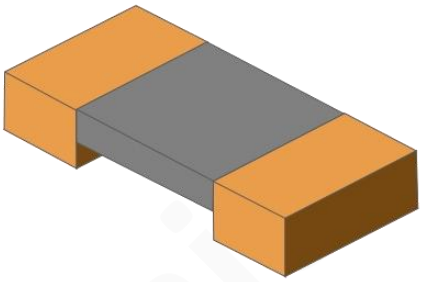
HoLRS1206 Exposed Alloy Resistor Series Selection Specification

■ Features



High-precision, low TCR, ultra-high power and whole alloy resistors are manufactured utilizing proprietary electron beam welding equipment, independently designed and expertly controlled by Milliohm Electronic.

Through the integration of professional design capabilities, high-precision manufacturing equipment, and stringent process control systems, the products achieve a target accuracy up to ±0.1%.

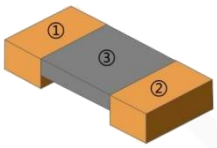
TCR: ≤ ±25-100 ppm/°cover a temperature range of -55°C to +170°C;Non-inductive design with Inductance < 3 nH and RoHS compliant.

■ Scope of application

① Power Supply Modules ②.Industrial Instrumentation Equipment ③ Servo Drive Systems

④ AutomationControlSystems ⑤ Variable Frequency Drives

■ Product Construction



serial number	Part Name
1	Copper electrode
2	Copper electrode
3	Alloy Resistive

■ Product Selection

Selection Example: HoLRS1206-1W-2mR-1%-K-25ppm	Exposed Alloy Resistors: LRS1206

Ho	LRS	1206	1W	2mR	1%	K	25ppm

Manufacturer	Series	Size	Rated Power	Resistance Value	Tolerance	Material	T.C.R.
Milliohm	Bare alloy	1206	1W、2W	0.5mR~3mR	±0.1% ±0.2% ±0.5% ±1% ±5%	M=MANGANIN (standard material will not display in P/N) K=Karma T=FeCrAl N=6J16 H=6J06	±25ppm ±50ppm ±75ppm ±100ppm

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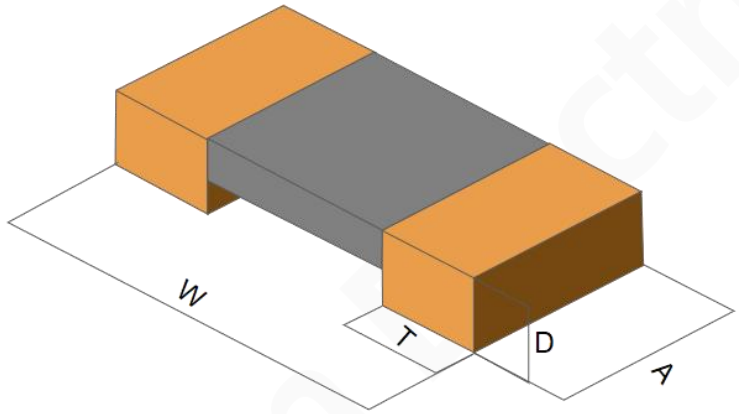
Address: RM.2001, Bldg.C, Phase 3, Jinxiu Technology Park, No. 85 HudiPai, Guanhu Street, Longhua District, Shenzhen , Guangdong, China 518110

■ Electrical parameters

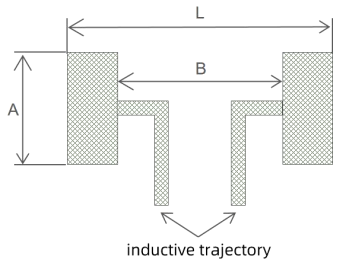
Size	Resistance Value	Rated Power	Max imum Rated Current	Resistance Tolerance	T.C.R.	Operating Temp. Range
1206	0.5mR~3mR	1W、2W	63.24A	±0.1% ±0.2% ±0.5% ±1.0% ±5.0%	±25ppm~±100ppm	-55℃~+170℃

■ Product Dimensions (mm)



Size	Resistance	W±0.3	A±0.5	D±0.1	T±0.5	Material
1206	0.50mR	3.2	1.6	0.7	0.8	H
	0.75mR	3.2	1.6	0.7	0.8	M
	1.00mR	3.2	1.6	0.6	0.8	M
	2.00mR	3.2	1.6	0.58	0.8	N
	3.00mR	3.2	1.6	0.58	0.8	K

