F}$
<b>Tolerance of Capacitance at <math>T_{\text{amb}}=20^{\circ}\text{C}</math>:</b> Y5V (2E) (standard is +80-20%)	+80-20% & +-20%
<b>Test Voltage (DC) for 1 Minute:</b>	$2.5 \times U_R$
<b>Sectional Specifications:</b>	IEC 60384-10, Second edition 1989-04; Also By CECC 32 100
<b>Detailed Specification:</b>	Based on CECC 32 101-801

### CROSS-SECTION CONSTRUCTION

The ceramic capacitor consists of a rectangular block of ceramic dielectric in which a number of interleaved NME and BME metal electrodes are contained. This structure gives rise to a high capacitance per unit volume.

The inner electrodes are connected to the two terminations, silver dipped with a barrier layer of plated nickel and finally covered with a layer of plated tin (NiSn). A cross section of the structure is shown in Fig.1.

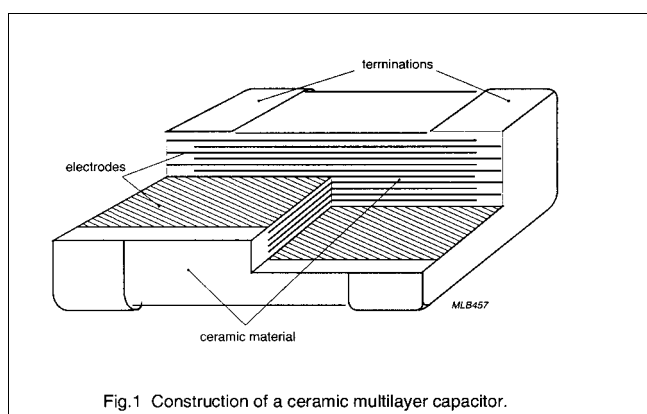
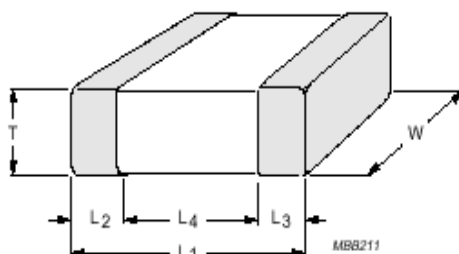


Fig.1 Construction of a ceramic multilayer capacitor.

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### SIZE & DIMENSION



EIA Code	L1	W	L2/L3	T
0201	0.60+/-0.03	0.30+/-0.03	0.15+/-0.05	0.35 max
0402	1.00+/-0.10	0.50+/-0.10	0.25+/-0.15	0.65 max
0603	1.60+/-0.10	0.80+/-0.10	0.30+/-0.20	1.55 max
0805	2.00+/-0.10	1.20+/-0.10	0.50+/-0.25	1.85 max
1206	3.20+/-0.15	1.60+/-0.15	0.50+/-0.25	2.25 max
1210	3.20+/-0.35	2.50+/-0.20	0.50+/-0.25	2.65 max
1812	4.50+/-0.35	3.20+/-0.30	0.61+/-0.35	2.85 max
1825	4.50+/-0.35	6.40+/-0.35	0.61+/-0.35	2.85 max

\*Thickness may be higher for newly developed hi-capacitance parts, please check with your sales for detail.

### ORDERING INFORMATION FOR Y5V

Components can be ordered by using Skywell part number illustrated as follows:

**Example: 06032E104Z500BA**

0603	2E	104	Z	500	B	A	□
<u>Size Code</u>	<u>Dielectric</u>	<u>Capacitance</u>	<u>Tolerance</u>	<u>Voltage</u>	<u>Termination</u>	<u>Package</u>	<u>Reserved</u>
0201	CG=NPO	3-Digit Code	M=+-20%	3-Digit Code	B=Ni/Sn	A: paper tape	C: low profile
0402	2R=X7R	First two digits	Z=+80-20%	6R3=6.3v	A=Silver	L: plastic tape	B: 13" reel
0603	3R=X5R	are significant,		100=10v	(lead-free has	B: bulk	T:
0805	2E=Y5V	third digit is the		160=16v	been in effect	M: cassette	
1206	2F=Z5U	Multiple of 10s.		250=25v	since 1999)		
1210		( here is 0.1uF )		500=50v			
1812				101=100v			
2512							

