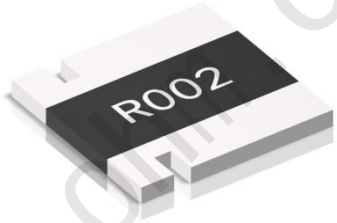
https://holly-ohm.com

Kelvin detect precision alloy resistor

4-Terminal Epoxy SMD Chip Precision Alloy Resistor

current sensing , ultra-low resistance value,excellent stability，AEC-Q200 compliant



Features:

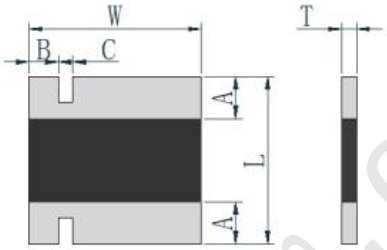
- 4-terminal Kelvin sampling ， pure copper electrode，Ideal solution for current detection applications
- high reliability and stability ,superb pulse load capability
- vacuum electron-beam welding craft，full metal structure，Coating with heat-resistant epoxy resin，excellent weather resistance
- Ultra-low thermal EMF
- Ultra-low parasitic inductance，fast response，suitable for high frequency AC current detection
- RoHS compliant
- customization

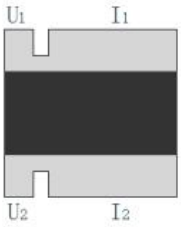
parameter:	
resistance value	0.2～30mΩ
tolerance	±0.5%(D)，±1%(F)，±5%(J)
TCR	Min.25ppm/℃
temperature range	-55℃～+170℃
inductance	0.5nH~5nH
thermal EMF (0-100°C)	<1 μV/℃
power ($P_{70℃}$)	Max.5W

Type Designation: WSKM3637MR002FT0 WSKM3637 manganese copper 2mohm 1% package with tape and reel

W S K M	3 6 3 7	M	R 0 0 2	F	T 0
WSKM E-beam alloy resistor with 4-terminal	size 3637	material M:manganese copper K:Karma F:Fe-Cr-Al	resistance value L200 = 0.2mΩ R002 = 2mΩ R030=30mΩ	tolerance D=±0.5% F=±1% J=±5%	code T0: package with tape and reel B0: without tape and reel Tx: special code(x: 0~9)

Dimensions(mm):





Remark:

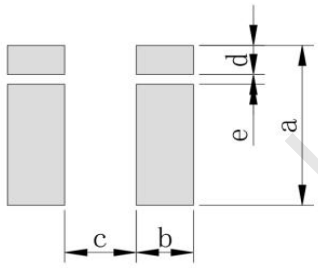
U1 and U2: Voltage-sensing connection

I1 and I2:current connection

series	resistance value	material	TCR	tolerance	L (mm)	W (mm)	T (mm)	B(mm)	C(mm)	A (mm)
WSKM3637	0.2mΩ	M	±75ppm	±1%(F) ±5%(J)	9.1±0.25	9.4±0.25	0.8±0.25	1.6±0.25	0.82±0.25	3.5±0.25
	0.3mΩ	M	±75ppm							3.2±0.25
	1mΩ	M	±75ppm							2.4±0.25
	2mΩ ~ 30mΩ	K	±25ppm							2.4±0.25
	1mΩ ~ 30mΩ	F	±50ppm							2.4±0.25

notice: word code marking as silk-screen.In the word code" L "indicate mΩ and "m" also show the position of decimal point, eg: 0m20=0.2mΩ. " R" indicate Ω and also show the position of decimal point.eg:R001=1mΩ

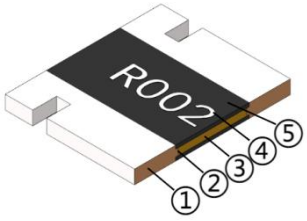
Recommended pad and size(mm):



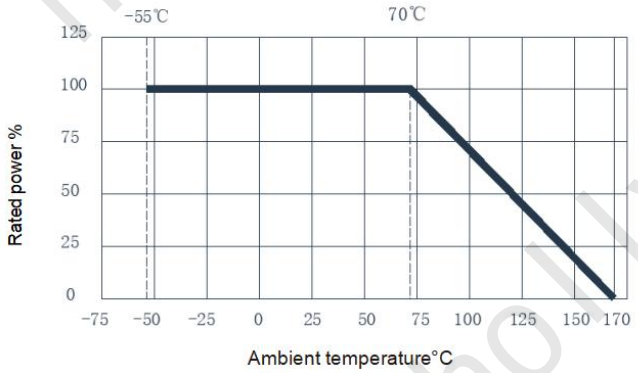
series	resistance value	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)
WSKM3637	0.2mΩ-0.3mΩ	9.9	4.2	1.8	1.8	0.6
	1mΩ ~ 30mΩ	9.9	3.2	4	1.8	0.6

construction:

Derating Curve:



1. Ni and Sn plating on the surface of red copper
2. Electron-beam welding
3. Manganese copper/Karma/ Fe-Cr-Al
4. Silk-screen
5. epoxy resin