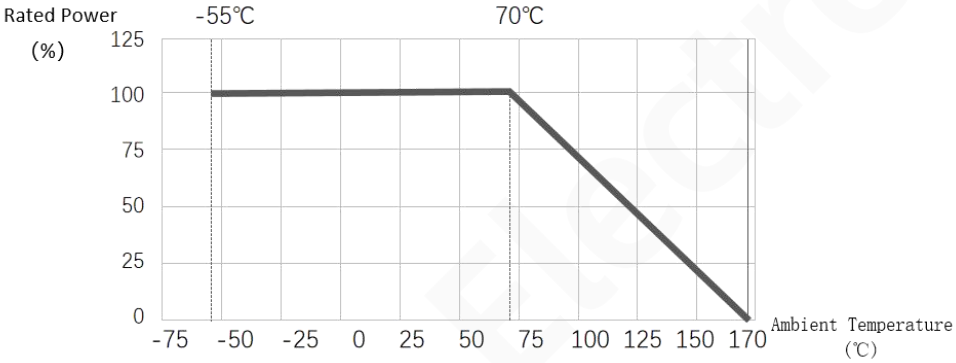
■ Recommended Land Pattern (mm)



Resistance	A	L	B
0.5mΩ~3mΩ	2.1	4.0	2.4

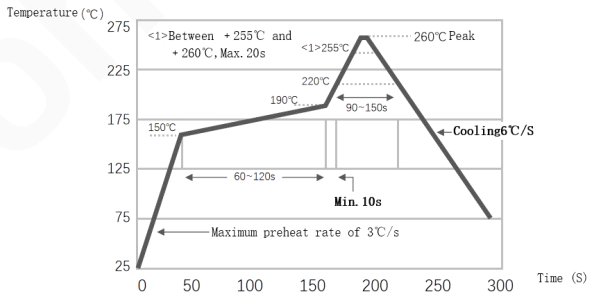
■ Derating Curve

When the resistor is operated at temperatures above 70℃, the rated power must be derated according to the Following curve



