

SURFACE MOUNT

CERAMIC SMD MULTI - LAYER HIGH VOLTAGE DSHV

SECTION 1

- Available up to 5KV
- COG(NPO), X7R and Z5U Dielectrics
- Higher voltages possible
- For applications including small modular power supplies
- Excellent for surface mount placement machines



SPECIFICATION

	COG	X7R	Z5U
Dielectric classification	COG (NPO)	X7R	Z5U
Rated temperature range	-55 ° C to +125 ° C	-55 ° C to +125 ° C	-25 ° C to +85 ° C
Max. capacitance change over temp. range. No DC voltage supplied	0 ± 30ppm/ ° C	±15%	+22-56%
Tangent of loss angle (tanδ)	Cr>50pF≤0.0010 Cr≤50pF=0.0010 ($\frac{15}{Cr} + 0.7$)	≤0.025	≤0.030
Insulation resistance (Ri) Time constant (Ri X Cr) (whichever is less)	100GΩ or 1000s	100GΩ or 1000s	10GΩ or 100s
Dielectric strength	Voltage applied for 5 seconds. Charging current limited to 50mA maximum.		
500V	1.5 times	1.5 times	1.5 times
≥1KV	1.5 times	1.25 times	-
Climate category	55/125/56	55/125/56	25/085/56
Ageing characteristics (Typical)	Zero	1% per time decade	6% per time decade

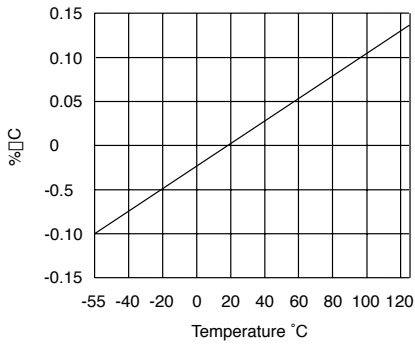
TOLERANCES

Dielectric	COG	X7R	Z5U
Capacitance Tolerance	± 0.25pF (C)	± 5% (J)	± 20% (M)
	± 0.50pF (D)	± 10% (K)	-20+80% (Z)
	Cr≥10pF ± 1% (F)	± 20% (M)	
	± 2% (G)		
	± 5% (J)		
	± 10% (K)		

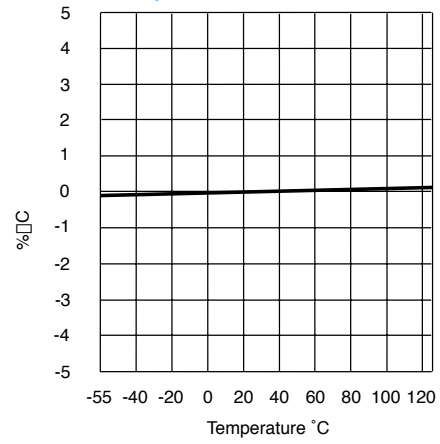
ORDERING INFORMATION

DSHV	J	1206	C	470	J	N
Range	Voltage	Size	Dielectric	Value	Tolerance	Plating
	J = 500V M = 1KV P = 2KV R = 3KV T = 4KV V = 5KV	1206 1210 1812 2220	C = COG (NPO) R = X7R W = Z5U	Example 101 = 100pF 102 = 1nF 103 = 10nF 104 = 100nF	See Above for code	N = Nickel Barrier

