

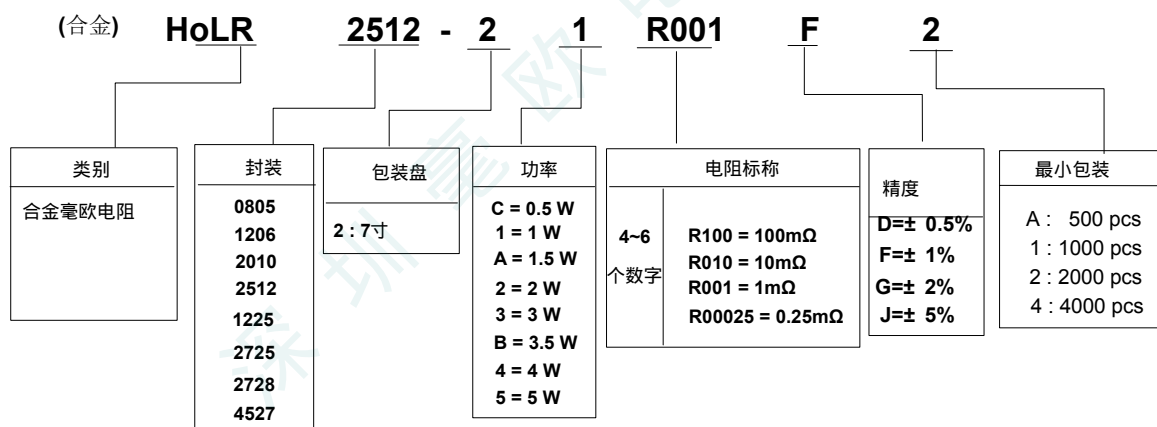
1 范围:

本规范适用于无铅环保低电阻产品

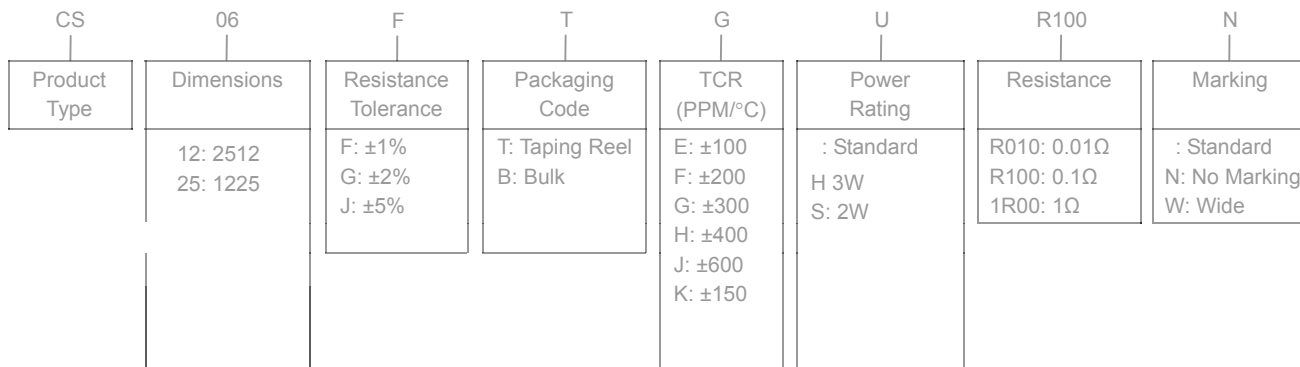
- HoLR0805
- HoLR1206
- HoLR2010
- HoCS1225
- HoCS2512
- HoCR2512
- HoLR2512
- HoLR2725
- HoLR2728
- HoLR4527
- HoLRS2512
- HoLRS1050
- HoLRS1575



2 合金电阻产品料号:



陶瓷电阻产品料号:



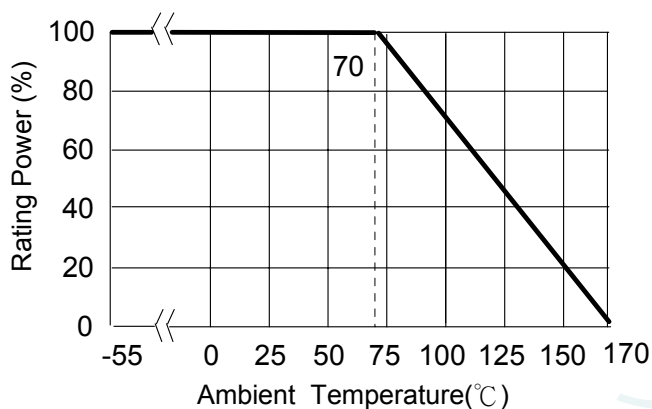
3 大功率合金电阻 :

