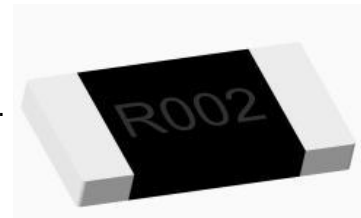


HoCG2512SeriesAutomotive Grade Metal Alloy Resistors Datasheet

■ Features

- ① The first manufacturer of alloy resistors using high thermal conductivity epoxy resin in China.
- ② Eco-friendly laser-etched markings for a premium look.
- ③ Alloy chip, encapsulated for superior solderability, reliability, and overload ability.
- ④ Consistent performance, high precision, high reliability, high stability.
- ⑤ Low resistance temperature coefficient, ultra-low parasitic inductance, can be used for high-frequency AC current detection.
- ⑥ Compliant with ROHS and halogen-free requirements, automotive AEC-Q200 testing.



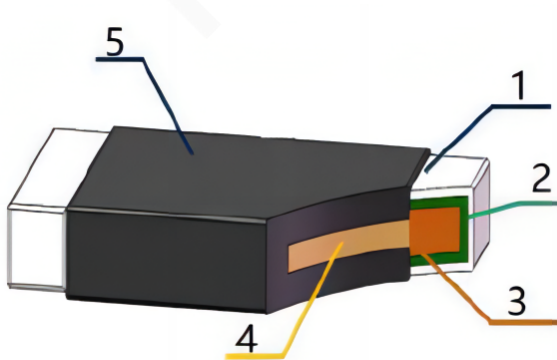
■ Application

- ① Power Module ② Aerospace and military industry ③ BMS Management System ④ Automatic Control System
- ⑤ Control unit for automotive modules ⑥ Variable frequency drive ⑦ Servo drive system ⑧ Industrial equipment

■ Product electrical parameters

Part No.	Power	Resistance Range	TCR	Operating temperature range	Tolerance	Max. Rated Current	Max. Overload Current	Inductance
2512	4W	0Ω	/	-55℃~+170℃	< 0.1mR	/	/	< 3nH
		R ≤ 0.5mΩ	±150pm		± 0.5%、 ± 1% ± 5%	115.47A	258.19A	
	3.5W	0.5mΩ < R≤1mΩ			83.66A	187.08A		
	2W、 3W	1mΩ < R ≤ 5mΩ	±50pm		±0.1%、 ±0.2%、 ±0.5% 、 ± 1%、 ±5 %	54.77A	122.47A	
		5mΩ < R ≤ 10mΩ	±25ppm		24.49A	54.77A		
		10mΩ < R ≤ 100mΩ			14.14A	31.62A		

■ Product Structure

	No.	Layer Name
	1	Tin
	2	Nickel
	3	Copper
	4	Alloy body
	5	Plastic



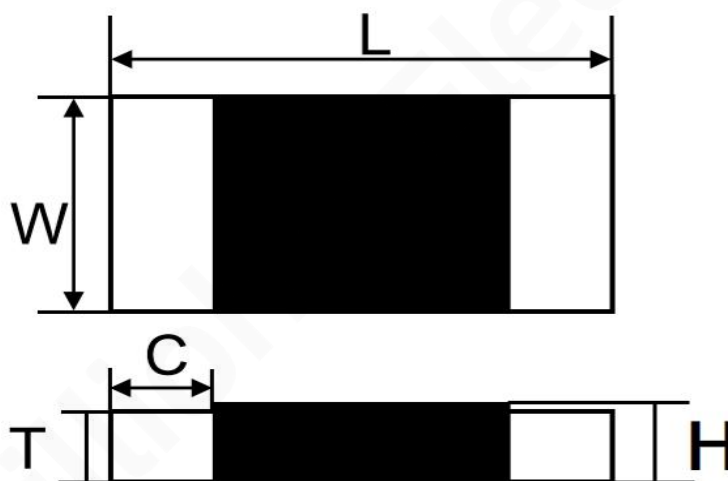
■ Product Selection

Selection Example: **HoCG25 1 2 3 R01 0 F 4** Enclosure Alloy Resistors **2512 3 W 1 0 mΩ 1%**

H	o	C	G	2	5	1	2	3	R	0	1	0	F	4
↓		↓		↓		↓		↓		↓		↓		↓
Manufacturer	Product Catagory	Package	power	Resistance	Tolearance	Packing Q'ty	pads							
Shenzhen Milliohm Electronic Ltd	Enclosure Alloy	2512	1=1W 2=2W 3=3W B=3.5W 4=4W	R001=1mR R003=3mR R100=100mR 0m50=0.5mR	A=0.1% C=0.2% D=0.5% F=1% J=5%	4=4000pcs	S = large electrode (conventional small electrodes do not show letters by default)							