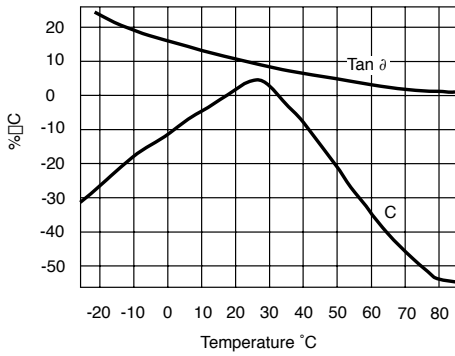
CAPACITANCE Vs TEMPERATURE - COG



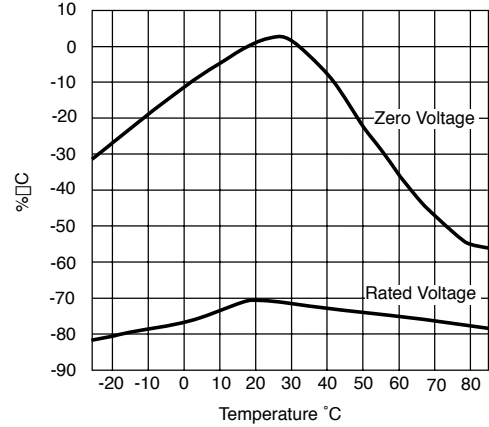
TEMPERATURE/VOLTAGE CHARACTERISTICS - COG



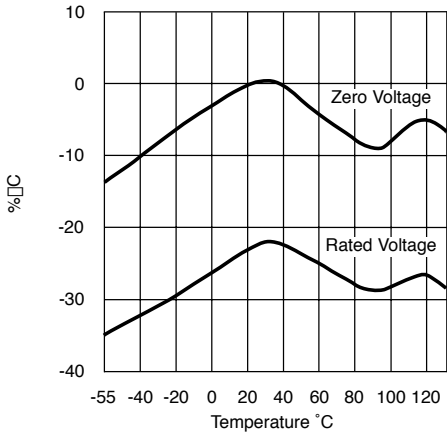
CAPACITANCE & TAN Vs TEMPERATURE - Z5U



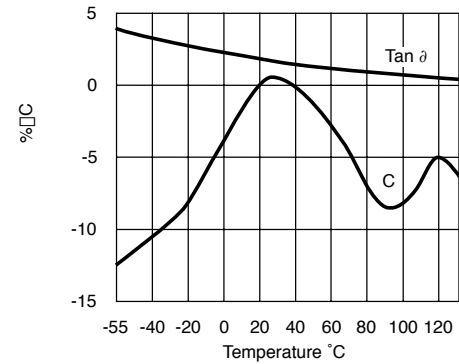
TEMPERATURE/VOLTAGE CHARACTERISTICS - Z5U



TEMPERATURE/VOLTAGE CHARACTERISTICS - X7R



CAPACITANCE & TAN Vs TEMPERATURE - X7R



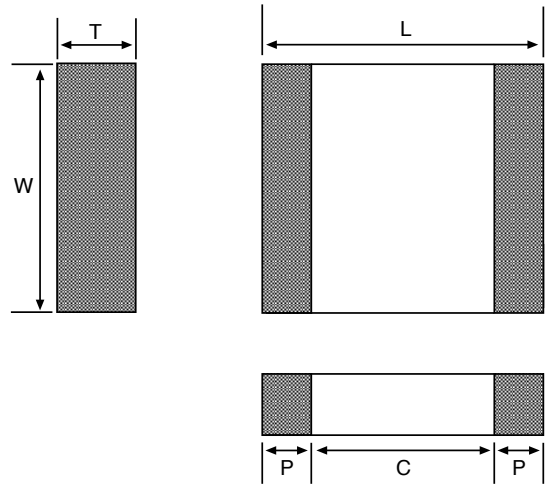
SURFACE MOUNT

CERAMIC SMD MULTI - LAYER HIGH VOLTAGE DSHV

DIMENSIONS (mm)

Size Code	L (mm)	W (mm)	T max (mm)	P	
				min (mm)	max (mm)
1206	3.2±0.3	1.6±0.2	1.6	0.25	0.75
1210	3.2±0.3	2.5±0.3	2	0.25	0.75
1812	4.5±0.35	3.2±0.3	2.5	0.25	0.75
2220	5.7±0.4	5.0±0.4	2.5	0.25	0.75

