

Thick Film Chip Resistors

MCRNL Series



Features:

- High reliability with RUO2 paste
- Miniature, high density packaging
- Combination of different ohmic values are available

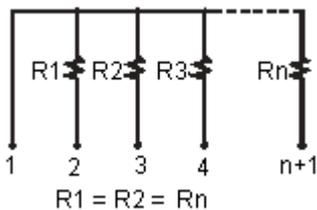


Specifications:

Temperature coefficient	: 50 Ω to 1 M Ω : ± 200 PPM/ $^{\circ}$ C < 50 Ω and > 1 M Ω : ± 250 PPM/ $^{\circ}$ C
Maximum short time overload	: $\pm (0.5\% + 0.1 \Omega)$
Minimum insulation resistance	: 10,000 Mega Ohm
Dielectric withstanding voltage	: No evidence of flashover, mechanical damage, arcing or insulation breakdown
Maximum terminal strength	: $\pm (0.5\% + 0.1 \Omega)$
Maximum resistance to soldering heat	: $\pm (0.5\% + 0.1 \Omega)$
Minimum solderability	: 95% coverage
Maximum thermal shock	: $\pm (0.5\% + 0.1 \Omega)$
Maximum temperature cycling	: $\pm (0.5\% + 0.1 \Omega)$
Maximum load life in humidity	: $\pm (3\% + 0.1 \Omega)$
Maximum load life	: $\pm (3\% + 0.1 \Omega)$

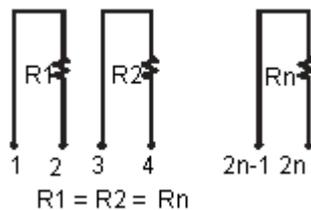
Single Common

A

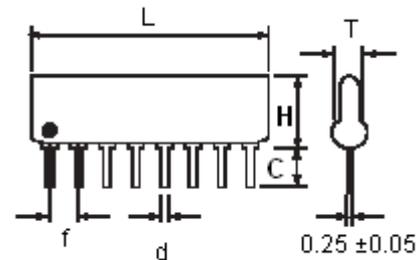


Isolated

B

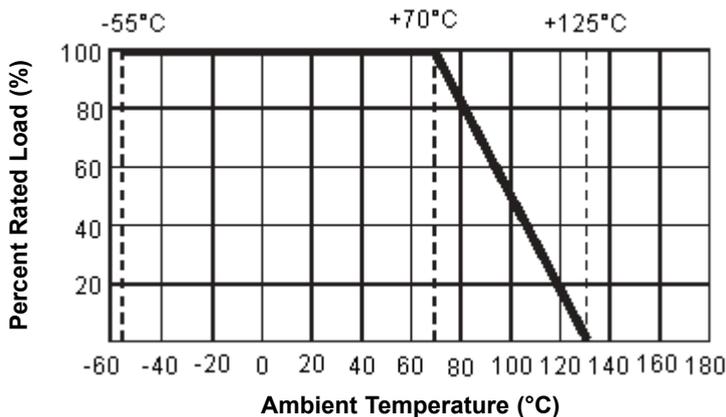


Dimension



Dimensions : Millimetres

Derating Curve



Dual Value (R1 / R2) (Ohm)

160 / 240	330 / 390
180 / 390	330 / 470
220 / 270	1.5 K / 3.3 K
220 / 330	3 K / 6.2 K

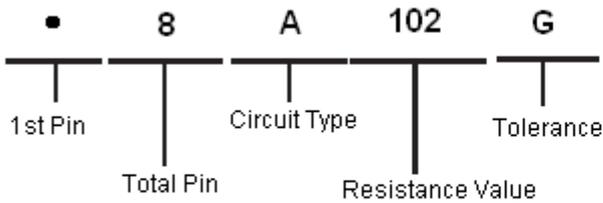
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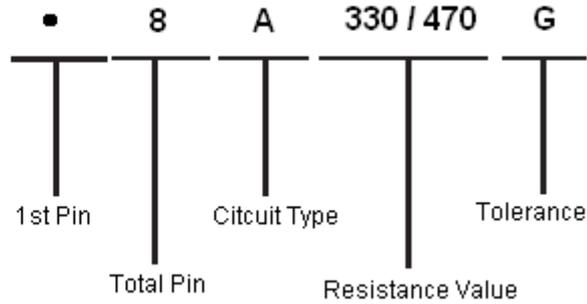
MCRNL Series

