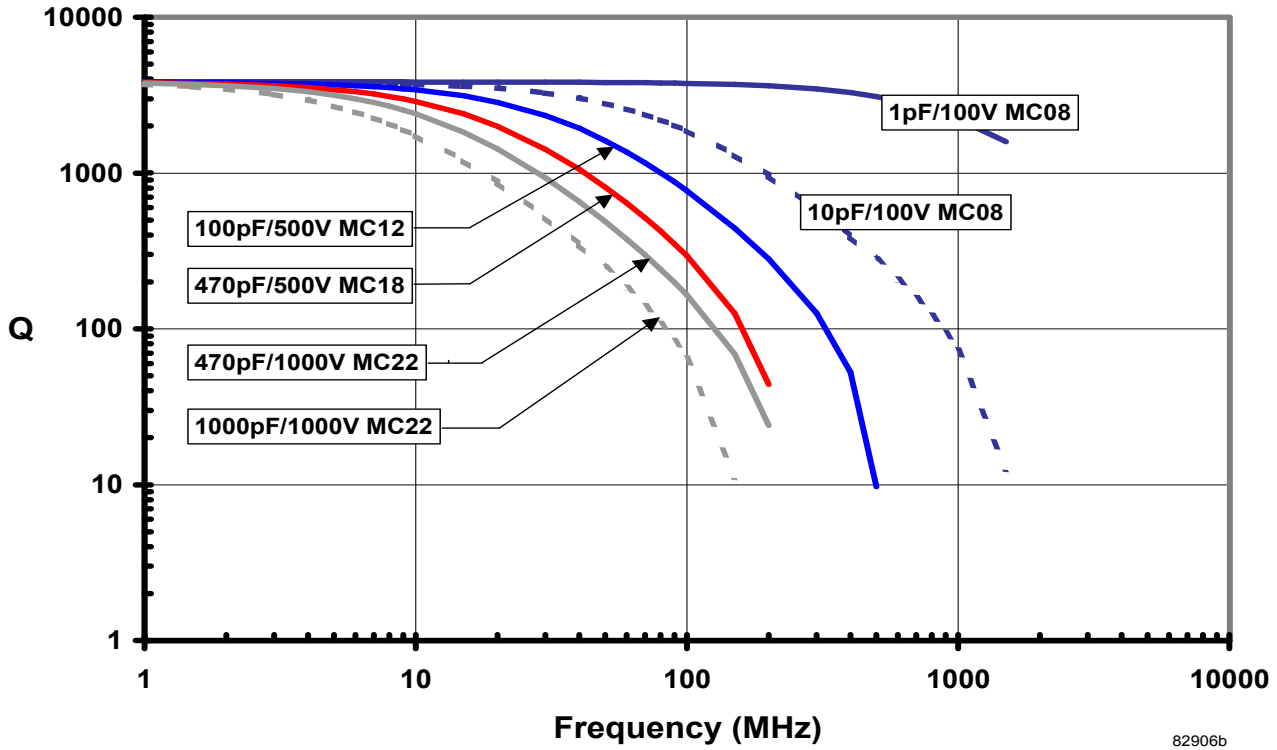


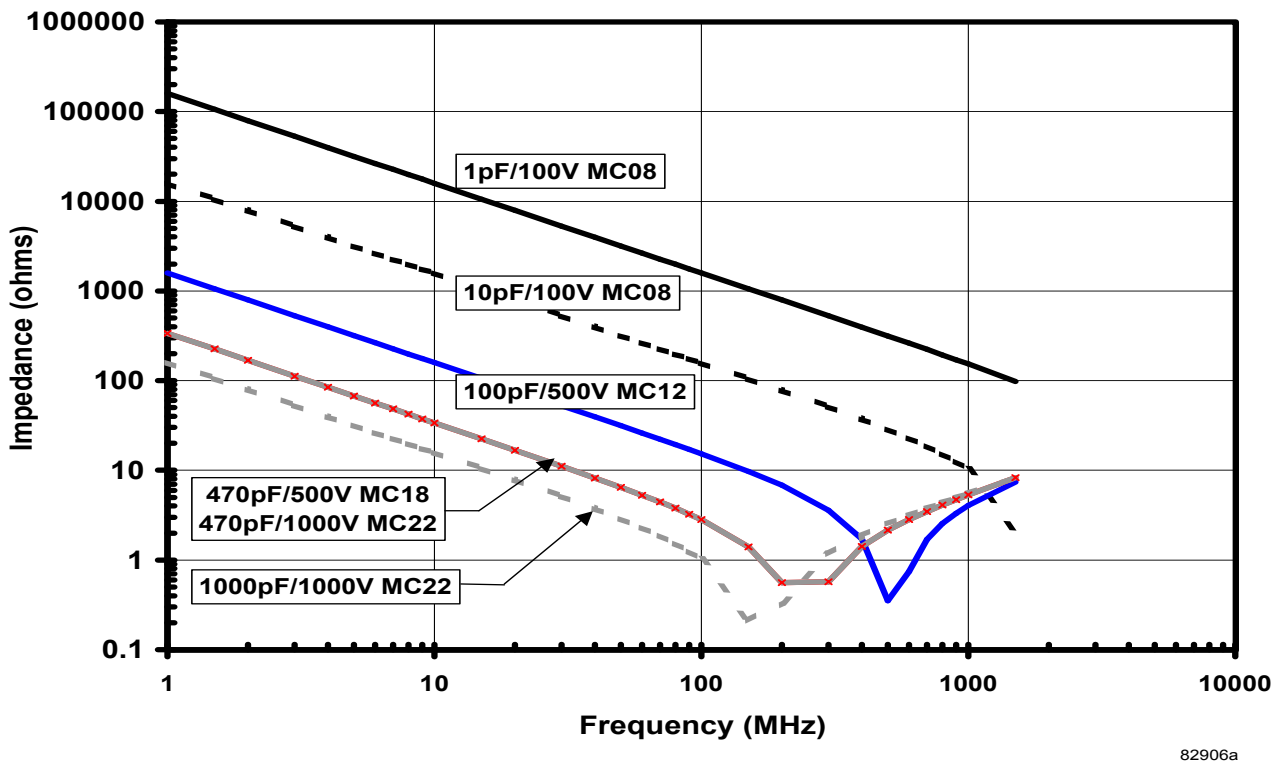
Types MC and MCN Multilayer RF Capacitors

Typical Performance Curves

Type MC Typical Q vs. Frequency

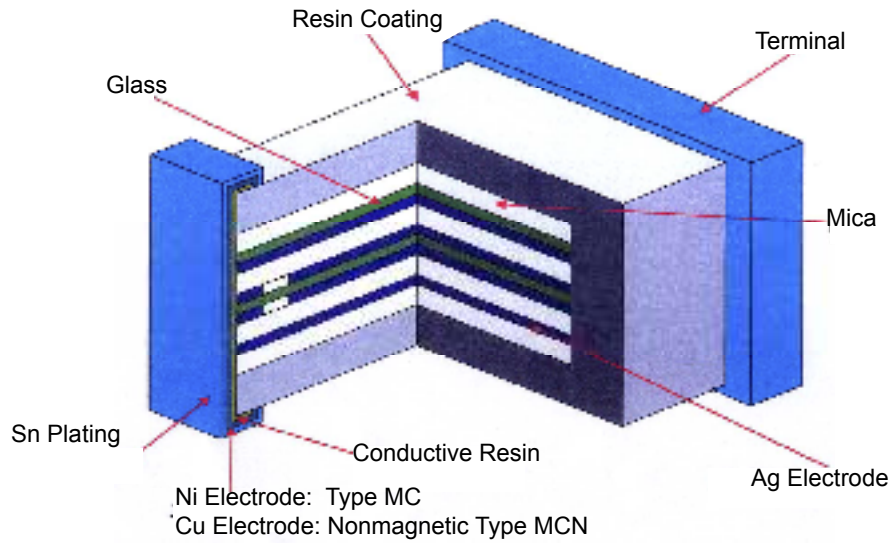


Type MC Typical Impedance vs. Frequency



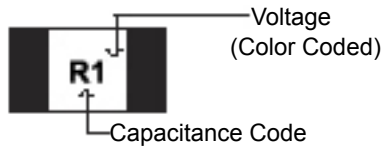
Types MC and MCN Multilayer RF Capacitors

High Q, Low ESR Construction for RF Power Applications



Specifications

Marking



Base Value	Code Ltr.	Base Value	Code Ltr.
10	A	40	d
11	B	43	R
12	C	45	e
13	D	47	S
15	E	50	f
16	F	51	T
18	G	56	U
20	H	60	m
22	J	62	V
24	K	68	W
25	a	70	n
27	L	75	X
30	M	80	t
33	N	82	Y
35	b	90	y
36	P	91	Z
39	Q		

Capacitance is within tolerance when measured as follows:

1—1000 pF @ 1 MHz
>1000 pF @ 1 kHz

Dissipation Factor is no more than 0.1% when measured as above at 5 Vrms or less.