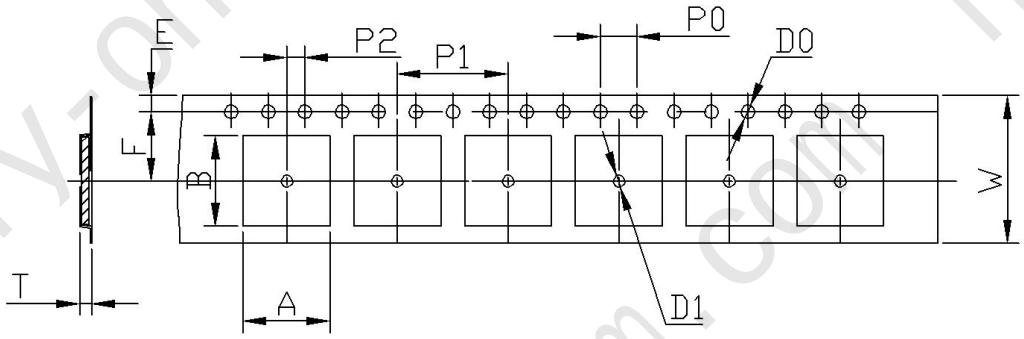


performance indicators:

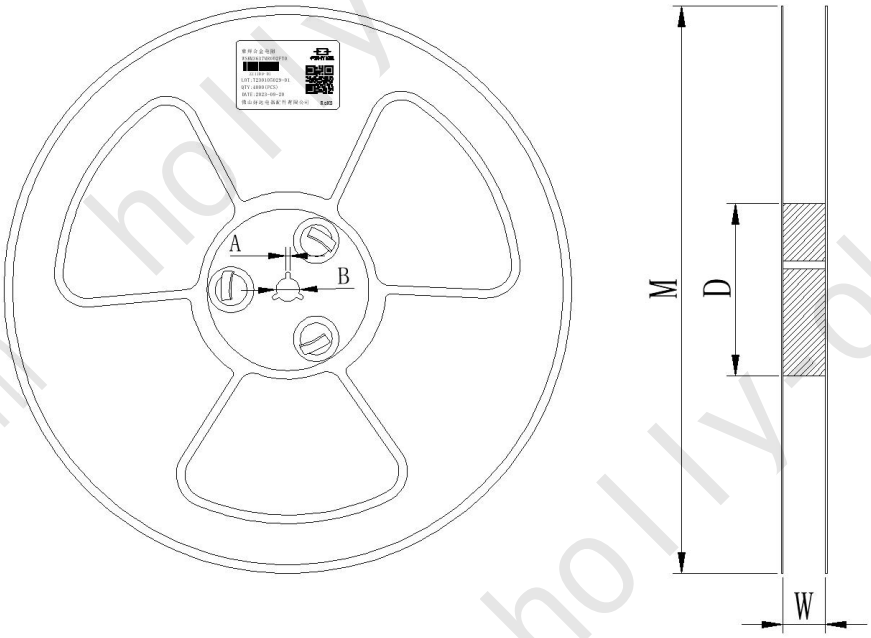
Test Item	standard	Test method
TCR	Within specified TCR	IEC60115-1 4.8，measured point 20°C～+130°C，reference point +20°C
Solderability	No visible damage 95%covered Minimum	IEC60115-1 4.17，245°C tin bath，3s
Short-time overload	No visible damage ▵R±1% Maximum	IEC60115-1 4.13，five times rated power，5s
Resistance to soldering heat	No visible damage ▵R±0.5% Maximum	IEC60115-1 4.18，260°C tin bath，maintaining10s
Base plate bending test	Within specified value	IEC60115-1 4.33，2mm，maintaining 60+5s
Flammability	Incomplete combustion, with the shim unignited and the pine wood board not charred	UL-94 V-0 or V- 1is acceptable，no need to do electrical test
Insulation resistance	1000MΩ, Minimum	IEC60115-1 4.6，Applying a direct current voltage of 100 V between the electrode and the substrate.，maintaining 60s，then test insulation resistance value
Withstand voltage	without breaking down or arc flash	IEC60115-1 4.7，Applying an AC VOLTS which the effective value is the maximum load voltage to the electrode and substrate at a rate of approximately 100 V/s, maintaining it for 60 ± 5 s.
Solvent resistance	signage intact	IEC60115-1之4.29，IPA，temperature of a solvent：23±5°C, maintaining 5±0.5min
High temp. & high humidity	No visible damage▵R±1% Maximum	Applying 10% of the rated power (current) or the maximum current of the component (whichever is lower) for a duration of 1000 hours in a temperature of 85°C and a humidity of 85% according to MIL-STD-202 method 103
High temperature storage	No visible damage ▵R±0.5%Maximum	IEC60115-1 4.25.3，1000hours@170°C，without loading current and voltage
Low temperature load	No visible damage ▵R±0.5%Maximum	IEC60115-1 4.36，cooled from room temperature to -55°C ,no load for 1.5 hours,applying rated power,continuously flowing for 45 minutes,cool for 15 minutes，then recover to room temperature for testing again.

temperature cycle	No visible damage △R±1% Maximum	IEC60115-1 4.19，-55°C@30mins～+155°C@30mins；1000 cycles
load life	No visible damage △R±1.0% Maximum	IEC 60115-1 4.25.1，1000hrs.， 70 ℃ ± 2 ℃， rated current, or the maximum current rating of the component (whichever is lower) is applied for 1.5 hours/0.5 hour interruption

Packing specifications and size (mm):



Type	A	B	W	E	F	P0	P1	P2	ΦD0	T	Quantity
3637	9.4	9.8	16	1.75	7.5	4	12	2	1.5	1.3	4000



Reel Type	W	M	A	B	D
13"reel for16mm tape	16.3±0.5	Φ330±2.0	2.0±0.5	Φ13.5±0.5	Φ99.0±1.0

Disclaimer:

version update record

Version NO.	update record	person in charge	Issue date
A0	Updated specification version	Qingke Zeng	22Sep2022
A1	Updated performance metrics	Qingke Zeng	24Oct2023