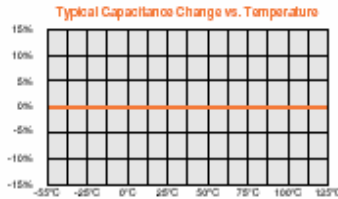


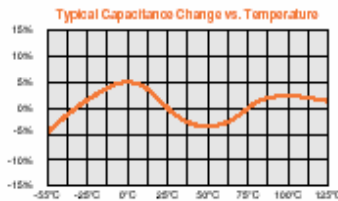
## C Series-MLCC Multilayer Chip Capacitor

### NPO/COG: SPECIFICATIONS:



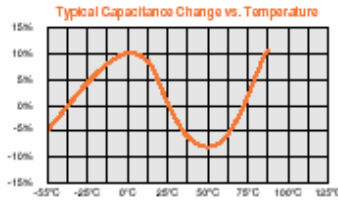
OPERATING TEMPERATURE RANGE: -55°C to +125°C  
 TEMPERATURE COEFFICIENT: 0 ±30PPM/°C  
 TEMPERATURE VOLTAGE COEFFICIENT: 0 ±30PPM/°C  
 DISSIPATION FACTOR: 0.1% MAX.  
 INSULATION RESISTANCE: >1000 ohms F or 100 G ohms, whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)  
 AGEING: None  
 WITHSTANDING VOLTAGE: >2.5 times VDCW  
 TEST PARAMETERS: 1MHz ± 50KHZ at 1.0 ± 0.2 Vrms ≤ 100 pF, 25°C  
 1KHz ± 50HZ at 1.0 ± 0.2 Vrms > 100 pF, 25°C  
 CAPACITANCE TOLERANCE: B,C,D,F,G,J,K

### X7R: SPECIFICATIONS:



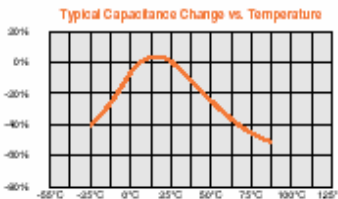
OPERATING TEMPERATURE RANGE: -55°C to +125°C  
 TEMPERATURE COEFFICIENT: 0 ±15%Δ°C MAX.  
 TEMPERATURE VOLTAGE COEFFICIENT: X7R not applicable  
 DISSIPATION FACTOR: For 50 volts and 100 volts: 2.5% MAX.;  
 For 25 volts: 3.0% MAX.; For 16 volts: 3.5% MAX.;  
 For 10 volts: 5.0% MAX.; For 6.3 volts: 7.0% MAX.  
 INSULATION RESISTANCE: >1000 ohms F or 100 G ohms, whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)  
 AGEING: 2.5% per decade hour, typical  
 WITHSTANDING VOLTAGE: >2.5 times VDCW  
 TEST PARAMETERS: 1KHz ± 50HZ at 1.0 ± 0.2 Vrms > 100 pF, 25°C  
 CAPACITANCE TOLERANCE: J,K,M

### X5R: SPECIFICATIONS:



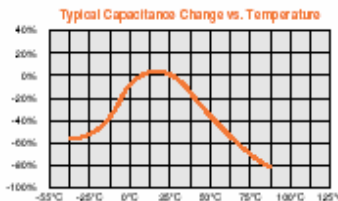
OPERATING TEMPERATURE RANGE: -55°C to +85°C  
 TEMPERATURE COEFFICIENT: 0 ±15%Δ°C MAX.  
 TEMPERATURE VOLTAGE COEFFICIENT: X5R not applicable  
 DISSIPATION FACTOR: For 50 volts and 100 volts: 2.5% MAX.;  
 For 25 volts: 3.0% MAX.; For 16 volts: 3.5% MAX.;  
 For 10 volts: 5.0% MAX.; For 6.3 volts: 7.0% MAX.  
 INSULATION RESISTANCE: >1000 ohms F or 100 G ohms, whichever is less at 25°C, VDCW. (10,000 ohms at 125°C)  
 AGEING: 2.5% per decade hour, typical  
 WITHSTANDING VOLTAGE: >2.5 times VDCW  
 TEST PARAMETERS: 1KHz ± 50HZ at 1.0 ± 0.2 Vrms > 100 pF, 25°C  
 CAPACITANCE TOLERANCE: J,K,M

