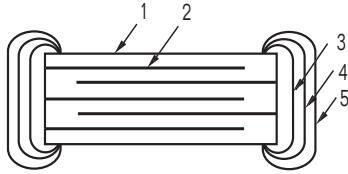


### CONSTRUCTION



1. Ceramic Dielectric
2. Inner Electrode (Palladium/Silver)
3. Inner Termination (Palladium/Silver)
4. Nickel Barrier Layer
5. Solder Plating

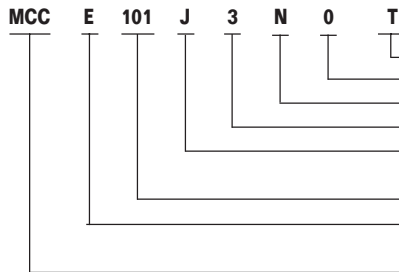
### DIMENSIONS

(Unit: mm)

Dimension	EIA (Size Code)									
	8 (0201)	0 (0402)	1 (0603)	2 (0805)	3 (1206)	4 (1210)	5 (1812)	6 (2220)	7* (1808)	
L	0.6±0.03	1.0 ± 0.05	1.6 ± 0.2	2.0 <sup>+0.3</sup> <sub>-0.1</sub>	3.2 ± 0.15	3.2 ± 0.4	4.5 ± 0.4	5.7 ± 0.4	4.5 ± 0.4	
W	0.3 ± 0.03	0.5 ± 0.05	0.8 ± 0.2	1.25 <sup>+0.25</sup> <sub>-0.15</sub>	1.6 ± 0.15	2.5 ± 0.3	3.2 ± 0.3	5.0 ± 0.4	2.0 ± 0.2	
H	0.3 ± 0.03	0.5 ± 0.05	0.6 ± 0.1 1.25 ≥ 1uF Max	0.6 ± 0.1 1.25 ≥ 1uF Max	1.80 Max	2.6 Max	2.2 Max	2.75 Max	2.2 Max	

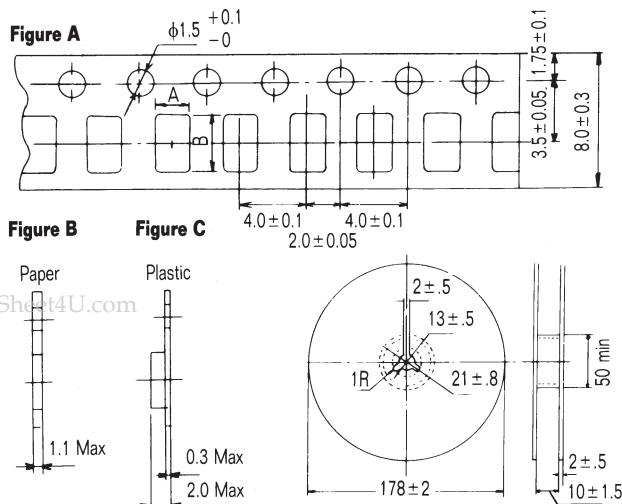
\*High capacitance values only.

### ORDERING INFORMATION



- PACKAGING: T = Tape & Reel
- TEMPERATURE CHARACTERISTIC: O = NPO, R = X7R, U = Z5U, V = Y5V
- END TERMINATION: N = Pd, Ag, Ni, SOL
- SIZE: 8=0201, 0 = 0402, 1 = 0603, 2 = 0805, 3 = 1206, 4 = 1210, 5 = 1812, 6 = 2220, 7 = 1808
- TOLERANCE: B = ± 0.1pF, C = ± 0.25pF, D = ± 0.5pF, F = ±1%, G = ±2%, J = +5%, K = ± 10%, M = ± 20%, Z = +80 - 20%, (B, C, D, F ≤ 1000pF)
- CAPACITANCE: 3 digit code in pF
- VOLTAGE: J = 6.3V, B = 10V, A = 16V, C = 25V, D = 35V, E = 50V, H = 100V, I = 250V, L = 500V, Q = 1KV, V=2KV, Y = 3KV, W = 5KV
- TYPE: MCC = MULTILAYER CHIP CAPACITORS