Type	L (Maximum)	H (Maximum)	T (Maximum)	C $\begin{matrix} +0.3 \\ -0.2 \end{matrix}$	d ± 0.1	f ± 0.2
5 pins	12.7	5.08	2.5	3.2	0.5	2.54
6 pins	15.3					
8 pins	20.4					
9 pins	22.9					
10 pins	25.4					

Marking (Single Value)



Marking (Dual Value)



Type	Power Rating at 70°C	Operating Temperature Range	Maximum Working Voltage	Maximum Overload Voltage	Dielectric Withstanding Voltage	Tolerance %	Resistance Range
B Type	0.2 W	-550 to +125°C	100 V	150 V	200 V	±2%	R-Type 100Ω to 10KΩ
Other	0.125 W					±5%	Others: 10Ω to 1MΩ

Part Number Table

Description	Part Number
Resistor, Network, 10K, 2%, 1/8W	MCRNLA05G0103B0E
Resistor, Network, 100R, 2%, 1/8W	MCRNLA06G0101B0E
Resistor, Network, 220R, 2%, 1/8W	MCRNLA06G0221B0E
Resistor, Network, 1K, 2%, 1/8W	MCRNLA06G0102B0E
Resistor, Network, 4K7, 2%, 1/8W	MCRNLA06G0472B0E
Resistor, Network, 10K, 2%, 1/8W	MCRNLA06G0103B0E
Resistor, Network, 22K, 2%, 1/8W	MCRNLA06G0223B0E
Resistor, Network, 100K, 2%, 1/8W	MCRNLA06G0104B0E

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Part Number Table

Description	Part Number
Resistor, Network, 470K, 2%, 1/8W	MCRNLA06G0474B0E
Resistor, Network, 470R, 2%, 1/8W	MCRNLA08G0471B0E
Resistor, Network, 1K, 2%, 1/8W	MCRNLA08G0102B0E
Resistor, Network, 3.3K, 2%, 1/8W	MCRNLA08G0332B0E
Resistor, Network, 4.7K, 2%, 1/8W	MCRNLA08G0472B0E
Resistor, Network, 10K, 2%, 1/8W	MCRNLA08G0103B0E
Resistor, Network, 47K, 2%, 1/8W	MCRNLA08G0473B0E
Resistor, Network, 220K, 2%, 1/8W	MCRNLA08G0224B0E
Resistor, Network, 470K, 2%, 1/8W	MCRNLA08G0474B0E
Resistor, Network, 100R, 2%, 1/8W	MCRNLA09G0101B0E
Resistor, Network, 150R, 2%, 1/8W	MCRNLA09G0151B0E
Resistor, Network, 270R, 2%, 1/8W	MCRNLA09G0271B0E
Resistor, Network, 1K, 2%, 1/8W	MCRNLA09G0102B0E
Resistor, Network, 1K5, 2%, 1/8W	MCRNLA09G0152B0E
Resistor, Network, 4.7K, 2%, 1/8W	MCRNLA09G0472B0E
Resistor, Network, 10K, 2%, 1/8W	MCRNLA09G0103B0E
Resistor, Network, 15K, 2%, 1/8W	MCRNLA09G0153B0E
Resistor, Network, 220K, 2%, 1/8W	MCRNLA09G0224B0E
Resistor, Network, 470K, 2%, 1/8W	MCRNLA09G0474B0E
Resistor, Network, 1M, 2%, 1/8W	MCRNLA09G0105B0E
Resistor, Network, 100R, 2%, 1/8W	MCRNLA10G0101B0E
Resistor, Network, 150R, 2%, 1/8W	MCRNLA10G0151B0E
Resistor, Network, 470R, 2%, 1/8W	MCRNLA10G0471B0E
Resistor, Network, 1K, 2%, 1/8W	MCRNLA10G0102B0E
Resistor, Network, 2.2K, 2%, 1/8W	MCRNLA10G0222B0E
Resistor, Network, 3K3, 2%, 1/8W	MCRNLA10G0332B0E
Resistor, Network, 4.7K, 2%, 1/8W	MCRNLA10G0472B0E
Resistor, Network, 10K, 2%, 1/8W	MCRNLA10G0103B0E
Resistor, Network, 22K, 2%, 1/8W	MCRNLA10G0223B0E

