

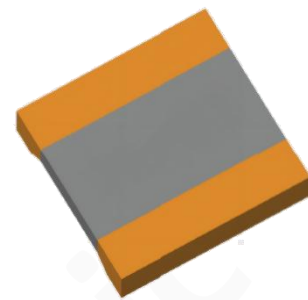
HoLRS6568 Exposed Alloy Resistor Series Selection Specification

■ 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 $\pm 0.5\%$.

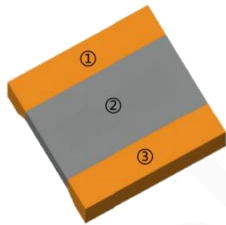
TCR: $\leq \pm 25-100$ ppm/ $^{\circ}\text{C}$ cover a temperature range of -55°C to $+170^{\circ}\text{C}$; Non-inductive design with Inductance < 3 nH and RoHS compliant.



■ Scope of application

- ① Power Supply Modules ② Industrial Instrumentation Equipment ③ Servo Drive Systems
- ④ Variable Frequency Drives ⑤ Automation Control Systems

■ Product Construction

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

■ Product Selection

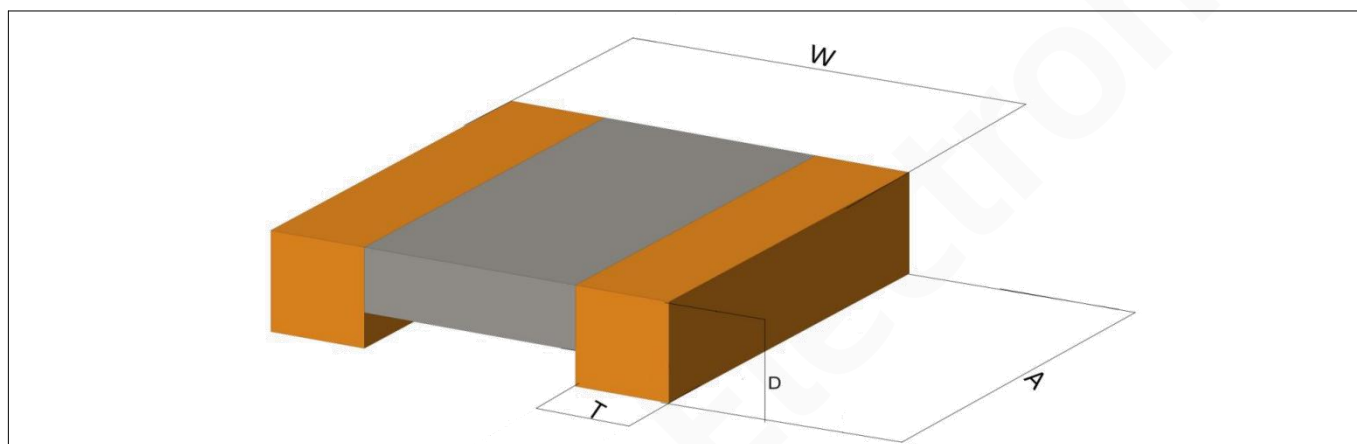
Selection Example: HoLRS6568-5W-0.2mR-1%-N-100ppm						Exposed Alloy Resistors: 6568	
Ho	LRS	6568	5W	0.2mR	1%	N	100ppm
↓	↓	↓	↓	↓	↓	↓	↓
Manufact urer	Series	Size	Rated Power	Resistance Value	Tolerance	Material	T.C.R.
Milliohm	Bare alloy	6568	5W	0.05mR~0.4mR	$\pm 0.5\%$ $\pm 1\%$ $\pm 5\%$	M=MANGANIN (standard material will not display in P/N) K=Karma T=FeCrAl N=6J16 H=6J06	$\pm 25\text{ppm}$ $\pm 50\text{ppm}$ $\pm 75\text{ppm}$ $\pm 100\text{ppm}$



■ Electrical parameters

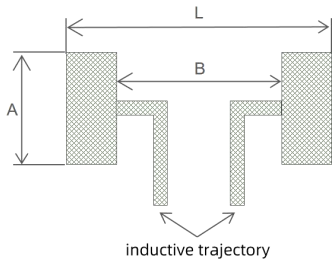
Size	Resistance Value	Rated Power	Max imum Rated Current	Resistance Tolerance	T.C.R.	Operating Temp. Range
6568	0.05mR ~ 0.4mR	5W	111.8A ~ 316.22A	±0.5% ±1.0% ±5.0%	±25ppm ~ ±100ppm	-55°C~+170°C

■ Product Dimensions (mm)



