

# CC MV series

## Mid-Voltage capacitor series (100V ~ 630V)

### ◆ Features

- » High Voltage in a given case size
- » High reliability and stability
- » RoHS Compliant & HALOGEN Compliant

### ◆ Applications

- » DC to DC converter
- » High voltage coupling/DC blocking
- » Back-lighting inverters
- » Snubbers in high frequency power converters

### ◆ Part Number

CC	0402	N	100	J	101
Series	Size	Dielectric	Capacitance	Tolerance	Rated voltage
	Inch:	N: NPO	Two significant Digits followed	B=±0.1pF	Two significant Digits followed
	0402	(COG)	by no. of zeros and P is in place	C=±0.25pF	by no. of zeros and V is in place
	0603	X: X7R	of decimal point	D=±0.5pF	of decimal point
	0805		Eg.:	F=±1%	
	1206	Y: Y5V	0P47 = 0.47pF	G=±2%	101 = 100V
	1210		0P5 = 0.5pF	J=±5%	201 = 200V
	1808		1P0 = 1.0pF	K=±10%	251 = 250V
	1812		100 = 10x10 <sup>0</sup>	M=±20%	501 = 500V
	1825		= 10pF	Z= -20/+80%	631 = 630V
	2220				
	2225				

\* For more information, please contact with Faithful link

### ◆ General Electrical Data

Dielectric	NPO (COG)	X7R	Y5V
Size	0402,0603,0805,1206,1210 1808,1812,1825,2220,2225	0603,0805,1206,1210, 1808 1812,1825,2220,2225	0805,1206,1210,1812
Capacitance range*	0.5pF to 120nF	100pF to 820nF	10nF to 820nF
Capacitance tolerance	Cap≤5pF: B (±0.1pF), C (±0.25pF) 5pF<Cap<10pF: C (±0.25pF), D (±0.5pF) Cap≥10pF: F (±1%), G (±2%), J (±5%), K (±10%)	J (±5%), K (±10%), M (±20%)	Z (-20/+80%)
Rated voltage (WVDC)	100V, 200V, 250V, 500V, 630V	100V, 200V,250V, 500V, 630V	100V, 200V, 250V
Tan δ*	Cap<30pF: Q≥400+20C Cap≥30pF: Q≥1000	≤2.5% (Apply 1.0±0.2Vrms, 1.0KHz±10%)	≤5%
Insulation resistance at U <sub>R</sub> **	≥100GΩ or R x C≥1000 whichever is smaller	≥10GΩ or R x C≥100Ω-F whichever is smaller	
Operating temperature	-55 to +125°C		-25 to +85°C
Capacitance characteristic	±30ppm / °C	±15%	+30/-80%
Termination	Cu (or Ag)/Ni/Sn (lead-free termination)		

\* Measured at the condition of 30~70% related humidity.

**NPO:** Apply 1.0±0.2Vrms, 1.0MHz±10% for Cap≤1000pF and 1.0±0.2Vrms, 1.0KHz±10% for Cap>1000pF, 25°C at ambient temperature.

**X7R:** Apply 1.0±0.2Vrms, 1.0KHz±10%, at 25°C ambient temperature.

**Y5V:** Apply 1.0±0.2Vrms, 1.0KHz±10%, at 20°C ambient temperature.

\*\* Measured at 500VDC for 60 sec, for UR>500VDC

## ◆ Capacitance Range

Dielectric	NPO (COG)														
	Size	0603			0805				1206						
	Rated Voltage(VDC)	100	200	250	100	200	250	500	630	100	200	250	500	630	
Capacitance	0.5pF (0P5)														
	1.0pF (1P0)														
	1.2pF (1P2)														
	1.5pF (1P5)														
	1.8pF (1P8)														
	2.2pF (2P2)														
	2.7pF (2P7)														
	3.3pF (3P3)														
	3.9pF (3P9)														
	4.7pF (4P7)														
	5.6pF (5P6)														
	6.8pF (6P8)														
	8.2pF (8P2)														
	10pF (100)														
	12pF (120)														
	15pF (150)														
	18pF (180)														
	22pF (220)														
	27pF (270)														
	33pF (330)														
	39pF (390)														
	47pF (470)														
	56pF (560)														
	68pF (680)														
	82pF (820)														
	100pF (101)														
	120pF (121)														
	150pF (151)														
	180pF (181)														
	220pF (221)														
	270pF (271)														
	330pF (331)														
	390pF (391)														
	470pF (471)														
	560pF (561)														
	680pF (681)														
	820pF (821)														
	1000pF (102)														
	1200pF (122)														
	1500pF (152)														
1800pF (182)															
2200pF (222)															
2700pF (272)															
3300pF (332)															
3900pF (392)															
4700pF (472)															
5600pF (562)															
6800pF (682)															
8200pF (822)															
0.010uF (103)															
0.012uF (123)															
0.015uF (153)															
0.018uF (183)															
0.022uF (223)															