Multiplier	Code No.
X 0.1	0
X 1	1
X 10	2
X 100	3
X 0.01	9

Example:
R1 = 43 pF

Types MC and MCN Multilayer RF Capacitors

Specifications

Quality Factor (Q) is as follows when measured at 1 MHz

Capacitance Range	Min. Q
1 to 80 pF	500 to 3000
>80 pF	3000

Insulation Resistance is no less than 100 GΩ when measured at 100 Vdc

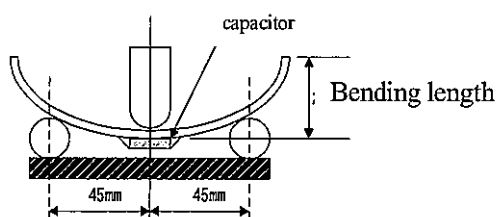
Withstanding voltage is two times the rated voltage between 5 seconds and without damage: with 50 mA or less current.

Life Test: Subject capacitors to 125 °C ±3 °C with 1.5 times rated voltage applied for 2000 (+72, -0) hours. There will be no visual damage and the capacitors will meet the limits of the table below.

Vibration Resistance: Subject the capacitors to simple harmonic motion with an amplitude of 0.06 inches; vary the frequency uniformly from 10 to 55 Hz and return to 10 Hz, all in one minute. Repeat that cycle continuously for two hours in

each of three mutually perpendicular directions. There will be no visual damage and the capacitors will meet the limits of the table below.

Bending Test: Mount the capacitor as shown below and press the ram bar until a 2.0 mm deflection is achieved. There will be no visual damage and the capacitors will meet the limits of methods JIS 5102 8.11 and AEC-Q200-005 without cracking or visual damage.



Moisture Resistance: Subject the capacitors to 40 ±2 °C at 90 to 95% humidity for 500 (+24, -0) hours. Return to room ambient for 24 hours. There will be no visual damage and the capacitors will meet the limits of the table below.

Temperature Coefficient and Drift: Measure the capacitors' capacitance at 25 °C, -55 °C, 25 °C, 125 °C and at 25 °C — all ±3 °C — after stabilizing at each temperature. The capacitor will meet the limits of the Characteristic table in Ordering Information.

Heat Resistance: Subject the capacitors to 125 ±2 °C for 2 (+1, -0) hours. Then the insulation resistance will be no less than 5GΩ.

Solderability: After 2 ±0.5 seconds in molten solder with Sn-PB between molten and solder at 235 ±5 °C, solder coverage will be no less than 75% when examined at 10X magnification for flow soldering.

Solder Heat Resistance: Subject the capacitors to molten solder at 250±5 °C for 5±0.5 seconds after 10 to 30 seconds pre-heating at 80 to 120 °C. There will be no visual damage and the capacitors will meet the limits of the table below.