Type	Number of Terminals	Rated Power at 70°C	Max. Rated Current	Max. Overload Current	T.C.R (ppm / °C)	Resistance Range		Operating Temperature Range
						D(± 0.5%)	F(± 1%)、G(± 2%) J(± 5%)	
LR0805	2	0.5 W	7.07A	14.07 A	10 ~ 30 mΩ ≤± 50		10 ~ 30 m	-55°C ~ +170°C
LR1206	2	0.5 W	22.36 A	44.72 A	1 ~ 4 mΩ ≤± 50 4.1 ~ 15 mΩ ≤± 25 15.1 ~ 50 mΩ ≤± 15	7 ~ 50 mΩ	1 ~ 50 mΩ	
		1 W	31.62 A	63.25 A	1 ~ 4 mΩ ≤± 50 4.1 ~ 15 mΩ ≤± 25 15.1 ~ 50 mΩ ≤± 15	7 ~ 50 mΩ	1 ~ 50 mΩ	
LR2010	2	1 W	44.72 A	178.88 A	0.5 ~ 3 mΩ ≤± 50 3.1 ~ 6.9 mΩ ≤± 25 7 ~ 100 mΩ ≤± 15	7 ~ 100 mΩ	1 ~ 100 mΩ	
LR2512	2	1 W	44.72 A	100.00 A	0.5 ~ 3 mΩ ≤± 50 3.1 ~ 6.9 mΩ ≤± 25 7 ~ 200 mΩ ≤± 15	7 ~ 100 mΩ	0.5 ~ 200 mΩ	
		1.5 W	54.77 A	122.48 A	0.5 ~ 3 mΩ ≤± 50 3.1 ~ 6.9 mΩ ≤± 25 7 ~ 200 mΩ ≤± 15	7 ~ 75 mΩ	0.5 ~ 200 mΩ	
		2 W	63.25 A	141.42 A	0.5 ~ 3 mΩ ≤± 50 3.1 ~ 6.9 mΩ ≤± 25 7 ~ 200 mΩ ≤± 15	7 ~ 10 mΩ	0.5 ~ 10 mΩ	
		3 W	77.46 A	134.16 A	0.5 ~ 2.5 mΩ ≤± 50 2.6 ~ 10 mΩ ≤± 25	7 ~ 10 mΩ	0.5 ~ 10 mΩ	
LR2725	2	4 W	126.49 A	252.95 A	≤± 50	--	0.25 ~ 3 mΩ	
LR2728	2	3 W	27.39 A	47.43 A	4 ~ 7 mΩ ≤± 25 7.1 ~ 100 mΩ ≤± 15	4 ~ 100 mΩ		
		3.5 W	29.58 A	51.23 A	4 ~ 7 mΩ ≤± 25 7.1 ~ 50 mΩ ≤± 15	4 ~ 50 mΩ		
		4 W	31.62 A	63.25 A	4 ~ 7 mΩ ≤± 25 7.1 ~ 50 mΩ ≤± 15	4 ~ 50 mΩ		
LR4527	2	3 W	77.5A	134A	≤± 50	7 ~ 120 mΩ	0.5 ~ 120 mΩ	
		5 W	100A	173A	≤± 50	7 ~ 120 mΩ	0.5 ~ 120 mΩ	

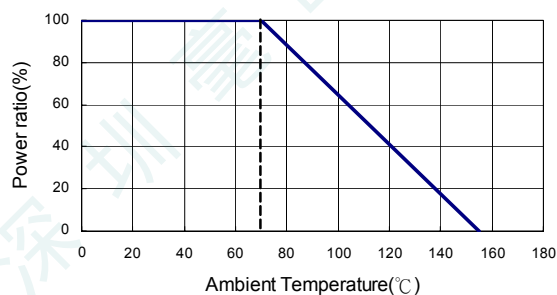
大功率陶瓷电阻:

Type	Number of Terminals	Rated Power at 70°C	Max. Rated Current	Max. Overload Current	T.C.R (ppm / °C)	Resistance Range		Operating Temperature Range
						D(± 0.5%)	F(± 1%)、G(± 2%) J(± 5%)	
CS1225		3 W			3-8000m ≤± 200		3m ~ 1000 m 1 ~ 8	-55°C ~ +155°C
CS2512		2 W			10 ~ 50mΩ ≤± 400 50 ~ 1000 mΩ ≤± 200 50 ~ 1000 mΩ ≤± 100		10 ~ 1000 mΩ	
CR2512		3W			1 ~ 9.76Ω ≤± 200 10 ~ 1MΩ ≤± 100 1M ~ 10MΩ ≤± 15		1 ~ 10MΩ	

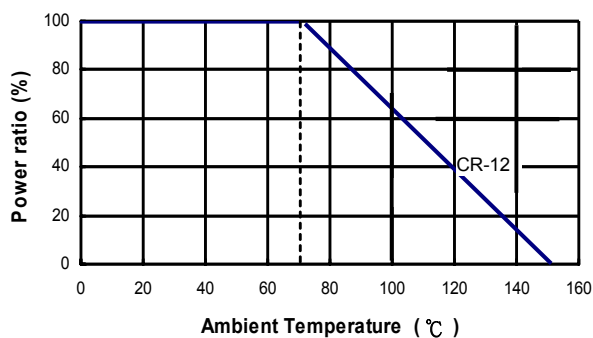
3.1 合金电阻功率降额曲线：操作温度范围 -55 ~+170 ℃
电阻温度达到70 时降功率示意图



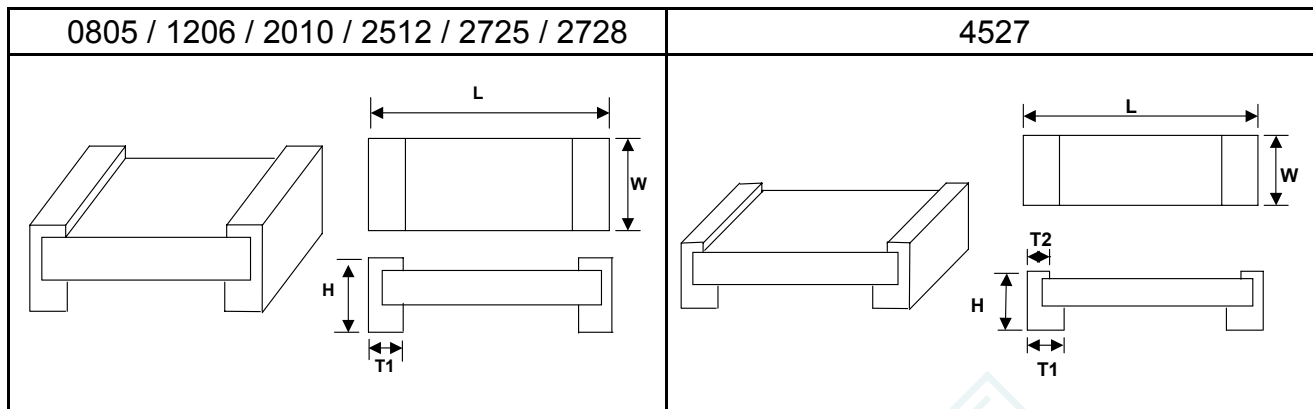
3.2 CS系列电阻功率降额曲线：操作温度范围 -55 ~+150 ℃
电阻温度达到70 时降功率示意图



3.3 CR系列电阻功率降额曲线：操作温度范围 -55 ~+150 ℃
电阻温度达到70 时降功率示意图

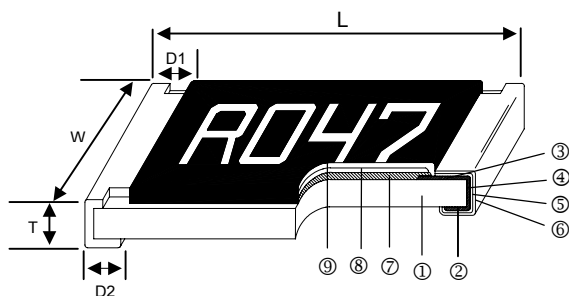


4 合金电阻尺寸:



TYPE	Power Rating (W)	Resistance Range (mΩ)	Dimensions (mm)					
			L	W	H	T1	T2	
LR0805	0.5	10~30	2.000± 0.150	1.250± 0.150	0.650± 0.150	0.250± 0.100		
LR1206	0.5 1	1~50	3.200± 0.254	1.600± 0.254	0.645± 0.254	0.508± 0.254		
LR2010	1	0.5	5.080± 0.254	2.540± 0.254	0.787± 0.254	1.740± 0.254		
		1.0~3			1.295± 0.254			
		3.1~100			0.787± 0.254			
LR2512	1 1.5	0.5~4	6.248± 0.254	3.302± 0.254	0.787± 0.254	1.880± 0.254		
		4.1~75			0.645± 0.254	1.118± 0.254		
		75.1~200			0.645± 0.254	0.868± 0.254		
	2	0.5~4			0.787± 0.254	1.880± 0.254		
		4.1~200			0.645± 0.254	1.118± 0.254		
		0.5				1.880± 0.254		
	3	0.6~2.9			0.787± 0.254	1.118± 0.254		
		3~4				1.676± 0.254		
		4.1~10			6.248± 0.254	3.302± 0.254	0.645± 0.254	1.118± 0.254
LR2725	4	0.25、0.5	6.807± 0.254	6.452± 0.254	0.991± 0.254	2.159± 0.254		
		1			1.092± 0.254			
		1.5			0.991± 0.254			
		2					1.803± 0.254	
		2.5			0.889± 0.254		1.651± 0.254	
		3					1.295± 0.254	
LR2728	3 3.5 4	4~200	6.706± 0.254	7.188± 0.254	0.991± 0.254	1.143± 0.254		
	LR4527	3 5	0.5	11.430± 0.254	6.850± 0.254	1.500± 0.254	3.215±0.254	3.215±0.254
0.6~5.0							0.965±0.254	
5.1~120			1.815±0.254					

陶瓷功率电阻尺寸:



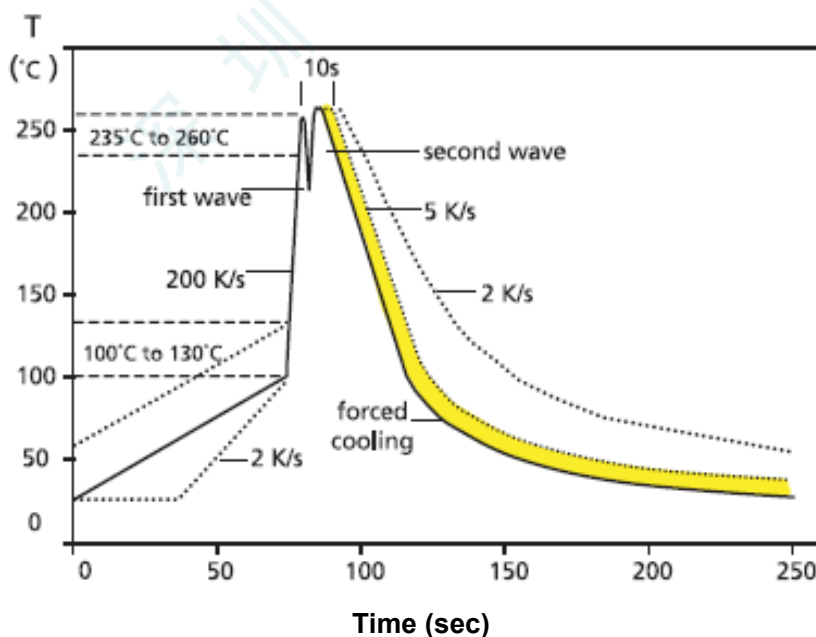
① Alumina Substrate	④ Edge Electrode (NiCr)	⑦ Resistor Layer (Ag/Pd)
② Bottom Electrode (Ag)	⑤ Barrier Layer (Ni)	⑧ Primary Overcoat (Glass)
③ Top Electrode (Ag-Pd)	⑥ External Electrode (Sn)	⑨ Secondary Overcoat (Epoxy)