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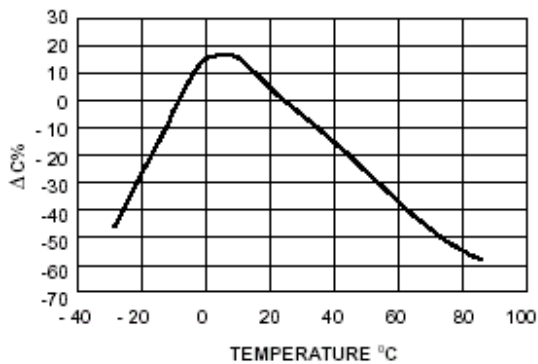
### ELECTRICAL CHARACTERISTICS

Class II Capacitors; Y5V Dielectric:

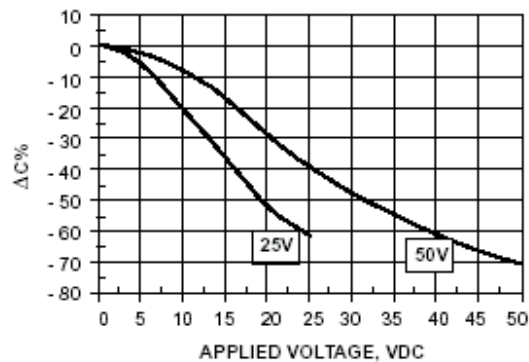
DESCRIPTION	PARAMETER
Capacitance Range (E12 series)	0.01 $\mu$ F to 47 $\mu$ F
Tolerance on Capacitance:	+20% & +80-20% (this is the standard)
Tan $\delta$ (D/F): For 50V For 25V & 16V For 10V, 6.3V and Less	5% 7% 10%
Insulation Resistance After 1 Minute at UR (DC)	IR <sub>ins</sub> >10 G $\Omega$ or 100M $\Omega$ /C( $\mu$ F) whichever is smaller
Temperature Coefficient:	Y5V of -35 °C to +85 °C

### PERFORMANCE CHARACTERISTICS

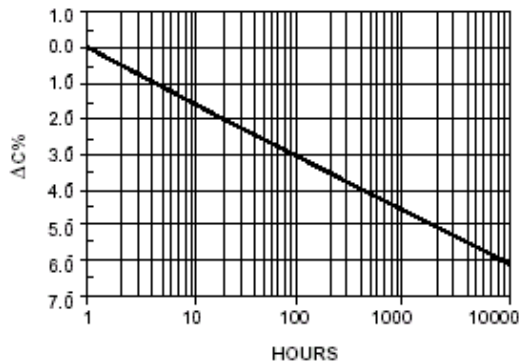
TEMPERATURE COEFFICIENT OF CAPACITANCE



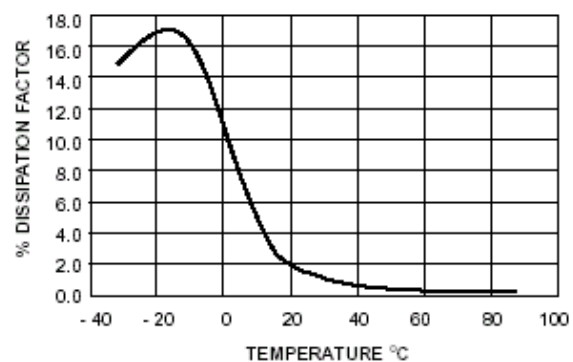
VOLTAGE COEFFICIENT OF CAPACITANCE



AGING



DISSIPATION FACTOR vs TEMPERATURE



## Surface Mount Ceramic Capacitor

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### SELECTION CHART FOR Y5V 6.3V, 10V, 16V, 25V & 50V

EIA Size		0201		0402			0603				0805				1206					
Voltage (dc)		6.3	10	10	16	25	50	10	16	25	50	10	16	25	50	10	16	25	50	
EIA Code	Cap Value																			
103	0.01uF	█	█			█	█			█	█									
123	0.012uF																			
153	0.015uF																			
183	0.018uF																			
223	0.022uF		█		█		█													
273	0.027uF																			
333	0.033uF																			
473	0.047uF			█																
563	0.056uF																			
823	0.082uF																			
104	0.10uF	█						█												
124	0.12uF																			
154	0.15uF																			
224	0.22uF							█												
334	0.33uF																			
474	0.47uF			6.3v																
684	0.68uF																			
824	0.82uF																			
105	1.0uF											█								
155	1.5uF																			
225	2.2uF																			
335	3.3uF																			
475	4.7uF																			
106	10uF																			
226	22uF																			
476	47uF																		6.3v	

1210 size with high capacitance is available by request, please check with us if you have the requirement.