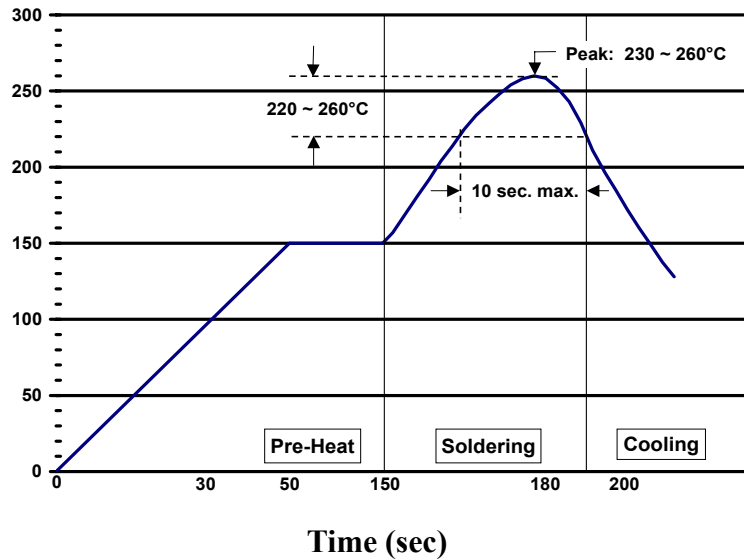
After-Test Limits

Test	Withstand Voltage	Insulation Resistance	Capacitance (whichever >)	DF	Q
Life Test	IL	IL	IV ±2% or ±.5 pF	150% max IL	2/3 x IL
Vibration Resistance	IL	30 GΩ	IV ±1% or ±1 pF	IL	IL
Bending Test	IL		IV ±.5% or ±1 pF	IL	
Moisture Res.	IL	30 GΩ	IV ±3% or ±.5 pF	150% max IL	2/3 x IL
Solderability	IL	IL	IL	IL	IL
Heat Resistance		5 GΩ			
Solder Heat Res.	IL	30 GΩ	IV ±.5% or ±1 pF	IL	IL

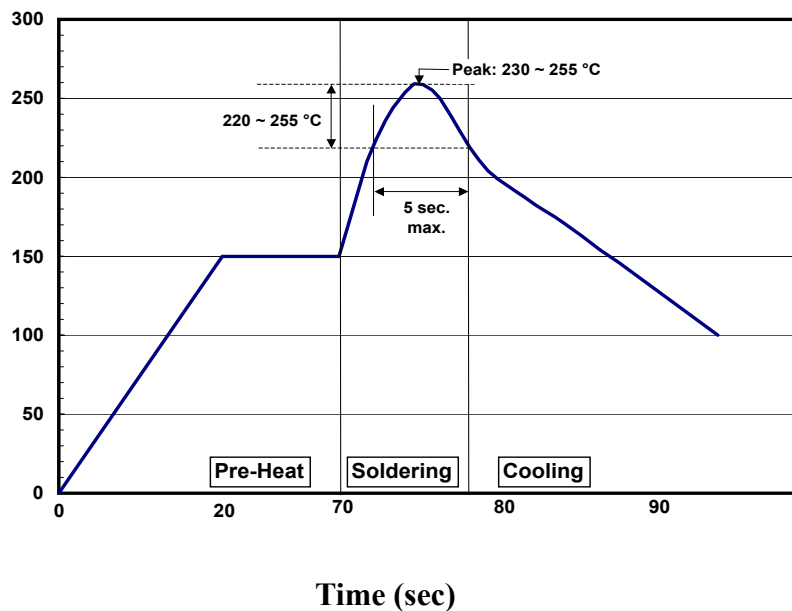
Types MC and MCN Multilayer RF Capacitors