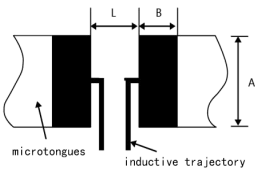
For the detail parameters , please check the following page

■ Dimension(Unit : mm)



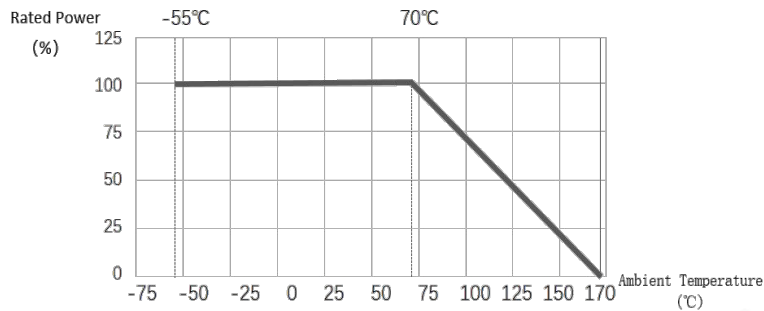
Package	Resistance	L	W	C	T	H
2512	0.5mΩ~4mΩ	6.4±0.2	3.2±0.2	2±0.2	0.8±0.2	1.1±0.2
	0Ω~100mΩ			0.8±0.2		

■ Recommended Pad Size

	pads	A	L	B
	(S) Large electrodes	4.0	1.3	3.1
	small electrode	4.0	4.0	2.1

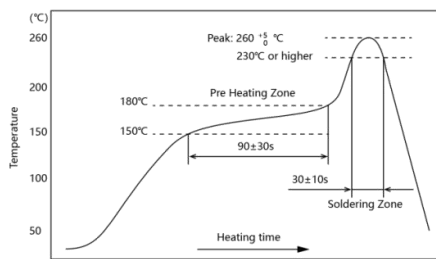
■ Power Curve

Power reduction diagram: Operating temperature range -55 ~ +170 Resistance temperature reaches 70°C

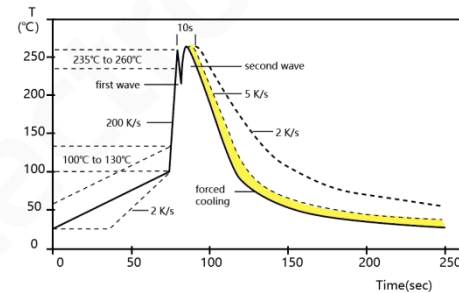


■ Recommended welding parameters

Reflow soldering curve



Wave soldering curve



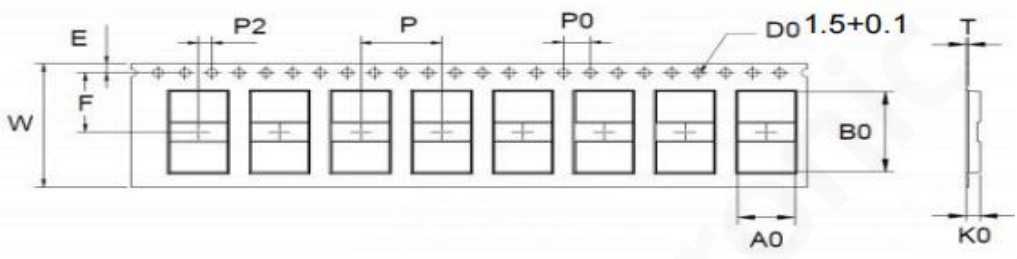
■ Reliability Test

Item	Standard	Testing Conditions	Testing Limit
Temperature coefficient	IEC60115-1-4.8 JIS-C5201-4.8	Test temperature +25 ~ 125°C Reference temperature +25°C	Within specified value
Load Life	IEC60115-1-4.25.1 JIS-C5201-4.25.1	At rated power: 1000 hours, 70°C, " on" 1.5 hours, " off" 0.5 hours	No visible damage $\Delta R \pm 1\%$
Short-term overload	IEC60115-1-4.13 JIS-C5201-4.13	5 times rated power, 5 seconds	No visible damage $\Delta R \pm 1\%$
High temperature and High humidity	IEC60115-1-4.24.2.1a) JIS-C5201-4.24.2.1a)	85 , 85% relative humidity, 1000 hours, load 10% rated power	No visible damage $\Delta R \pm 1\%$
Temperature Cycle	IEC60115-1-4.19 JIS-C5201-4.19	-55@30min ~ +155@30min, 1000 cycles	No visible damage $\Delta R \pm 0.5\%$
Withstand welding heat	IEC60115-1-4.18 JIS-C5201-4.18	260±5, 10±1sec	No visible damage $\Delta R \pm 0.5\%$
Solderability	IEC60115-1-4.17 JIS-C5201-4.17	45±5, 2±0.5s	At least 95% of the electrode surface should be covered with new solder
High temperature storage	IEC60115-1-4.23.2 JIS-C5201-4.23.2	1000 hours @170, no load	No visible damage $\Delta R \pm 1\%$
Low temperature storage	IEC60115-1-4.23.4 JIS-C5201-4.23.4	1000 hours @-55, no load	No visible damage $\Delta R \pm 1\%$
Substrate bending	IEC60115-1-4.33 JIS-C5201-4.33	2mm, holding time 60±5 seconds	Within specified value
Withstand voltage	IEC60115-1 4.7 JIS C 5201-1 4.7	Apply an AC voltage with an effective value of the maximum load voltage between the electrode and the substrate at a rate of about 100V/S for 60±5 seconds	No breakdown or arcing
Solvent resistance	IEC60115-1 4.29 JIS C 5201-1 4.29	Isopropyl alcohol (IPA), solvent temperature: 23±5, duration 5±0.5min	Clear markings No visible damage

