RS SERIES

MOULD TYPE WIRE WOUND RESISTORS

SURFACE MOUNT TYPE

FEATURES

· Advanced alloy technology
· Very low TCR: lower than ±25ppm/℃.
· Tolerance up to ±0.10%
· Excellent overall stability: Class 0.25
· Very low noise and voltage coefficient
· Non-inductance type RSF series is available upon request
· Perfect pulse loading capability
· Certificate number of UL94 V-0 for encapsulation materials is 20180922-E302746

APPLICATIONS

· Current sensor for test and measuring instruments
· Power supply with high reliability
· Components burn-in devices
· Pulse load and in rush current protector
· Medical equipment
· Military electronics

1. PART NUMBER: Part number of the resistor is identified by the series name, power rating, tolerance, temperature coefficient, packing type and resistance value.

Example：

RS	3	F	2	T	50R0
Series Name	Power Rating	Tolerance	Temperature Coefficient	Packing Style	Resistance Value

(1) Series name: RS SERIES WIRE WOUND RESISTORS

(2) Power Rating: 1 = 1W; 2 = 2W; 3 = 3W; 5 = 5W

(3) Tolerance: B=±0.10%; C=±0.25%; D=±0.50%; F=±1.0%; G=±2.0%; J=±5.0%;

(4) T.C.R.: 3=±25ppm/℃; 2=±50ppm/℃; 1=±100ppm/℃; 0=±250ppm/℃

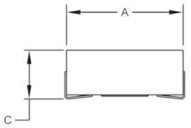
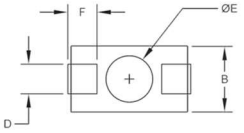
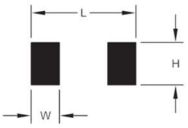
(5) Packaging Type: T＝Reel

(6) Resistance Value for tighten tol.:

1R00=1Ω,10R0=10Ω, 1000=100Ω, 1001=1kΩ, 1002=10kΩ

Resistance Value for J Tol.: 1R0=1Ω, 100=10Ω, 101=100Ω, 102=1kΩ

2. ELECTRICAL CHARACTERISTICS

THUNDER type			RS - 2	RS - 3	RS - 4	RS - 5	型号
Cross to Vishay's type			WSC2512	WSC-1; WSC2515	WSC-2; WSC4527	WSC6927	对应于Vishay的型号
Rated dissipation,	P_{70}		1.0W	2.0W	3.0W	5.0W	P_{70} 70℃ 以下额定功率
Standard resistance range			0.1Ω to 200Ω	0.1Ω to 200Ω	0.1Ω to 300Ω	0.1Ω to 500Ω	标准阻值范围
THUNDER non-inductance type			SF - 1	SF - 2	SF - 3	SF - 5	无感电阻型号
Standard resistance range			0.1Ω to 20Ω	0.1Ω to 20Ω	0.1Ω to 50Ω	0.1Ω to 50Ω	标准阻值范围
Resistance tolerance			C(±0.25%); D(±0.50%); F(±1.0%); G(±2.0%);J(±5.0%);				阻值精度
temperature coefficient			C1(±100ppm/℃); C2(±50ppm/℃); C3(±25ppm/℃)				温度系数
Operating Temperature range			-55℃ to 175℃				工作环境温度范围
Dimension	Body	±0.5(mm)	A=6.6, B=3.9, C=3.4	A=8.5, B=3.9, C=3.5	A=10.5, B=5.5, C=4	A=14.5, B=6.5, C=6	±0.5(mm) 本体 外型尺寸
	Terminal	±0.5(mm)	D=1.5, F=1.5	D=1.5, F=1.8	D=2, F=2.5	D=2, F=3	±0.5(mm) 端头
Minimum soldering pad		(mm)	W=3, H=3.0, L=9.9	W=2.5, H=3.0, L=10	W=4, H=4, L=14	W=5, H=4, L=17	(mm) 建议最小焊盘尺寸
Outlines						 Solder Pad Dimensions	 外观
Minimun parking quantity per reel			3000	2500	2000	1000	每卷最小包装数量

