Data Sheet

Customer:	
Product:	**Four Terminal Molding E-Beam Welded Metal Strip Resistor — WMK Series**
Size.:	**2512**
Issued Date:	**01-Apr-25**
Edition:	**REV.A3**

RoHS Compliant

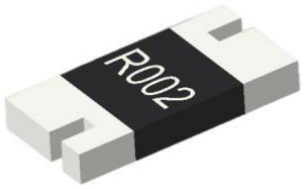
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01-Apr-25	01-Apr-25	01-Apr-25	01-Apr-25	
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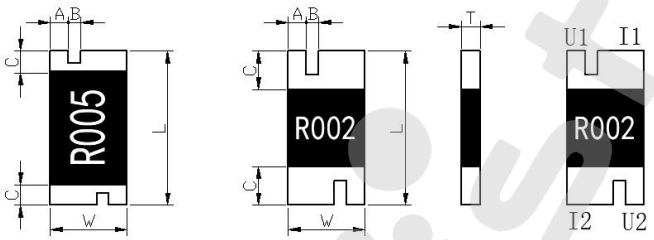
Four Terminal Molding E-Beam Welded Metal Strip Resistor



■Features

- E-beam welded metal strip resistors, 4-terminal structure, pure copper Electrodes are the ideal solution for current sensing applications
- Excellent reliability, stability, Auti-pulse capability
- Special welding process, all-metal construction, High temperature resistant resin molded encapsulation, strong weather resistance
- Low thermal EMF(<1 μV/°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



5≤R≤50　　0.5≤R<5

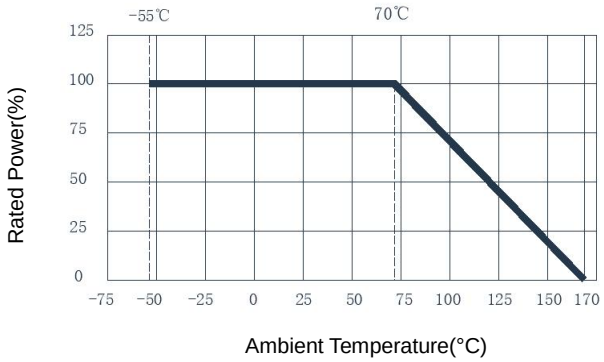
Unit: mm

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: ±0.5% F: ±1% J: ±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℃**

■Environmental Characteristics

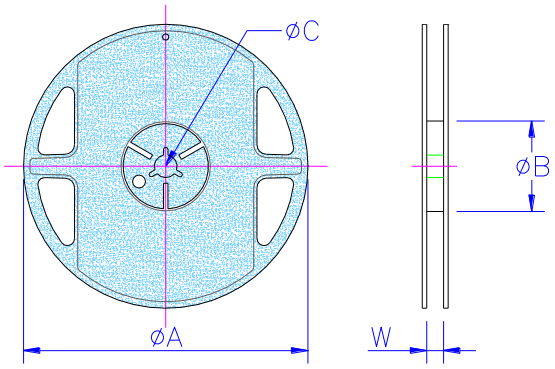
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	Within the specified value	**IEC60115-1 4.8** Measured value 20℃~ +130℃, reference value +25℃
Solderability	No visible damage, weldable area 95% minimum	**IEC60115-1 4.17** 245°C for 3 seconds
Short time overload	No visible damage, 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℃ 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 Unsmeared	**IEC60115-1 4.29** IPA, 23±5℃ , 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 ℃, 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℃, without load
Low temperature load	No visible damage, ΔR±1.0% maximum	**IEC60115-1 4.36** -55℃, 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℃ @ 30 min ~ +155℃ @ 30 min, 1000 cycles
Load life	No visible damage, ΔR±1.0% maximum	**IEC60115-1 4.25.1** 1000 h @ 70±2℃, rated current or component limit current (whichever is less), 90 min on, 30 min off

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

■**Shelf life: 1 years Max**

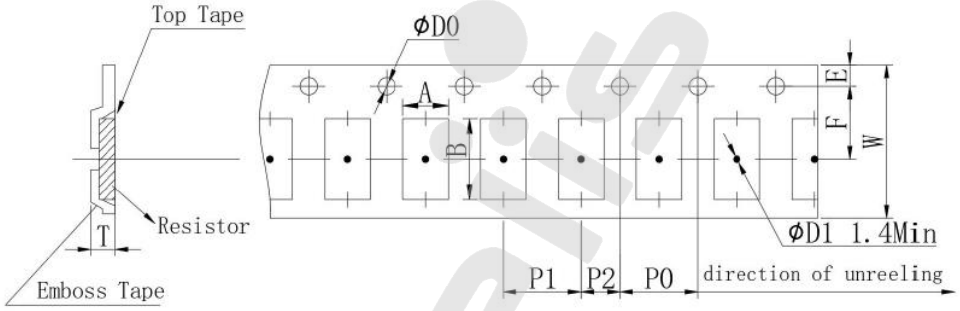
■Packaging

Reel Specifications & Packaging Quantity



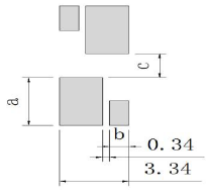
Type	Packaging Quantity		Tape Width	Reel Diameter	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)
WMK12	Embossed	4K	12mm	7 inch	178.0±2.0	60.0±1.0	13.5±0.5	12.3±0.5

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

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