### Z5U: SPECIFICATIONS:

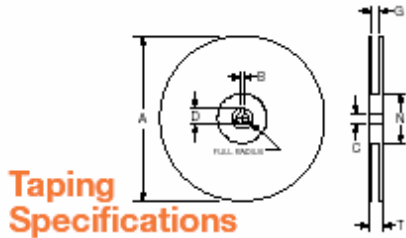


OPERATING TEMPERATURE RANGE: +10°C to +85°C  
 TEMPERATURE COEFFICIENT: +22% - 56%Δ°C MAX.  
 DISSIPATION FACTOR: 4.0% MAX.  
 INSULATION RESISTANCE: >100 ohms F or 10 G ohms, whichever is less at 25°C, VDCW  
 AGEING: 5% per decade hour, typical  
 WITHSTANDING VOLTAGE: >2.5 times VDCW  
 TEST PARAMETERS: 1KHz ± 50HZ at 0.5Vrms, 25°C  
 CAPACITANCE TOLERANCE: M,Z,P

### Y5V: SPECIFICATIONS:



OPERATING TEMPERATURE RANGE: -30°C to +85°C  
 TEMPERATURE COEFFICIENT: +22% - 82%Δ°C MAX.  
 DISSIPATION FACTOR: 5.0% MAX.  
 INSULATION RESISTANCE: >100 ohms F or 10 G ohms, whichever is less at 25°C, VDCW  
 AGEING: 7% per decade hour, typical  
 WITHSTANDING VOLTAGE: >2.5 times VDCW  
 TEST PARAMETERS: 1KHz ± 50HZ at 1.0 ± 0.2 Vrms, 25°C  
 CAPACITANCE TOLERANCE: M,Z

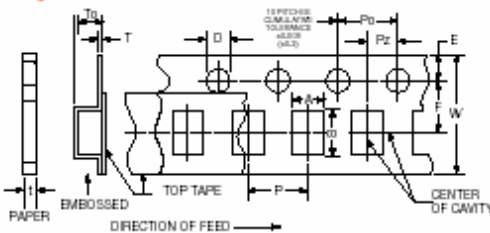


### Taping Specifications

### Reel Dimensions

Unit: mm (inch)

TAPE	B min	C	A (7")	A (13")	D min	N min	G	T max
8mm	$\frac{0.3}{(.012)}$	$\frac{13 \pm .05}{(.512 \pm .02)}$	$\frac{178 \pm 2.0}{(7 \pm .079)}$	$\frac{330 \pm 2.0}{(13 \pm .08)}$	$\frac{20.2}{(.795)}$	$\frac{50}{(1.97)}$	$\frac{10 \pm 1.5}{(.394 \pm .059)}$	$\frac{14.9}{(.587)}$
12mm	$\frac{0.3}{(.012)}$	$\frac{13 \pm .05}{(.512 \pm .02)}$	$\frac{178 \pm 2.0}{(7 \pm .079)}$	$\frac{330 \pm 2.0}{(13 \pm .08)}$	$\frac{20.2}{(.795)}$	$\frac{50}{(1.97)}$	$\frac{10 \pm 1.5}{(.394 \pm .059)}$	$\frac{14.9}{(.587)}$



### Paper Tape Carrier Dimensions (8mm)

SIZE	A	B	W	F	E	Po	Pz	D	t	P
0402	$\frac{0.65 \pm 0.1}{(.026 \pm .004)}$	$\frac{1.10 \pm 0.2}{(.043 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{1.0 \pm 0.05}{(.039 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.064 \pm .004)}$	1.15 MAX (.045 MAX)	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$
0603	$\frac{1.10 \pm 0.2}{(.043 \pm .008)}$	$\frac{1.90 \pm 0.2}{(.075 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.064 \pm .004)}$	1.15 MAX (.045 MAX)	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
0805	$\frac{1.16 \pm 0.2}{(.046 \pm .008)}$	$\frac{2.4 \pm 0.2}{(.095 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.064 \pm .004)}$	1.15 MAX (.045 MAX)	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
1206	$\frac{2.0 \pm 0.2}{(.079 \pm .008)}$	$\frac{3.6 \pm 0.2}{(.142 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.064 \pm .004)}$	1.15 MAX (.045 MAX)	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$

Unit: mm (inch)

\* Quantity dependent on Chip Thickness  
 \* 0201 and 0402 Pitch ("P") is .079" ± .004" (2.0 ± 0.1mm)