OUTLINE DRAWING



RANGE - 500V

Capacitance	1206		1210	1812
	COG	X7R	COG	COG
1.0pF	✓			
1.2	✓			
1.5	✓			
1.8	✓			
2.2	✓			
2.7	✓			
3.3	✓			
3.9	✓			
4.7	✓			
5.6	✓			
6.8	✓			
8.2	✓		✓	
10	✓			
12	✓			
15	✓			
18	✓			
22	✓			
27	✓			
33	✓			
39	✓			
47	✓			
56	✓			
68	✓			
82	✓			
100	✓			
120	✓			
150	✓	✓		
180	✓			✓
220	✓			
270	✓			
330	✓			

Capacitance	1206			1210			1812			2220		
	COG	X7R	Z5U	COG	X7R	Z5U	COG	X7R	Z5U	COG	X7R	Z5U
390pF	✓			✓			✓			✓		
470	✓			✓			✓			✓		
560	✓			✓			✓			✓		
680	✓			✓			✓			✓		
820	✓			✓			✓			✓		
1.0nF	✓			✓			✓			✓		
1.2	✓			✓			✓			✓		
1.5	✓			✓			✓			✓		
1.8	✓			✓			✓			✓		
2.2	✓			✓			✓			✓		
2.7	✓			✓			✓			✓		
3.3	✓			✓			✓			✓		
3.9	✓			✓			✓			✓		
4.7	✓			✓			✓			✓		
5.6	✓			✓			✓			✓		
6.8	✓			✓			✓			✓		
8.2	✓		✓	✓			✓			✓		
10nF	✓			✓			✓			✓		
12	✓			✓			✓			✓		
15	✓			✓			✓			✓		
18	✓			✓			✓			✓		
22	✓			✓			✓			✓		
27	✓			✓			✓			✓		
33	✓			✓			✓			✓		
39	✓			✓			✓			✓		
47	✓			✓			✓			✓		
56	✓			✓			✓			✓		
68	✓			✓			✓			✓		
82	✓			✓			✓			✓		
100	✓			✓			✓			✓		
120	✓			✓			✓			✓		
150	✓			✓			✓			✓		
180	✓			✓			✓			✓		
220	✓			✓			✓			✓		
270	✓			✓			✓			✓		
330	✓			✓			✓			✓		
390	✓			✓			✓			✓		

RANGE - 1KV, 2KV

Capacitance	1206	1210	1812		2220	
	COG	COG	COG	X7R	COG	X7R
	1KV	1KV	1KV 2KV	1KV 2KV	1KV 2KV	1KV 2KV
1.0pF						
1.2						
1.5						
1.8						
2.2						
2.7						
3.3						
3.9						
4.7						
5.6						
6.8						
8.2						
10pF						
12						
15						
18						
22						
27						
33						
39						
47						
56						
68						
82						
100						
120						
150						
180						
220						
270						
330						
390						
470						
560						
680						
820						
1.0nF						
1.2						
1.5						
1.8						
2.2						
2.7						
3.3						
3.9						
4.7						
5.6						
6.8						
8.2						

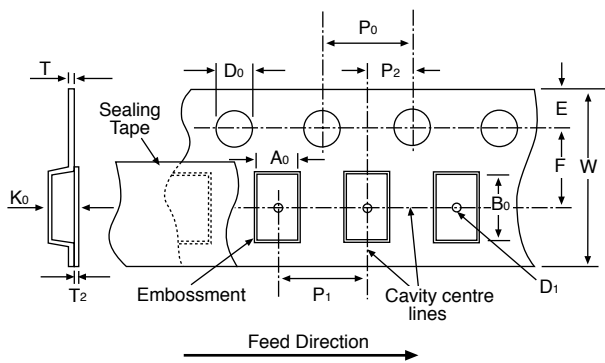
Capacitance	1812		2220	
	X7R	X7R	X7R	
	1KV		1KV	2KV
10				
12				
15				
18				
22				
27				
33				
39				
47				
56				

RANGE - 3KV, 4KV & 5KV

Capacitance	1812	2220
	COG	COG
	3KV	3KV
10pF		
12		
15		
18		
22		
27		
33		
39		
47		
56		
68		
82		
100		
120		
150		
180		
220		