### TAPING PACKAGE/REEL DIMENSION



#### Window dimensions

(Unit: mm)

Size Code	A	B
8	0.37 ± 0.06	0.67 ± 0.06
0	0.65 ± 0.05	1.15 ± 0.05
1	1.0 ± 0.2	1.9 ± 0.2
2	1.65 ± 0.2	2.4 ± 0.2
3	2.0 ± 0.2	3.6 ± 0.2
4	2.9 ± 0.2	3.6 ± 0.2
5	3.6 ± 0.2	4.9 ± 0.2
6	5.5 ± 0.3	6.2 ± 0.3
7	2.3 ± 0.2	4.9 ± 0.2

#### Standard packing quantity

Material	Qty/Reel	Size Code	Thickness (H)
Paper Tape	10,000 pcs/reel	8, 0	0.5
Paper Tape	4,000 pcs/reel	1, 2, 3	0.6, 0.85
Plastic Tape	2,000 pcs/reel	4	1.25 Max.
Plastic Tape	1,000 pcs/reel	5, 7	3.5 Max.
Plastic Tape	500 pcs/reel	6	3.5 Max.

# MULTILAYER CHIP CAPACITORS — TYPE MCC

## CHARACTERISTICS

	NPO Dielectric	X7R/X5R Dielectric	Y5V Dielectric	Z5U Dielectric														
<b>Temperature Characteristic</b>																		
<b>Capacitance Range</b>	5 pF to .012 @ 0.5 Vrms to 5 Vrms, 1 MHz ± 0.1 MHz for values ≤ 1,000 pF, and 1 Vrms ± 0.2 Vrms, 1 kHz for values > 1,000 pF)	100 pF to 22 μF (@ 1 Vrms ± 0.2 Vrms, 1 kHz ± 0.1 kHz)	1,000 pF to 100 μF (@ 1 Vrms, ± 0.2 Vrms, 1 kHz ± 0.1 kHz)	1,000 pF to 1.5 μF (@ 1 Vrms ± 0.2 Vrms, 1 kHz ± 0.1 kHz)														
<b>Capacitance Tolerance</b>	<table border="0"> <tr> <td><b>Code</b></td> <td><b>Capacitance Tolerance</b></td> </tr> <tr> <td>B</td> <td>± 0.1 pF</td> </tr> <tr> <td>C</td> <td>± .25 pF</td> </tr> <tr> <td>D</td> <td>± .5 pF</td> </tr> <tr> <td>F</td> <td>± 1%</td> </tr> <tr> <td>G</td> <td>± 2%</td> </tr> <tr> <td>J</td> <td>± 5%</td> </tr> </table>	<b>Code</b>	<b>Capacitance Tolerance</b>	B	± 0.1 pF	C	± .25 pF	D	± .5 pF	F	± 1%	G	± 2%	J	± 5%	Code K = ± 10% Code J = ± 5%	Code Z = + 80 - 20% Code M = ± 20%	Code M = ± 20%
<b>Code</b>	<b>Capacitance Tolerance</b>																	
B	± 0.1 pF																	
C	± .25 pF																	
D	± .5 pF																	
F	± 1%																	
G	± 2%																	
J	± 5%																	
<b>Operating Temp. Range</b>	-55° C to +125° C (X7R), -55° C to +85° C (X5R)	-55° C to +125° C (X7R), -55° C to +85° C (X5R)	-30° C to +85° C	+10° C to +85° C														
<b>Temperature Characteristic</b>	<table border="0"> <tr> <td><b>T.C. Symbol</b></td> <td><b>Coefficient (ppm/° C)</b></td> <td><b>Capacitance</b></td> </tr> <tr> <td>NPO</td> <td>± 30</td> <td>.5 pF to .012 μF</td> </tr> </table>	<b>T.C. Symbol</b>	<b>Coefficient (ppm/° C)</b>	<b>Capacitance</b>	NPO	± 30	.5 pF to .012 μF	± 15% within -55° C to +125° C (@ 0 VDC)	+ 22% to - 82% max. within - 30° C to + 85° C (@ 0 VDC)	+ 22% to - 56% max. within + 10° to + 85° C (@ 0 VDC)								
<b>T.C. Symbol</b>	<b>Coefficient (ppm/° C)</b>	<b>Capacitance</b>																
NPO	± 30	.5 pF to .012 μF																
<b>Working Voltage (WVDC)</b>	25, 50, 100, 250	6.3, 10, 16, 25, 35, 50, 100, 250, 500, 1K, 3K, 5K	6.3, 10, 16, 25, 35, 50, 100	16, 25, 50, 100														
<b>Dissipation Factor (DF)</b>	0.25% max. for values less than 30 pF, and 0.1% max. for 30 pF and above. (@ + 25° C, 0.5 Vrms to 5 Vrms, 1 MHz ± 0.1 MHz)	2.5% max. (@ + 25° C, 1 Vrms ± 0.2 Vrms, 1 kHz ± 0.1 kHz)	5% max. (@ + 25° C, 1 Vrms ± 0.2 Vrms, 1 kHz ± 0.1 kHz)	5% max. (@ + 25° C, 1 Vrms ± 0.2 Vrms, 1 kHz ± 0.1 kHz)														
<b>Insulation Resistance (IR)</b>	10,000 megohms min. or 500 megohm-microfarads min., whichever is less. (@ + 25° C, WVDC for 1 minute ± 5 seconds)	10,000 megohms min. or 500 megohm-microfarads min., whichever is less. (@ + 25° C, WVDC for 1 minute ± 5 seconds)	10,000 megohms min. or 500 megohm-microfarads min., whichever is less. (@ + 25° C, WVDC for 1 minute ± 5 seconds)	10,000 megohms min. or 500 megohm-microfarads min., whichever is less. (@ + 25° C, WVDC for 1 minute ± 5 seconds)														
<b>Dielectric Withstanding Voltage</b>	3 x WVDC (@ 50 mA max. charging-discharging current between terminations for 1 to 5 seconds.)	2.5 x WVDC (@ 50 mA max. charging-discharging current between terminations for 1 to 5 seconds.)	2.5 x WVDC (@ 50 mA max. charging-discharging current between terminations for 1 to 5 seconds.)	2.5 x WVDC (@ 50 mA max. charging-discharging current between terminations for 1 to 5 seconds.)														
<b>Temperature vs. Capacitance and Dissipation Factor</b>																		
<b>Typical Curve</b>																		
<b>DC Voltage vs. Capacitance</b>																		
<b>Typical Curve</b>																		



