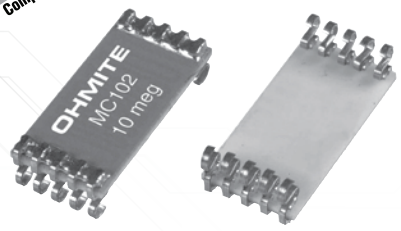
Macrochip Series

High Voltage/High Resistance
Precision Thick Film Surface Mount

Ohmite's MacroChip resistors bring precision high voltage capabilities to surface mount applications. Designed with thick film on alumina substrate technology, the resistors can be provided in precision tolerances, high voltage ratings, and high resistance values. The planar package design is low profile for easy use with instrumentation, medical equipment, voltage regulators, and power supplies.



FEATURE

- Non-inductive design (less than 50 nanohenries)
- Low voltage coefficient
- Surface mount
- Pd Ag terminations
- J-bend terminals for applications involving shock and vibration

APPLICATIONS

- Medical instrumentation
- Power Supplies
- Avionics
- Light Magnification Systems

SERIE SPECIFICATIONS

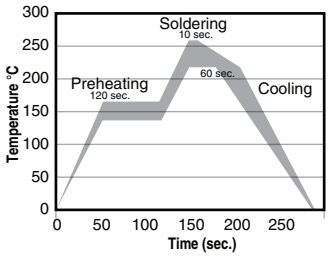
Series	Resistance Range (Ohms)	Power @25°C	Voltage Rating	Standard Temp. 50PPM/°C	Coefficient 85°-125°C 100PPM/°C
MC101	100Ω to 1,000M	0.75W	2.0KV	100Ω-100M	101M-1,000M
MC102	200Ω to 5,000M	1.50W	5.0KV	200Ω-250M	251M-5,000M
MC103	250Ω to 5,000M	2.00W	7.5KV	250Ω-100M	101M-5,000M
MC104	1K to 5,000M	2.50W	10.0KV	500Ω-450M	451M-5,000M
MC202	500Ω to 5,000M	2.50W	5.0KV	500Ω-200M	201M-5,000M
MC204	1K to 5,000M	3.25W	10.0KV	1K-375M	376M-5,000M

Contact Ohmite for custom configurations.

CHARACTERISTICS

Resistor	Thick film on Alumina
Resistance Range	100 Ohms to 5,000M
Power Rating	0.75W to 3.25W
Voltage Rating	2.0KV to 10.0KV
Tolerance	0.5% to 20%
Operating Temperature	-55°C to +180°C
TCR and VCR	See chart below
Solder	Silver solder is recommended for Macrochip resistors. Leaching of the silver in the termination will occur if non-silver solder is used. 60/40 tin-lead solders are not recommended for use with the Macrochip product.

Recommended Solder Profile



Preheating:
145°C ±15°, max. 120 sec.

Soldering:
min. 220°C, max. 60 sec.

Max. Temp.:
260°C ±5°, 10 sec.

PERFORMANCE DATA

Characteristic	Test Method	Specification
Humidity	MIL-STD-202, Method 103B, Condition B	±0.25%
Dielectric Withstanding Voltage	MIL-STD-202, Method 301, 750V	±0.25%
Insulation Resistance	MIL-STD-202, Method 302, Condition A or B	>10,000M or greater dry
Thermal Shock	MIL-STD-202, Method 107G, Condition B, B-1, or F	±0.20%
Load Life	MIL-STD-202, Method 108A, Condition D	±1.0%
Resistance to Solvents	MIL-STD-202, Method 215G	No degradation of coating or marking
Shock (Specified Pulse)	MIL-STD-202, Method 213B, Condition I	±0.25%
Vibration, High Frequency	MIL-STD-202, Method 204D, Condition D	±.020%
Power Conditioning	MIL-R-49462A, Par 4.8	±0.50%

EC #11564

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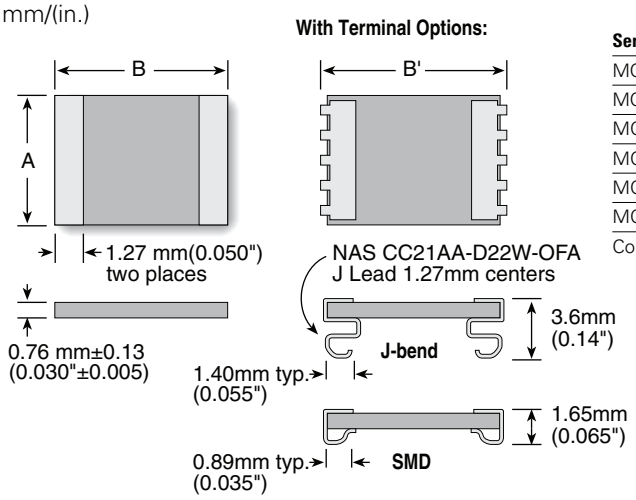
DIMENSIONS

mm/(in.)