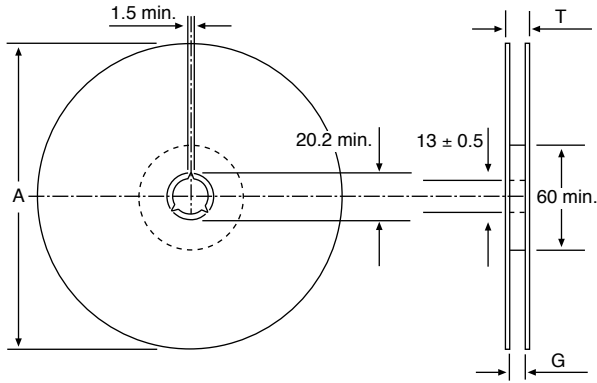
Capacitance	2220	2225
	COG	COG
	3KV	3KV
220		
270		
330		

TAPE DIMENSIONS



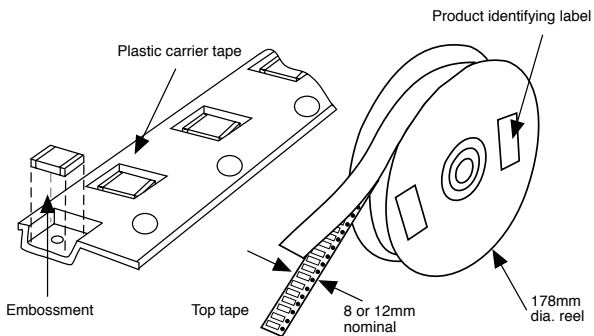
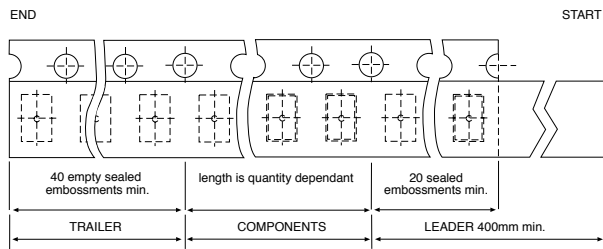
A ₀	Dependant on chip size to minimise rotation
B ₀	Dependant on chip size to minimise rotation
K ₀	Dependant on chip size to minimise rotation
W	8±0.2
F	3.5±0.05
E	1.75±0.1
P ₁	4±0.1
P ₂	2±0.05
P ₀	4±0.1
D ₀	1.5+0.1-0
D ₁	1+0.1-0
T	0.3±0.1
T ₂	0.1 max.

REEL DIMENSIONS (MM)



A	178 ± 2
G	8.4+1.5-0
T	14.4 max.

LEADER & TRAILER



PACK QUANTITIES (ALL DIELECTRICS)

Chip Size	Pack Quantity
1206	2500 reels
1210	2000 reels
1812	1000 reels
2220	1000 reels

LEADED (THROUGH HOLE)

CEA	85°C Axial	29-30
CEAJ	105°C Axial	31-32
CEBM	85°C Radial	33-35
CEBR	85°C Reduced Radial	36-37
CEK	85°C Minature Radial	38-39
CEKR	85°C Sub Minature Radial	40-41
CEKJ	105°C Minature Radial	42-43
CEBNP	85°C Non Polar Radial	44-45
CLLA	105°C Low Leakage Radial	46-47
DJ3	105°C Radial	48-50
DJ4X	105°C Low Impedance Radial	51-53
DSH	105°C Very Low Impedance Radial	54-57
DSHR	105°C Ultra Low Impedance Reduced Radial	58-59
DSHX	105°C Low Impedance, Low ESR	60-62
Taping Spec		63-64
CLP	85°C Snap-in	65-68
DPG	105°C Snap-in	69-72

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DVCR	85°C Electrolytic Chip	73-75
DVJR	105°C Electrolytic Chip	76-77
DVCNP	Non Polarised Elecrolytic Chip	78
DVJL	105°C Low Impedance Electrolytic Chip	79-80
DVJRHV	105°C High Voltage Electrolytic Chip	81