■ Dimensions

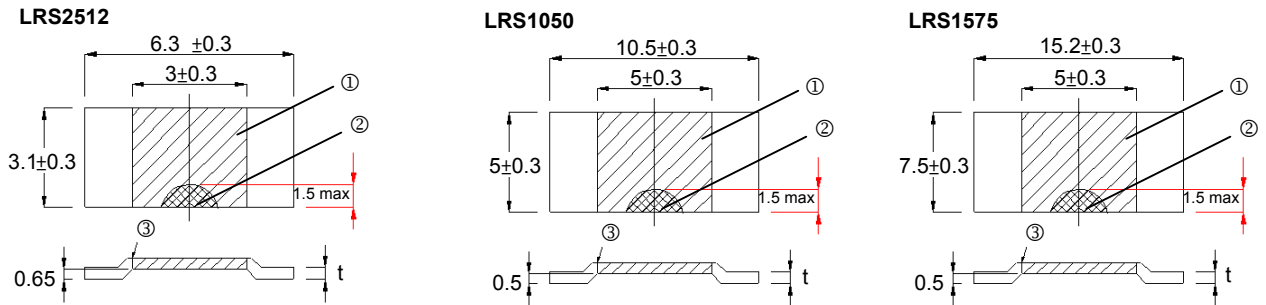
Unit: mm

Type	Size (Inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
CS12 (2W)	2512 10 - 99mΩ	6.35±0.20	3.15±0.15	0.74±0.10	0.60±0.30	0.55±0.25	53.08
CS12 (2W)	2512 100 - 1000mΩ	6.35±0.20	3.15±0.15	0.74±0.10	0.60±0.30	2.10±0.10	53.08
CS25	1225	3.10±0.15	6.30±0.15	0.90±0.15	0.60±0.30	0.55±0.25	64.88
CR-12	2512	6.35±0.10	3.10±0.15	0.55±0.10	0.60±0.25	0.50±0.20	39.448

5. 波峰焊简介



Construction



① Resistance Material	② Trimming Area	③ Electron Beam Welding
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Features

- LRS2512 3W up to 65A at 0.5mΩ
- LRS1050 3W up to 77A at 0.5mΩ
- LRS1575 5W up to 100A at 0.5mΩ
- Maximum soldering temperatures of up to 350°C / 30 sec. or 250°C / 10 min
- Heavy copper connectors
- Excellent long-term stability and low inductance
- Mounting using re-flow soldering or welding on copper

Applications

- Current Sensors for Hybrid Power Sources
- Frequency Converters
- High Current Automotive

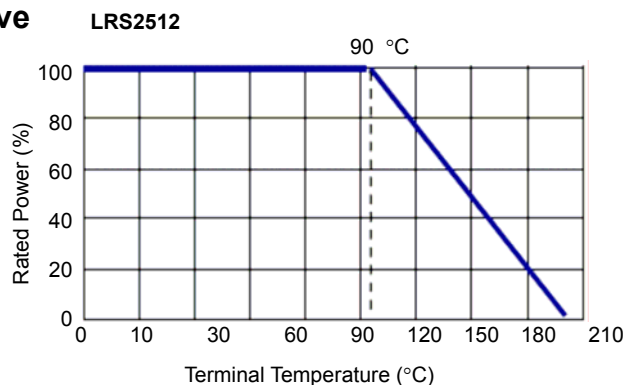
Dimensions

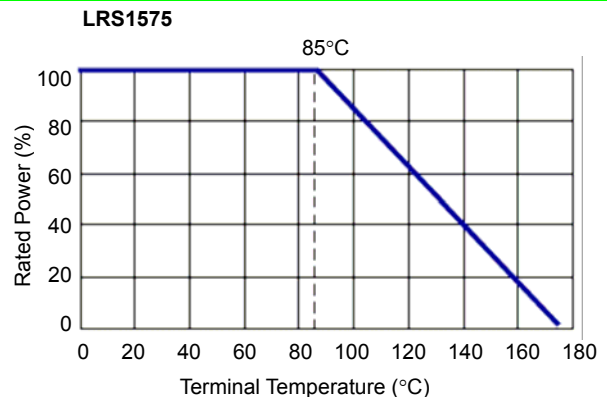
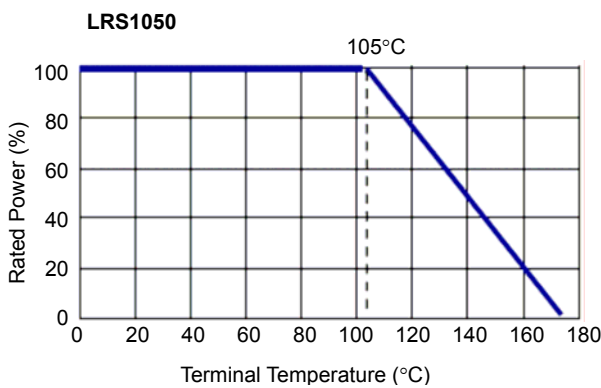
Type	Size (Inch)	Value	Material	Thickness (t)
LRS2512	2512	0.5mΩ	Manganin	0.88 mm ± 0.05
LRS2512	2512	1mΩ	Manganin	0.45 mm ± 0.05
LRS2512	2512	2mΩ	NiCr alloy	0.65 mm ± 0.05
LRS1050	1050	0.3mΩ	Manganin	1.4 mm ± 0.05
LRS1050	1050	0.5mΩ	Manganin	0.88 mm ± 0.05
LRS1050	1050	1mΩ	Manganin	0.43 mm ± 0.05
LRS1050	1050	2mΩ	NiCr alloy	0.64 mm ± 0.05
LRS1050	1050	3mΩ	NiCr alloy	0.43 mm ± 0.05
LRS1050	1050	4mΩ	NiCr alloy	0.32 mm ± 0.05
LRS1575	1575	0.2mΩ	Manganin	1.6 mm ± 0.1
LRS1575	1575	0.5mΩ	Manganin	0.56 mm ± 0.05
LRS1575	1575	1mΩ	NiCr alloy	0.90 mm ± 0.05
LRS1575	1575	2mΩ	NiCr alloy	0.45 mm ± 0.05
LRS1575	1575	3mΩ	NiCr alloy	0.30 mm ± 0.05