## ◆ Capacitance Range

Dielectric		NPO (C0G)															
		1210					1808					1812					
Size		100	200	250	500	630	100	200	250	500	630	100	200	250	500	630	
Rated Voltage(VDC)		100	200	250	500	630	100	200	250	500	630	100	200	250	500	630	
Capacitance	2.2pF (2P2)																
	2.7pF (2P7)																
	3.3pF (3P3)																
	3.9pF (3P9)																
	4.7pF (4P7)																
	5.6pF (5P6)																
	6.8pF (6P8)																
	8.2pF (8P2)																
	10pF (100)																
	12pF (120)																
	15pF (150)																
	18pF (180)																
	22pF (220)																
	27pF (270)																
	33pF (330)																
	39pF (390)																
	47pF (470)																
	56pF (560)																
	68pF (680)																
	82pF (820)																
	100pF (101)																
	120pF (121)																
	150pF (151)																
	180pF (181)																
	220pF (221)																
	270pF (271)																
	330pF (331)																
	390pF (391)																
	470pF (471)																
	560pF (561)																
	680pF (681)																
	820pF (821)																
	1000pF (102)																
	1200pF (122)																
	1500pF (152)																
	1800pF (182)																
	2200pF (222)																
	2700pF (272)																
	3300pF (332)																
	3900pF (392)																
4700pF (472)																	
5600pF (562)																	
6800pF (682)																	
8200pF (822)																	
0.010uF (103)																	
0.012uF (123)																	
0.015uF (153)																	
0.018uF (183)																	
0.022uF (223)																	
0.027uF (273)																	
0.033uF (333)																	
0.039uF (393)																	
0.047uF (473)																	

## ◆ Capacitance Range

Dielectric		NPO (C0G)														
Size		1825					2220					2225				
Rated Voltage(VDC)		100	200	250	500	630	100	200	250	500	630	100	200	250	500	630
Capacitance	10pF (100)															
	12pF (120)															
	15pF (150)															
	18pF (180)															
	22pF (220)															
	27pF (270)															
	33pF (330)															
	39pF (390)															
	47pF (470)															
	56pF (560)															
	68pF (680)															
	82pF (820)															
	100pF (101)															
	120pF (121)															
	150pF (151)															
	180pF (181)															
	220pF (221)															
	270pF (271)															
	330pF (331)															
	390pF (391)															
	470pF (471)															
	560pF (561)															
	680pF (681)															
	820pF (821)															
	1000pF (102)															
	1200pF (122)															
	1500pF (152)															
	1800pF (182)															
	2200pF (222)															
	2700pF (272)															
	3300pF (332)															
	3900pF (392)															
	4700pF (472)															
	5600pF (562)															
	6800pF (682)															
	8200pF (822)															
	0.010uF (103)															
	0.012uF (123)															
	0.015uF (153)															
	0.018uF (183)															
	0.022uF (223)															
	0.027uF (273)															
	0.033uF (333)															
	0.039uF (393)															
	0.047uF (473)															
	0.056uF (563)															
	0.068uF (683)															
	0.082uF (823)															
0.1uF (104)																
0.12uF (124)																

## ◆ Capacitance Range

Dielectric		X7R																	
Size		0603			0805					1206					1210				
Rated Voltage(VDC)		100	200	250	100	200	250	500	630	100	200	250	500	630	100	200	250	500	630
Capacitance	100pF (101)																		
	120pF (121)																		
	150pF (151)																		
	180pF (181)																		
	220pF (221)																		
	270pF (271)																		
	330pF (331)																		
	390pF (391)																		
	470pF (471)																		
	560pF (561)																		
	680pF (681)																		
	820pF (821)																		
	1000pF (102)																		
	1200pF (122)																		
	1500pF (152)																		
	1800pF (182)																		
	2200pF (222)																		
	2700pF (272)																		
	3300pF (332)																		
	3900pF (392)																		
	4700pF (472)																		
	5600pF (562)																		
	6800pF (682)																		
	8200pF (822)																		
	0.010uF (103)																		
	0.012uF (123)																		
	0.015uF (153)																		
	0.018uF (183)																		
	0.022uF (223)																		
	0.027uF (273)																		
	0.033uF (333)																		
	0.039uF (393)																		
	0.047uF (473)																		
	0.056uF (563)																		
	0.068uF (683)																		
	0.082uF (823)																		
	0.10uF (104)																		
	0.12uF (124)																		
	0.15uF (154)																		
	0.18uF (184)																		
0.22uF (224)																			
0.27uF (274)																			
0.33uF (334)																			
0.39uF (394)																			
0.47uF (474)																			
0.56uF (564)																			
0.68uF (684)																			
0.82uF (824)																			

