

Data Sheet

Customer:

Product: Four Terminal Molding E-Beam Welded Metal Strip Resistor —
WMK Series

Size.: 2512

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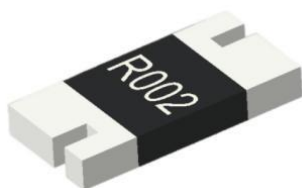
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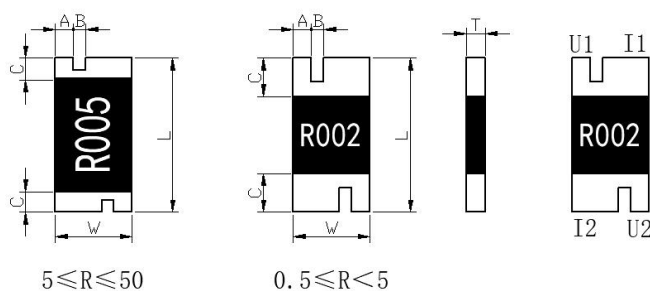
Four Terminal Molding E-Beam Welded Metal Strip Resistor



■ Features

- E-beam welded metal strip resistors, 4-terminal structure, pure copper Electrodes are the ideal solution for current sensing applications
- Excellent reliability, stability, Anti-pulse capability
- Special welding process, all-metal construction, High temperature resistant resin molded encapsulation, strong weather resistance
- Low thermal EMF(<1 $\mu\text{V}/^\circ\text{C}$)
- Ultra-low parasitic inductance(<2nH) , fast response, can be used for high frequency AC current detection.
- AEC-Q200 Reliability Testing passed
- RoHS compliant

■ Dimensions



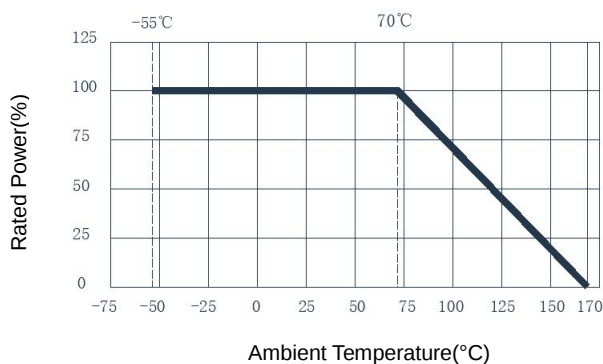
Unit: mm

Type	Size	Resistance (mΩ)	Material	L	W	T	A	B	C
WMK12	2512	0.5	Manganin	6.40 ± 0.20	3.20 ± 0.20	0.80 ± 0.15	0.76 ± 0.25	0.51 ± 0.25	2.30 ± 0.20
		1 - 4	Manganin FeCrAl						1.50 ± 0.20
		5 -50	FeCrAl Kamar						0.85 ± 0.20

■ Part Numbering

WMK	12	F	T	E	R	R001	M
Product Type	Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Material Code
	12: 2512	D: $\pm 0.5\%$ F: $\pm 1\%$ J: $\pm 5\%$	T: Taping Reel	C: ± 25 E: ± 100 K: ± 150	R: 3W	0M50: 0.0005Ω R001: 0.001Ω R010: 0.01Ω	M: Manganin K: Kamar F: FeCrAl

■ Derating Curve



Standard Electrical Specifications

Type	Power Rating	Material	Resistance Range(mΩ)			TCR (PPM/°C)
			±0.5%	±1%	±5%	
WMK12 (2512)	3W	Manganin	0.5			±150
		Manganin FeCrAl	1 ~ 4			±100
		FeCrAl Kamar	5 ~ 50			±25