# MULTILAYER CHIP CAPACITORS — TYPE MCC

## CAPACITANCE VALUE

3-Digit Code pF	Capacitance Value	Z5U							
		0603		0805		1206		1210	
		50V	25V	50V	25V	50V	25V	50V	25V
102	1000 pF								
152	1500								
182	1800								
222	2200								
272	2700								
332	3300								
472	4700								
562	5600								
682	6800								
822	8200								
103	.01 $\mu$ F								
153	.015								
223	.022								
273	.027	25V							
333	.033								
473	.047								
683	.068								
104	.1								
154	.15								
224	.22								
334	.33		16V						
474	.47								
684	.68								
105	1.0				16V				
155	1.5						16V		

## CAPACITANCE VALUE

3-Digit Code pF	Capacitance Value	Y5V													
		0201		0402		0603		0805		1206		1210		1812	2220
		25V	25V	50V	25V	50V	25V	50V	25V	50V	25V	50V	50V	50V	
102	1000 pF														
152	1500														
182	1800														
222	2200														
272	2700														
332	3300														
472	4700														
562	5600														
682	6800														
822	8200														
103	.01 $\mu$ F	16V													
153	.015														
223	.022	10V													
273	.027														
333	.033														
473	.047	6.3V													
683	.068														
104	.1	6.3V	16V												
154	.15														
224	.22														
274	.27		10V												
334	.33														
474	.47														
564	.56				10V										
684	.68														
105	1.0														
155	1.5														
225	2.2									35V					
335	3.3				6.3V										
395	3.9														
475	4.7														
106	10									16V					
226	22									10V					
476	47										16V		16V	25V	
107	100											10V		16V	