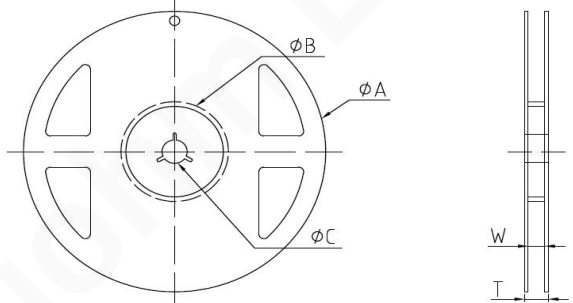
■ Rated current calculation formula

Rated current calculation formula			
$I = \sqrt{P/R}$	I	P	R
	Rated Current(A)	Rated Power (W)	Resistance (Ω)

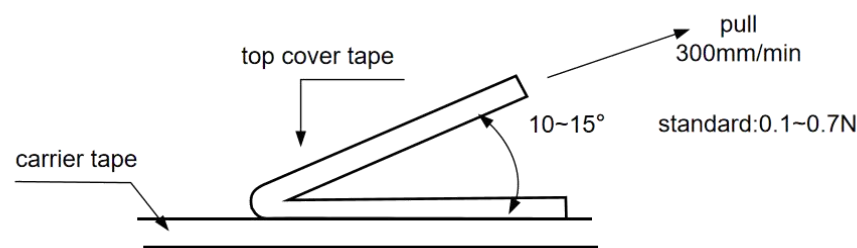
■ Carrier tape size

									
A	B	W	F	E	P	P2	P0	D0	T
3.2±0.2	6.9±0.2	12±0.2	5.5±0.05	1.75±0.1	4±0.1	2±0.1	4±0.1	Φ1.5+0.1	0.85±0.15

■ Reel Specifications

					
A	B	C	W	T	Quantity
180±3	60±1	13±1	13±1	15.4±2	4000PCS

■ Peel strength of upper tape

Peeling speed: 300 mm/min; peeling force between 0.1N and 0.7N	
	

■ Recommendations for product use

- ◆ During the use of the product, pay attention to surface protection: prevent defects such as bumps and scratches on the product surface.
- ◆ When installing and using the product, avoid mechanical stress on the product.
- ◆ The long-term use power of the product should be less than or equal to the rated power to avoid resistance drift caused by long-term use overload.
- ◆ When using the product under high temperature or poor heat dissipation conditions, refer to the power consumption reduction curve for derating applications.

■ Storage Instructions

- ◆ The product storage environment temperature is 5~35, humidity is <65%RH, and the humidity should be kept as low as possible.
- ◆ The product should be stored in a clean, dry environment without harmful gases.
- ◆ Avoid removing the product from the taping package before use.
- ◆ Under the above storage conditions, the product can be kept for 1 year.
- ◆ For products more than 1 year old, check the surface for oxidation and solder test is required.

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■ Specification Revision Record:

Version	Revised Date	Revised Content	Reason of Revised	Revised by	Approved by
A1	2023-11-30	Updated naming convention	Product Optimization	Yongkang Huang	Wenyi Leng
A2	2024-07-29	Optimisation of the specification content position adjustment, optimisation can be Reliability testing	Product Optimization	Yongkang Huang	Wenyi Leng
A3	2024-11-14	Updated specification content layout	standardised format	Yongkang Huang	Wenyi Leng
A4	2024-12-13	Electrical parameters increase the maximum overload current	Product Optimization	Yongkang Huang	Wenyi Leng
A5	2025-03-15	Resistancerange,sizeand applicationrangeupdated	Product Optimization	Yongkang Huang	Wenyi Leng
A5	2025-07-01	Product specifications add material indication	Content Updates	Yongkang Huang	Wenyi Leng