■ Operating Temperature: -55 ~ + 170°C

Environmental Characteristics

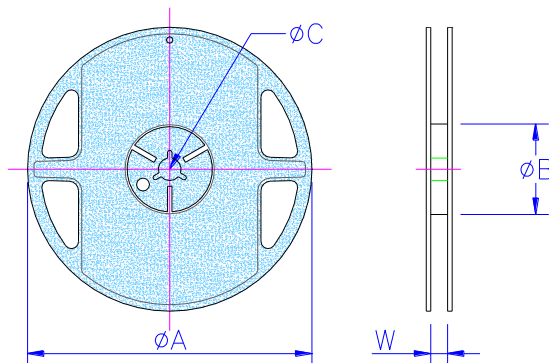
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	Within the specified value	IEC60115-1 4.8 Measured value 20°C ~ +130°C, reference value +25°C
Solderability	No visible damage, weldable area 95% minimum	IEC60115-1 4.17 245°C for 3 seconds
Short time overload	No visible damage, ΔR±1.0% maximum	IEC60115-1 4.13 5 times rated voltage, 5 sec
Resistance to solder heat	No visible damage, ΔR±1.0% maximum	IEC60115-1 4.18 260°C for 10 sec
Bending Strength	Within the specified value	IEC60115-1 4.33 Bending amplitude 2 mm for 60 seconds
Flammability	No ignition of the tissue paper or scorching or the pinewood board	UL-94 V-0 or V-1 are acceptable. Electrical test not required
Insulation Resistance	>1000MΩ	IEC60115-1 4.6 Apply 100VDC for 1 minute
Dielectric Withstand Voltage	No breakdown or arcing	IEC60115-1 4.7 Apply 100VAC for 1 minute
Resistance to solvents	Marking Unsmearred	IEC60115-1 4.29 IPA, 23±5°C, 5±0.5min
High temperature and humidity	No visible damage, ΔR±1.0% maximum	AEC-Q200 Test 7/MIL-STD-202 method 103 temperature 85 °C, humidity 85% of the conditions applied 10% of the rated power (current) or component limit current (whichever is less), for 1000 hours
High temperature storage	No visible damage, ΔR±1.0% maximum	IEC60115-1 4.25.3 1000 hrs @ 170°C, without load
Low temperature load	No visible damage, ΔR±1.0% maximum	IEC60115-1 4.36 -55°C, No load for one hour, rated voltage load for 45 min, no load for 15 min
Temperature cycling	No visible damage, ΔR±1.0% maximum	IEC60115-1 4.19 -55°C @ 30 min ~ +155°C @ 30 min, 1000 cycles
Load life	No visible damage, ΔR±1.0% maximum	IEC60115-1 4.25.1 1000 h @ 70±2°C, rated current or component limit current (whichever is less), 90 min on, 30 min off

■ Storage Temperature: 5°C~35°C ; Humidity: 40%~75% RH

■ Shelf life: 1 years Max

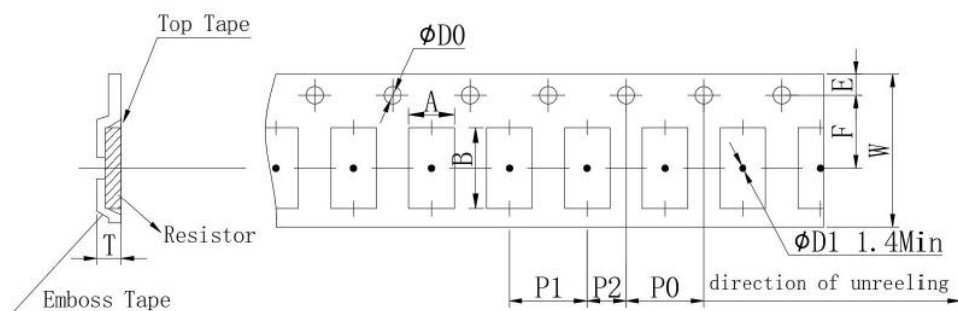
Packaging

Reel Specifications & Packaging Quantity



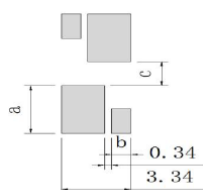
Type	Packaging Quantity	Tape Width	Reel Diameter	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)
WMK12	Embossed 4K	12mm	7 inch	178.0±2.0	60.0±1.0	13.5±0.5	12.3±0.5

Embossed Plastic Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	ΦD0 (mm)	T (mm)
WMK12	3.5	6.8	12	1.75	5.5	4	4	2	1.5	1.2

Recommend Land Pattern



Type	Resistance (mΩ)	a (mm)	b (mm)	c (mm)
WMK12	0.5 – 4	3.3	0.93	1.66
	5 - 50	2.29	0.93	3.68

REVISION HISTORY

<u>REVISION</u>	<u>DATE</u>	<u>CHANGE NOTIFICATION</u>	<u>DESCRIPTION</u>
Version A3	Apr 01,2025		-Add Storage conditions and Shelf life.