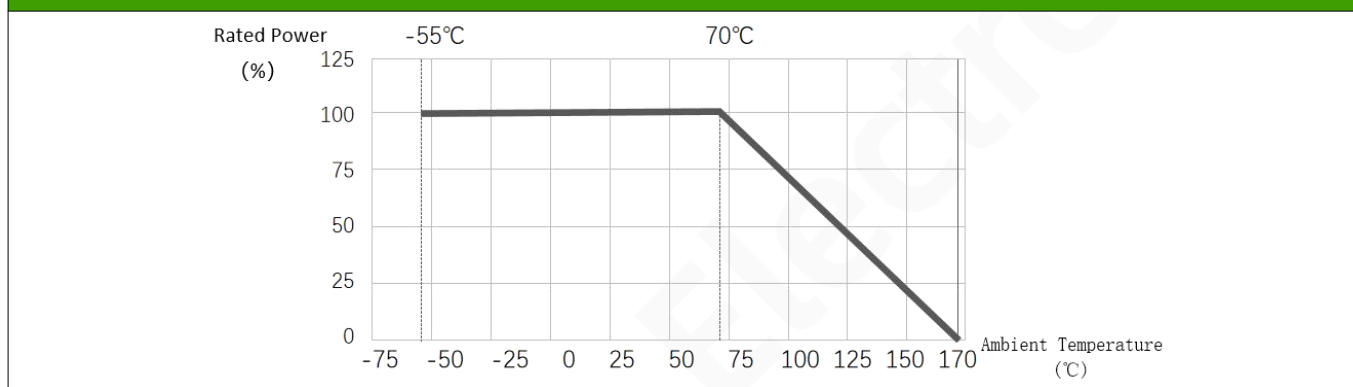
Size	Resistance	A±0.2	W±0.2	D±0.1	T±0.3	Material
6568	0.05mR	6.9	6.6	2.2	2.1	H
	0.1mR	6.9	6.6	1.7	2.1	M
	0.2mR	6.9	6.6	1.7	2.1	N
	0.3mR	6.9	6.6	1.7	2.1	N
	0.4mR	6.9	6.6	1.7	2.1	N

■ Recommended Land Pattern (mm)