■ Soldering Recommendations

Reflow Temperature Profile



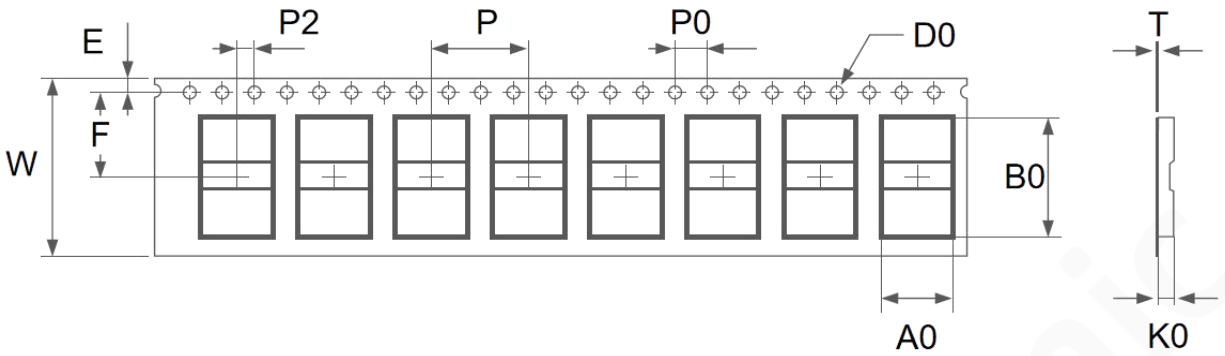
■ Rated current calculation formula

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

■ Performance Test

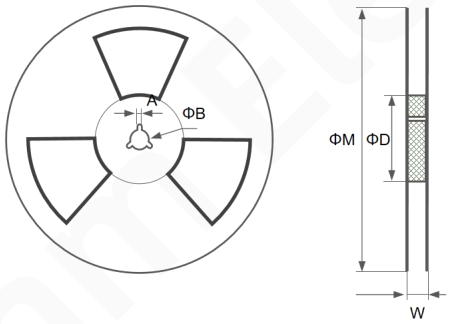
Item	Conditions of Tests	Standards	Test Limits
Short time overload	5 Times Rated Power for 5 Second Duration	JIS-C-5201	△R≤±0.5%
Temperature Coefficient of resistance	TCR (ppm/°C)=(R2-R1/R1*(T2-T1))X 10^6 R1:Resistance measured at room temperature(Ω) R2:Resistance value measured at 125°C(Ω) T1:Room temperature(°C) T2: 125°C	JIS-C-5201	Refer to the measured curve
Bending strength	2mm judgment specification, at least 60 seconds of support time	AEC Q200-005	△R≤±0.5 %
Solderability	Soldering temperature 245±5°C be immersed：3±0.5 seconds	AEC-Q200 TEST18 J-STD-002	Solder coverage over than 95%
Solvent resistance	After soaking in 20~25°C isopropyl alcohol solvent for 60+5 seconds, take it out and let it stand for more than 24 hours, and measure the resistance change rate	AEC-Q200 TEST 12 MIL-STD -202 Method 215	△R≤±0.5 %
Solder heat resistance test	Immerse the resistor in a 260±5°C tin furnace for 10±1 seconds, take it out and let it stand for more than 60 minutes, then measure the resistance change rate.	AEC-Q200 TEST 15 MIL-STD -202 Method 210	△R≤±0.5 %
Temperature Cycle	1000 cycles (-55~155°C) The dwell time at each temperature is 30min, and the switching time (15°C/min). Electrical test is performed within 24±4 hours after the test.	AEC-Q200 TEST 4 JESD22 Method JA- 104	△R≤±0.5%, No damage to appearance
High Temperature Exposure	155°C for 1000h, no power, test the resistance change rate within 24±4h	AEC-Q200 TEST 3 MIL-STD-202 Method 108	△R≤±0.5 %
Biased Humidity Test	1000 hours, 85°C, 85% relative humidity, load 10% rated power	AEC-Q200 TEST 7 MIL-STD-202 Method 103	△R≤±0.5 %
Load Life	Rated current, Ta=125°C, load 100% power, 0.5 hours off, 1.5 hours on, test time: 1000H	AEC-Q200 TEST 8 MIL-STD-202 Method 108	△R≤±0.5 %
Low Temperature Storage	-55°C, storage: 1000H	EC60115-1- 4.23.4 JIS-C5201-4.23.4	△R≤±0.5 %
Mechanical shock	Impact in three directions: X, Y, and Z, half-sine pulse, duration 0.5ms, peak acceleration 100g's	AEC-Q200 TEST 13 MIL-STD -202 Method 213	△R≤±0.5 %
Vibration	Traverse the entire frequency range from 10 to 2000 Hz within 20 minutes and return to 10 Hz; this cycle should be performed 12 times in each of the three mutually perpendicular directions (36 times in total)	AEC-Q200 TEST 14 MIL-STD -202 Method 204	△R≤±0.5 %

■ Tape Specifications (mm)



Size	A0±0.1	B0±0.1	W±0.3	F±0.1	E±0.1	T±0.05	K0±0.1	P±0.1	P0±0.1	P2±0.1
1206	1.95	3.6	8	3.5	1.75	0.2	0.85	4	4	2
	1.95	3.8	12	5.5	1.75	0.3	1.0	4	4	2

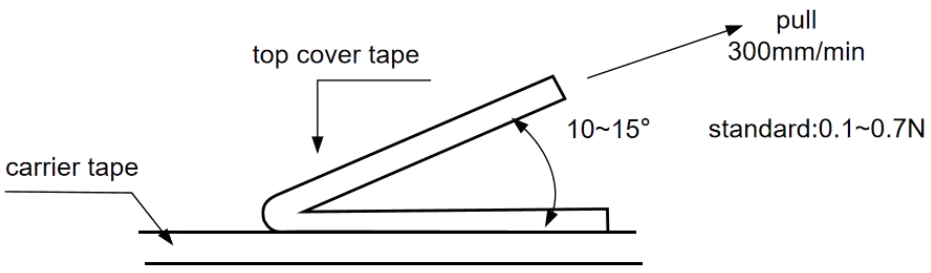
■ Reel Specifications （ mm ）



Size	ΦD	ΦM	Φ B	W	A	Quantity
1206	60±2	178±2.0	13.5±0.5	24±0.5	2.4±0.5	4000PCS

■ Peeling Strength of Top Cover Tape:

Peel test: peel speed 300 mm/min; peel force 0.1N-0.7N



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■ Product Usage Suggestions

- ◆ During the use of the product, pay attention to surface protection to prevent bumps, scratches, and other defects on the product surface.
- ◆ When taking or placing the product, do not use sharp tools to avoid scratching the product surface and causing resistance value deviation and failure.
- ◆ When installing and using the product, avoid the product being affected by mechanical stress.
- ◆ The long-term power of the product should be less than or equal to the rated power to avoid resistance drift caused by long-term overload.
- ◆ When using the product under high temperature or poor heat dissipation conditions, refer to the power consumption reduction curve for derating.
- ◆ If the product is not taken out of the tape packaging, it should be stored in a vacuum to avoid the risk of poor welding caused by product oxidation.

■ 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 over 1 year old, check whether the surface is oxidized and perform soldering test.

■ Revision of curriculum vitae:

version number	revision date	Content of the modification	Reason for change	change agent	auditor
Ho-B0	2022-06-14	Add pad size recommendation and package size chart,	Internal additions	Huang ZhongLiang	Huang ZhongLiang
	2022-06-14	Increase 0.5mR, 0.75mR resistance values	Internal additions	Huang ZhongLiang	Huang ZhongLiang
Ho-B1	2024-07-29	Detailed update of resistance values, temperature drift range.and update the layout of the specification	standardised format	Huang YongKang	LengYiWen
Ho-B2	2024-11-14	Updated content layout	standardise format	Huang YongKang	LengYiWen

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