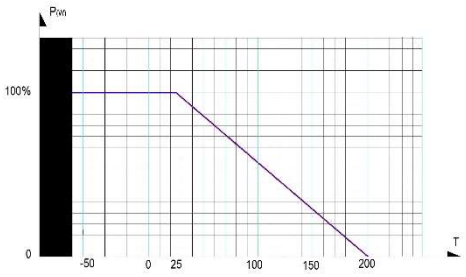
* Unless otherwise specified, all values are tested at the following condition: Temperature: 21℃ to 25℃; Relative humidity: 45% to 70%;

* Rated Continuous Working Voltage (RCWV)= $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$

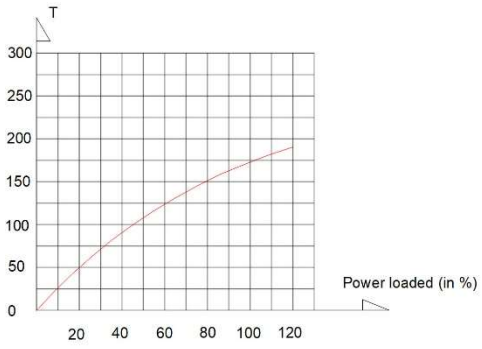
* Resistance and TCR out of range is available upon request.

3. DERATING CURVE AND TEMPERATURE RISING CURVE

For resistors working at an ambiance temperature of 25℃ or above, the power rating shall be derated in accordance with the following derating curve.



Derating curve



Temperature rising curve

4. ENVIRONMENTAL CHARACTERISTICS

(1)Insulation Resistance

IEC 60115-1, 4.6: in V-block for 60 seconds, the test resistance should be high than 10,000 M Ohm.

(2) Dielectric Withstanding Voltage

IEC 60115-1 4.7: Place resistors in V-block for 60 Seconds, Load on 1000V, no breakdown or flashover.

(3) Temperature Coefficient Test

IEC 60115-1, 4.8: Test of resistors at room temperature and 60°C or 100°C on request above room temperature. Then measure the resistance. The Temperature Coefficient is calculated by the following equation and its value should be within the range requested.

$$\textbf{Resistor Temperature Coefficient} = \frac{R - R_0}{R_0} \times \frac{1}{t - t_0} \times 10^6$$

R = Resistance value under the testing temperature
R_0 = Resistance value at the room temperature
t = the 2nd testing temperature
t_0 = Room temperature

(4) Short Time Over Load Test

IEC60115-1 4.13: At 10 times rated voltage or 2 times the maximum working voltage whichever is lower for 5 seconds, the resistor should be free from defects. The change of the resistance value should be within± (0.25%+0.05Ω) as compared with the value before the test.

(5) Solderability

IEC 60115-1, 4.17: 235±5°C for 3±0.5 Seconds, there are at least 95% solder coverage on the termination.

(6) Resistance to soldering heat:

IEC 60115-1, 4.18: 260±3°C for 10±1 Seconds, immersed to a point 3±0.5mm from the body. The change of the resistance value should be within ±(0.25%+0.05 Ω) as compared with the value before the test.

(7) Climatic sequence

IEC 60115-1, 4.19: -55°C to Room Temp. to +155°C to Room Temp. (5 cycles). The change of the resistance value shall be within ± (1%+0.05Ω) as compared with the value before the load. After the test the resistors shall be free from the electrical or mechanical damage. The typical value is less than 0.6%.

(8) Damp Heat Steady State

IEC 60115-1, 4.24: 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV or the maximum working voltage whichever is lower. The change of the resistance value should be within ± (5%+0.05Ω) as compared with the value before the load. The typical value is less than 1%.

(9) Load Life Test

IEC 60115-1, 4.25: 70±2°C at RCWV or the maximum working voltage whichever is lower for 1,000+48/-0 Hr. (1.5Hr. on, 0.5Hr. off). The resistors shall be arranged not much effected mutually by the temperature of others and the excessive ventilation shall not be performed.
The change of the resistance value should be within ± (5%+0.05Ω) as compared with the value before the load. The typical value is less than 1.2%.

(10) Resistance to Solvent

IEC 60115-1, 4.30: IPA for 5±0.5 Min. with ultrasonic. No deterioration occurred.

Disclaimer

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.

Thunder Precision Resistors makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product to the maximum extent permitted by applicable law.