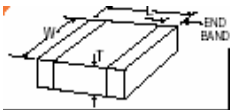
### Embossed Carrier Dimensions (8mm & 12mm)

SIZE	A	B	W	F	E	Po	Pz	D	To	T	P
0805	$\frac{1.48 \pm 0.2}{(.058 \pm .008)}$	$\frac{2.3 \pm 0.2}{(.091 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.06 \pm .004)}$	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
1206	$\frac{2.0 \pm 0.2}{(.079 \pm .008)}$	$\frac{3.6 \pm 0.2}{(.142 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.06 \pm .004)}$	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
1210	$\frac{2.9 \pm 0.2}{(.114 \pm .008)}$	$\frac{3.6 \pm 0.2}{(.142 \pm .008)}$	$\frac{8.0 \pm 0.2}{(.315 \pm .008)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.06 \pm .004)}$	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$
1812	$\frac{3.6 \pm 0.2}{(.142 \pm .008)}$	$\frac{4.9 \pm 0.2}{(.193 \pm .008)}$	$\frac{12.0 \pm 0.3}{(.472 \pm .012)}$	$\frac{5.6 \pm 0.1}{(.221 \pm .004)}$	$\frac{1.75 \pm 0.1}{(.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{(.06 \pm .004)}$	3.8 MAX (.150 MAX)	0.6 MAX (.024 MAX)	$\frac{8.0 \pm 0.1}{(.315 \pm .004)}$

Unit: mm (inch)

### How To Order

<b>C0805</b>	<b>C0G</b>	<b>500</b>	<b>—</b>	<b>101</b>	<b>J</b>	<b>N</b>	<input type="checkbox"/>	<b>P</b>	<b>—</b>	<b>*</b>
Series	Temperature Characteristic	Rated Voltage		Capacitance	Tolerance Code:	Termination	Marking	Packaging		Optional Identifier
See Chart		1st two digits are significant followed by number of zeroes.		(pico - Farads)	"B" = ± 0.1 pF "C" = ± 0.25 pF "D" = ± 0.5 pF F = ± 1% G = ± 2% J = ± 5% K = ± 10%	P = Palladium Silver N = Nickel Barrier, Tinned Termination G = Gold over Nickel	2 = EIA Color Code 6 = EIA "J" Code *Leave blank if No Marking*	B = Bulk D = Paper Tape (10" Reel) E = Embossed Tape (7" Reel) P = Paper Tape (7" Reel) R = Paper Tape (13" Reel) U = Embossed Tape (13" Reel)		
		6R3 = 6.3 VDCW 160 = 16 VDCW 250 = 25 VDCW		1st two digits are significant, followed by number of zeroes. 101 = 100 pF R denotes decimal						



Part Number	Tolerance	SIZE	L	W	T(Max)	Min E/B	VDCW (Max)	CAP. VALUE																																						
								1R0	1R2	1R5	1R8	2R2	2R2	2R7	3R3	3R9	4R7	5R6	6R8	8R2	10 pF	12	15	18	22	27	33	39	47	56	68	82	100pF	101	120	121	150	151	180	181	220	221	270	271	330	331
0201	±.002	□	.024	.012	.012	.002	25V	Values directly shown above are for u201 size only																																						
							10V																																							
							10V																																							
							10V																																							
0402	±.004	□	.040	.020	.025	.004	25V																																							
							50V																																							
							10V																																							
							10V																																							
0504	±.008	□	.050	.040	.040	.005	50V																																							
							100V																																							
							10V																																							
							10V																																							
0603	±.006	□	.063	.032	.033	.006	50V																																							
							100V																																							
							10V																																							
							10V																																							
0805	±.008	□	.080	.050	.055	.020 ±.010	50V																																							
							100V																																							
							10V																																							
							10V																																							
1206	±.008	□	.126	.063	.065	.020 ±.010	50V																																							
							100V																																							
							10V																																							
							10V																																							
1210	±.008	□	.126	.068	.075	.020 ±.010	50V																																							
							100V																																							
							10V																																							
							10V																																							
1812	±.015	□	.177	.126	.085	.024 ±.015	50V																																							
							100V																																							
							10V																																							
							10V																																							
2220 / 2221	±.015	□	.225	.210	.108	.108 ±.015	50V																																							
							100V																																							
							10V																																							
							10V																																							



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