	Resistance	A	L	B
	0.05mΩ~0.4mΩ	7.2	7.5	2.4

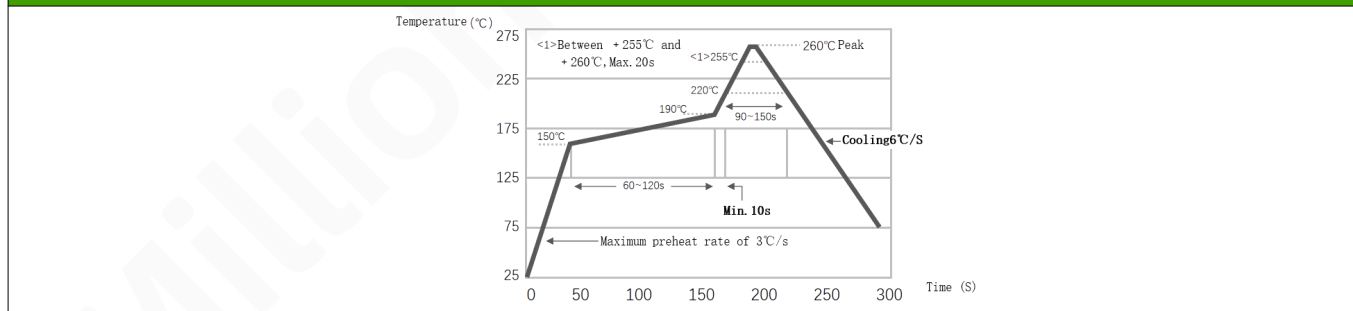
■ Derating Curve

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



■ Soldering Recommendations

Reflow Temperature Profile



■ Rated current calculation formula

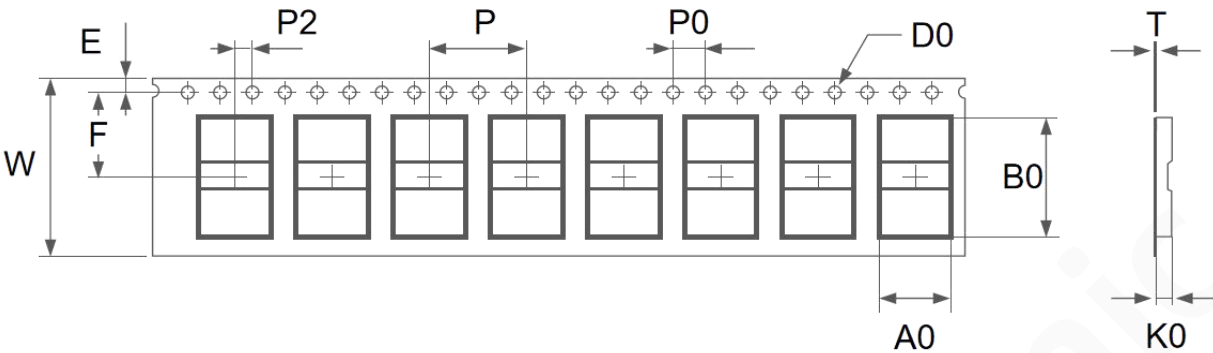
Rated current calculation formula

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

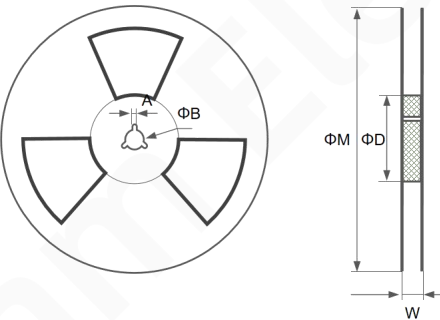
■ Performance Test

Item	Conditions of Tests	Standards	Test Limits
Short time overload	5 Times Rated Power for 5 Second Duration	JIS-C-5201	$\Delta R \leq \pm 0.5\%$
Temperature Coefficient of resistance	$TCR (ppm/^{\circ}C) = (R_2 - R_1 / R_1 * (T_2 - T_1)) \times 10^6$ R1:Resistance measured at room temperature(Ω) R2:Resistance value measured at 125 $^{\circ}C$ T1:Room temperature($^{\circ}C$) T2: 125 $^{\circ}C$	JIS-C-5201	Refer to the measured curve
Bending strength	2mm judgment specification, at least 60 seconds of support time	AEC Q200-005	$\Delta R \leq \pm 0.5\%$
Solderability	Soldering temperature 245 $\pm 5^{\circ}C$ be immersed: 3 ± 0.5 seconds	AEC-Q200 TEST18 J-STD-002	Solder coverage over than 95%
Solvent resistance	After soaking in 20~25 $^{\circ}C$ 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	$\Delta R \leq \pm 0.5\%$
Solder heat resistance test	Immerse the resistor in a 260 $\pm 5^{\circ}C$ 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	$\Delta R \leq \pm 0.5\%$
Temperature Cycle	1000 cycles (-55~155 $^{\circ}C$) The dwell time at each temperature is 30min, and the switching time (15 $^{\circ}C$ /min). Electrical test is performed within 24 ± 4 hours after the test.	AEC-Q200 TEST 4 JESD22 Method JA- 104	$\Delta R \leq \pm 0.5\%$, No damage to appearance
High Temperature Exposure	155 $^{\circ}C$ for 1000h, no power, test the resistance change rate within 24 ± 4 h	AEC-Q200 TEST 3 MIL-STD-202 Method 108	$\Delta R \leq \pm 0.5\%$
Biased Humidity Test	1000 hours, 85 $^{\circ}C$, 85% relative humidity, load 10% rated power	AEC-Q200 TEST 7 MIL-STD-202 Method 103	$\Delta R \leq \pm 0.5\%$
Load Life	Rated current, Ta=125 $^{\circ}C$, load 100% power, 0.5 hours off, 1.5 hours on, test time: 1000H	AEC-Q200 TEST 8 MIL-STD-202 Method 108	$\Delta R \leq \pm 0.5\%$
Low Temperature Storage	-55 $^{\circ}C$, storage: 1000H	EC60115-1- 4.23.4 JIS-C5201-4.23.4	$\Delta R \leq \pm 0.5\%$
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	$\Delta R \leq \pm 0.5\%$
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	$\Delta R \leq \pm 0.5\%$

■ Tape Specifications (mm)

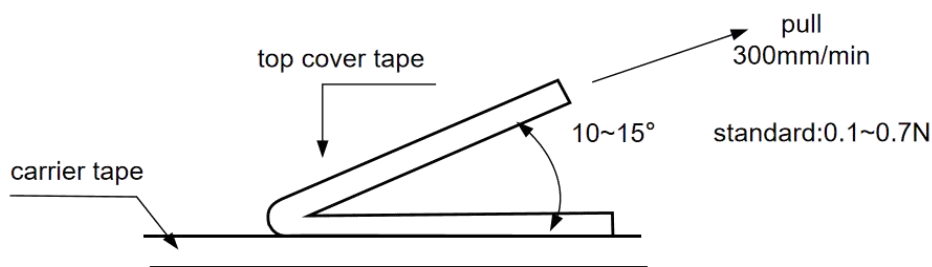
										
Size	A0±0.1	B0±0.1	W±0.3	F±0.1	E±0.1	T±0.05	K0±0.1	P±0.1	P0±0.1	P2±0.1
6568	7.4	7.0	16	7.5	1.75	0.3	1.9	12	4	2

■ Reel Specifications (mm)

						
Size	ΦD	ΦM	Φ B	W	A	Quantity
6568	100±2	350±1	13.2±1	16±0.5	2.3±0.5	2500PCS

■ Peeling Strength of Top Cover Tape:

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



■ 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°C, 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.

■ 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	standardised format	Huang YongKang	LengYiWen
Ho-B1	2024-07-29	Detailed update of resistance value, temperature drift range, and update of specification layout.	Optimised products standardised format	Huang YongKang	LengYiWen
Ho-B2	2024-11-14	CUUpdated content layout	standardised format	Huang YongKang	LengYiWen

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