## ◆ Capacitance Range

Dielectric		X7R														
Size		1808					1812					1825				
Rated Voltage(VDC)		100	200	250	500	630	100	200	250	500	630	100	200	250	500	630
Capacitance	150pF (151)															
	180pF (181)															
	220pF (221)															
	270pF (271)															
	330pF (331)															
	390pF (391)															
	470pF (471)															
	560pF (561)															
	680pF (681)															
	820pF (821)															
	1000pF (102)															
	1200pF (122)															
	1500pF (152)															
	1800pF (182)															
	2200pF (222)															
	2700pF (272)															
	3300pF (332)															
	3900pF (392)															
	4700pF (472)															
	5600pF (562)															
	6800pF (682)															
	8200pF (822)															
	0.01uF (103)															
	0.012uF (123)															
	0.015uF (153)															
	0.018uF (183)															
	0.022uF (223)															
	0.027uF (273)															
	0.033uF (333)															
	0.039uF (393)															
	0.047uF (473)															
	0.056uF (563)															
	0.068uF (683)															
	0.082uF (823)															
	0.100uF (104)															
	0.12uF (124)															
	0.15uF (154)															
	0.18uF (184)															
	0.22uF (224)															
	0.27uF (274)															
0.33uF (334)																
0.39uF (394)																
0.47uF (474)																
0.56uF (564)																
0.68uF (684)																
0.82uF (824)																

## ◆ Capacitance Range

Dielectric		X7R									
Size		2220					2225				
Rated Voltage(VDC)		100	200	250	500	630	100	200	250	500	630
Capacitance	1000pF (102)										
	1200pF (122)										
	1500pF (152)										
	1800pF (182)										
	2200pF (222)										
	2700pF (272)										
	3300pF (332)										
	3900pF (392)										
	4700pF (472)										
	5600pF (562)										
	6800pF (682)										
	8200pF (822)										
	0.01uF (103)										
	0.012uF (123)										
	0.015uF (153)										
	0.018uF (183)										
	0.022uF (223)										
	0.027uF (273)										
	0.033uF (333)										
	0.039uF (393)										
	0.047uF (473)										
	0.056uF (563)										
	0.068uF (683)										
	0.082uF (823)										
	0.100uF (104)										
	0.12uF (124)										
	0.15uF (154)										
	0.18uF (184)										
	0.22uF (224)										
	0.27uF (274)										
	0.33uF (334)										
	0.39uF (394)										
	0.47uF (474)										
0.56uF (564)											
0.68uF (684)											
0.82uF (824)											

## ◆ Capacitance Range

Dielectric		Y5V												
Size		0805			1206			1210			1812			
Rated Voltage(VDC)		100	200	250	100	200	250	100	200	250	100	200	250	
Capacitance	0.01uF (103)													
	0.012uF (123)													
	0.015uF (153)													
	0.018uF (183)													
	0.022uF (223)													
	0.027uF (273)													
	0.033uF (333)													
	0.039uF (393)													
	0.047uF (473)													
	0.056uF (563)													
	0.068uF (683)													
	0.082uF (823)													
	0.10uF (104)													
	0.12uF (124)													
	0.15uF (154)													
	0.18uF (184)													
	0.22uF (224)													
	0.27uF (274)													
	0.33uF (334)													
	0.39uF (394)													
0.47uF (474)														
0.56uF (564)														
0.68uF (684)														
0.82uF (824)														

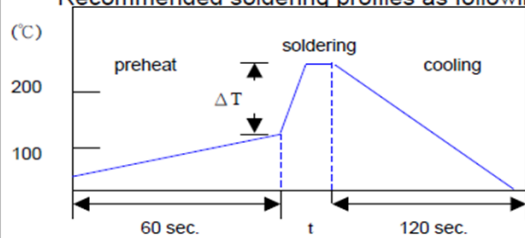
### SOLDERING

Use middy activated rosin RA and RMA fluxes do not use activated flux. The amount of solder in each solder joint should be controlled to prevent the damage of chip capacitors caused by the stress between solder, chips, and substrate.

Hand soldering with temperature-controlled iron not exceeding 30 watts and diameter of tip less than 1.2 mm is recommended, tip of iron should not contact the ceramic body directly, and the temperature of iron should be set to not more than 260°C.

For bigger chips such as 1210, 1808, and 1812, etc. wave soldering and hand soldering are no recommended.

Recommended soldering profiles as following:



Soldering	Solder Temp.(T)	Soldering Time (t)
Reflow	235 – 250 °C	< 15 sec.
Wave	230 – 250 °C	< 5 sec.

Chip Size	ΔT
0603, 0805, 1206	100 °C
1210, 1808, 1812	50 °C