Part Numbering

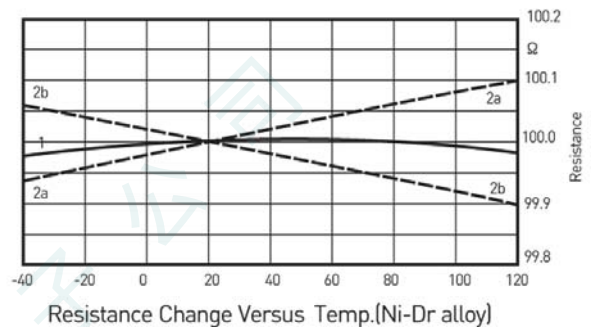
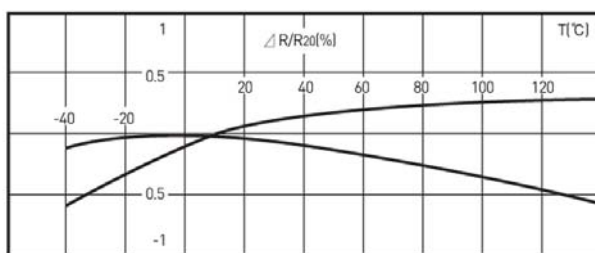
LRS	1050	F	T	D	R	0M50	N
Product Type	Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking Code
	2512: 6.3x3.1 1050: 10.5x5.0 1575: 15.2x7.5	F: ±1% G: ±2% J: ±5%	T: Taping Reel B: Bulk	D: ±15 E: ±25	R: 3W D: 5W K: 7W	0M50: 0.5mΩ	M: Manganin N: NiCr alloy

Derating Curve





Resistance Change VS Temperature



Standard Electrical Specifications

Type	Power Rating	Operating Temp. Range	Resistance Range			TCR (PPM/°C)	Internal Heat Resistance
			±1%	±2%	±5%		
LRS2512	3W	-55°C ~ 170°C	0.5mΩ, 1mΩ, 2mΩ			±25 (20°C to 60°C)	Rthi < 10k/W
LRS1050	3W		0.3mΩ, 0.5mΩ, 1mΩ, 2mΩ, 3mΩ, 4mΩ			±25 (20°C to 60°C)	
LRS1575	5W		0.2mΩ, 0.3mΩ, 0.5mΩ, 1mΩ, 2mΩ, 3mΩ			±25 Max.	

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

Environmental Characteristics

Item	Requirement	Test Method
Short time overload	±0.2%	Rated Power × 5 for 5 seconds
Load Life [Terminal temp. max. 105°C]	±1.0%	Power rating 90 min. "ON", 30 min. "OFF" for 2000 hours
Resistance to Soldering Heat	±0.2%	350°C for 30 seconds or 250°C for 10 min.
Thermal Shock	±0.1%	-65°C, 25°C, 125°C, 25°C, 25 cycles
Moisture Resistance	±0.2%	90 ~ 98%RH, +25°C, +65°C, -10°C, 10 cycles
High Temperature Exposure	±0.2%	140°C for 250 hours
Vibration, High Frequency	±0.2%	15g 10~2000Hz, 36 cycles
Inductance	<3nH	—
Thermal EMF [μV/°C]	2μV/°C max.	0~100°C
Current Noise	±0.01%	MIL-STD-202 Method 308
Voltage Coefficient	Linearity error less than 120 dB	MIL-STD-202 Method 309
Shock	±0.2%	50g's 11ms

Storage Temperature: 25±3°C; Humidity < 80%RH