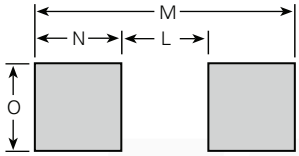


Series	Power	A ±.01"	B ±.01"	B' max. (J-bend)	Qty./Reel w/J-bend	Qty./Reel w/o J-bend
MC101	0.75W	6.35 (0.25")	6.35 (0.25")	7.37 (0.29")	1000	2500
MC102	1.50W	6.35 (0.25")	12.70 (0.50")	13.72 (0.54")	1000	2500
MC103	2.00W	6.35 (0.25")	19.05 (0.75")	20.07 (0.79")	1000	2500
MC104	2.50W	6.35 (0.25")	25.40 (1.00")	26.42 (1.04")		
MC202	2.50W	12.70 (0.50")	12.70 (0.50")			
MC204	3.25W	12.70 (0.50")	25.40 (1.00")			

Contact Ohmite for custom configurations.

Land Pattern

Land pattern dimensions are for reference only.



Size	M	N	O	L
MC101	7.11(0.280")	2.032(0.080")	7.061(0.278")	3.048(0.120")
MC102	13.462(0.530")	2.032(0.080")	7.061(0.278")	9.398(0.370")
MC103	19.812(0.780")	2.032(0.080")	7.061(0.278")	15.748(0.620")
MC104	26.162(1.030")	2.032(0.080")	7.061(0.278")	22.098(0.870")
MC202	13.462(0.530")	2.032(0.080")	14.122(0.556")	9.398(0.370")
MC204	26.162(1.030")	2.032(0.080")	14.122(0.556")	22.098(0.870")

TEMP./VOLTAGE COEFFICIENTS

Resistor Series	0°C-85°C 25 PPM/°C	Temp. Coeff. of Resistance* 85°C-125°C 50 PPM/°C	100 PPM/°C	Voltage Coeff. of Resistance** < 2PPM/Volt	< 5PPM/Volt
MC101	100 to 800M	100Ω to 100M	101M to 1,000M	100Ω to 270M	271M to 1,000M
MC102	200 to 1,500M	200Ω to 250M	251M to 5,000M	200Ω to 640M	641M to 5,000M
MC103	250 to 800M	250Ω to 440M	441M to 5,000M	250Ω to 1,100M	1,101M to 5,000M
MC104	500 to 2,500M	500Ω to 450M	451M to 5,000M	500Ω to 1,100M	1,101M to 5,000M
MC202	500 to 1,500M	500Ω to 200M	201M to 5,000M	500Ω to 520M	521M to 5,000M
MC204	1K to 1,750M	1K to 375M	376M to 5,000M	1K to 950M	951M to 5,000M

*TCR of 25ppm for temperature range of 0°C-85°C. TCR of 50ppm and 100ppm for -55°C to 125°C. Consult factory for TCR values operating higher than 125°C

**VC's of <2PPM/Volt are available. Contact Ohmite with your requirement.

ORDERING INFORMATION

Coating: 2 = Blue silicone
E = RoHS compliant
Tape and Reel *optional*

M C 1 0 2 8 2 1 0 0 6 J E R

Macro Chip Series

Style
101
102
104
202
204

Terminal
5 = J-bend
6 = SMD
8 = No term.

Ohms
First 3 digits are significant; 4th digit is multiplier (# of zeroes to follow). Examples:
10R2 = 10.2 ohms
1000 = 100 ohms
1503 = 150,000 ohms

Tolerance
D = 0.5%
F = 1%
G = 2%
J = 5%
K = 10%
M = 15%
P = 20%

Standard Part Numbers

Series: MC10282 **Tolerance:** 5% **Watts:** 1.5W

Ohms	Part Number	Ohms	Part Number	Ohms	Part Number
1K	MC102821001JE	50K	MC102825002JE	1.25M	MC102821254JE
2.5K	MC102822501JE	75K	MC102827502JE	1.5M	MC102821504JE
5K	MC102825001JE	100K	MC102821003JE	1.75M	MC102821754JE
7.5K	MC102827501JE	125K	MC102821253JE	2M	MC102822004JE
10K	MC102821002JE	150K	MC102821503JE	2.5M	MC102822504JE
12.5K	MC102821252JE	200K	MC102822003JE	5M	MC102825004JE
15K	MC102821502JE	250K	MC102822503JE	10M	MC102821005JE
17.5K	MC102821752JE	500K	MC102825003JE	25M	MC102822505JE
20K	MC102822002JE	750K	MC102827503JE	50M	MC102825005JE
25K	MC102822502JE	1M	MC102821004JE		

EC #11564