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Part Number Table

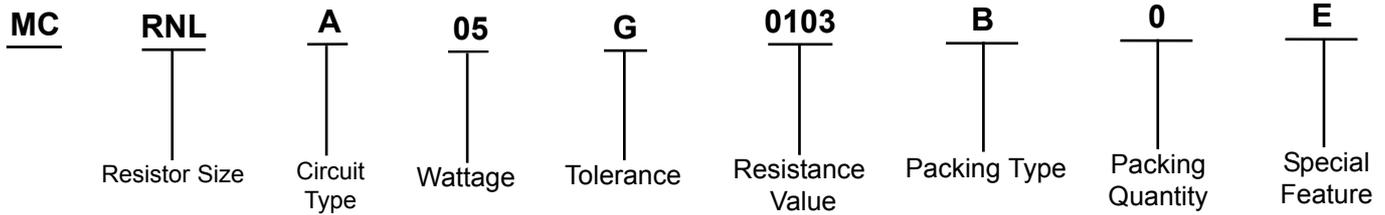
Description	Part Number
Resistor, Network, 47K, 2%, 1/8W	MCRNLA10G0473B0E
Resistor, Network, 100K, 2%, 1/8W	MCRNLA10G0104B0E
Resistor, Network, 1M, 2%, 1/8W	MCRNLA10G0105B0E
Resistor, Network, 1K, 2%, 1/5W	MCRNLB06G0102B0E
Resistor, Network, 2K2, 2%, 1/5W	MCRNLB06G0222B0E
Resistor, Network, 10K, 2%, 1/5W	MCRNLB06G0103B0E
Resistor, Network, 100K, 2%, 1/5W	MCRNLB06G0104B0E
Resistor, Network, 10R, 2%, 1/5W	MCRNLB08G0100B0E
Resistor, Network, 82R, 2%, 1/5W	MCRNLB08G0820B0E
Resistor, Network, 150R, 2%, 1/5W	MCRNLB08G0151B0E
Resistor, Network, 100R, 2%, 1/5W	MCRNLB08G0101B0E
Resistor, Network, 220R, 2%, 1/5W	MCRNLB08G0221B0E
Resistor, Network, 270R, 2%, 1/5W	MCRNLB08G0271B0E
Resistor, Network, 330R, 2%, 1/5W	MCRNLB08G0331B0E
Resistor, Network, 470R, 2%, 1/5W	MCRNLB08G0471B0E
Resistor, Network, 680R, 2%, 1/5W	MCRNLB08G0681B0E
Resistor, Network, 1K5, 2%, 1/5W	MCRNLB08G0152B0E
Resistor, Network, 2K2, 2%, 1/5W	MCRNLB08G0222B0E
Resistor, Network, 3K3, 2%, 1/5W	MCRNLB08G0332B0E
Resistor, Network, 4K7, 2%, 1/5W	MCRNLB08G0472B0E
Resistor, Network, 22K, 2%, 1/5W	MCRNLB08G0223B0E
Resistor, Network, 47K, 2%, 1/5W	MCRNLB08G0473B0E
Resistor, Network, 100K, 2%, 1/5W	MCRNLB08G0104B0E
Resistor, Network, 470K, 2%, 1/5W	MCRNLB08G0474B0E
Resistor, Network, 1M, 2%, 1/5W	MCRNLB08G0105B0E
Resistor, Network, 33R, 2%, 1/5W	MCRNLB10G0330B0E
Resistor, Network, 220R, 2%, 1/5W	MCRNLB10G0221B0E
Resistor, Network, 1K, 2%, 1/5W	MCRNLB10G0102B0E
Resistor, Network, 4K7, 2%, 1/5W	MCRNLB10G0472B0E

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Part Number Explanation:



- Resistor Size** : RNL = Resistors Network Low Profile
- Circuit Type** : A = Single Common, B = Isolated
- Wattage** : 05 = 5 pins
06 = 6 pins
08 = 8 pins
09 = 9 pins
10 = 10 pins
- Tolerance** : G = $\pm 2\%$
- Resistance Value** : E-24 series:
1st digit is "0"
2nd and 3rd digits are significant figures of the resistance
4th indicates the number of zeros
"J" to 0.1, "K" to 0.01, "L" to 0.001
Ex. 012J to 1 Ω 2, 226K to 2 Ω 26
- Packing Type** : B = Bulk / Box
- Packing Quantity** : 0 = NIL
- Special Feature** : E = Lead (Pb) Free Plating Type

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