Soldering Profiles

Reflow Solder Profile

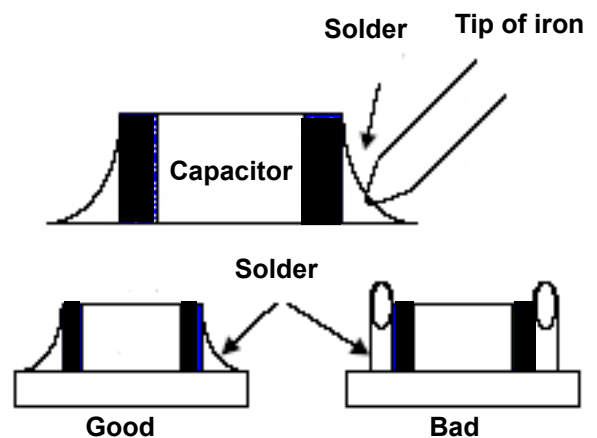


Wave Solder Profile



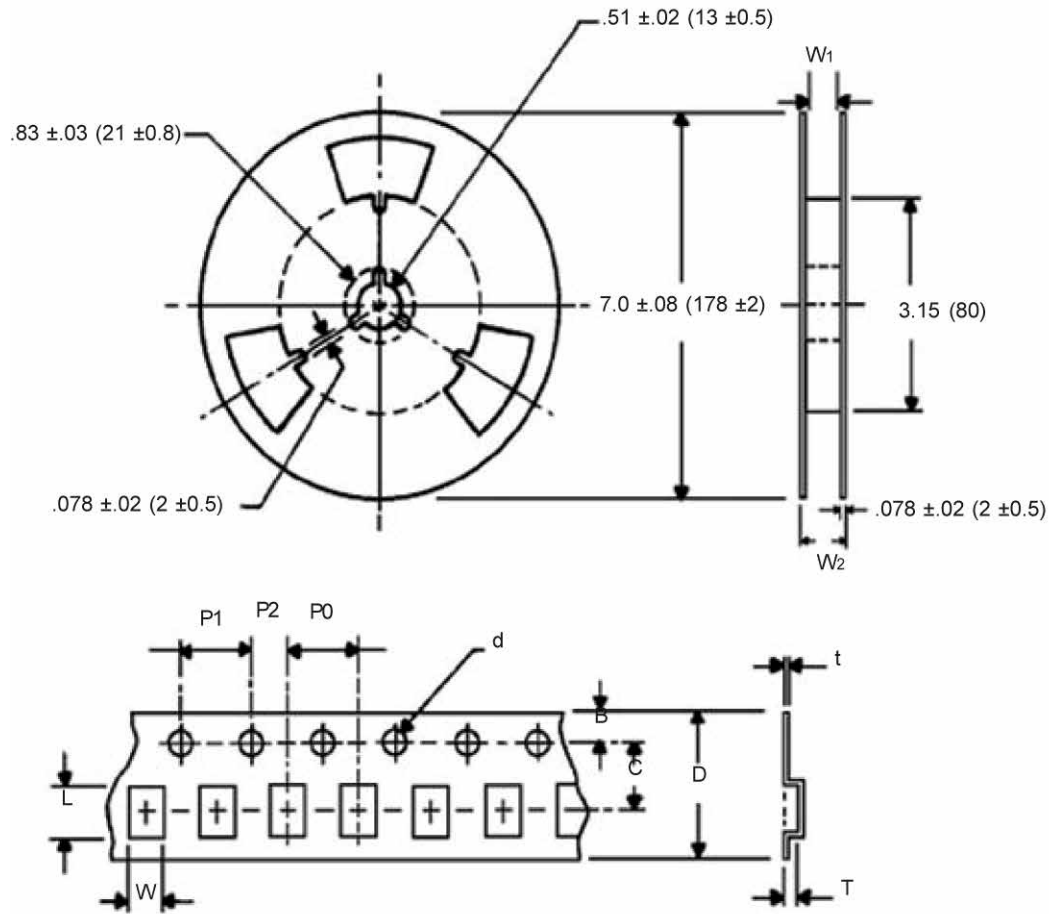
Hand Soldering Method

- SnAgCu recommended solder
- Do not use strong acid type flux with RM or RMA
- Soldering iron tip temperature should be 250 °C to 280 °C ≤ 5 sec.
- 60 Watt iron or less



Types MC and MCN Multilayer RF Capacitors

Surface-Mount Chip Mica Capacitors for Auto Insertion



Carrier Dimensions

Item	Symbol	Case Code							
		08		12		18		22	
Sprocket hole pitch	P1	.157 ± 0.008 (4.0 ± 0.2)							
Sprocket hole location	B	.069 ± 0.008 (1.75 ± 0.2)							
Hole center to cavity center	C	.138 ± 0.002 (3.5 ± 0.05)				.217 ± 0.004 (5.5 ± 0.1)			
Carrier tape width	D	.315 ± 0.012 (8.0 ± 0.3)				.472 ± 0.012 (12.0 ± 0.3)			
Sprocket hole diameter	d	.059 (1.5)							
Cavity pitch	P ₀	.157 ± 0.004 (4.0 ± 0.1)				.315 ± 0.008 (8.0 ± 0.2)			
Hole center to cavity center	P ₂	.079 ± 0.004 (2.0 ± 0.1)							
Cavity length	L	.110 (2.8)	.150 (3.8)	.205 (5.2)	.246 (6.25)				
Cavity width	W	.075 ± 0.008 (1.9 ± 0.2)	.118 ± 0.008 (3.0 ± 0.2)	.161 ± 0.008 (4.1 ± 0.2)	.217 ± 0.008 (5.5 ± 0.2)				
Cavity depth	T	.051 ± 0.004 (1.3 ± 0.1)	.059 ± 0.004 (1.5 ± 0.1)	.071 ± 0.004 (1.8 ± 0.1)	.087 ± 0.004 (2.2 ± 0.1)				
Carrier tape thickness	t	.012 ± 0.002 (0.3 ± 0.05)							
Holder distance	W ₁	.354 (9.0)					.512 (13.0)		
Reel thickness	W ₂	about .47 (12)				about .63 (16)			

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