ALTERATION HISTORY RECORDS变更记录

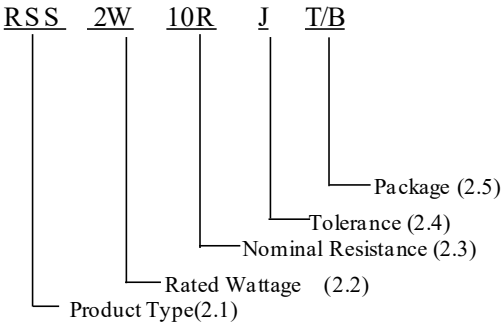
Date	Version	Mark	Page	Description	Drafter	Approver
2025-12-15	B	/	/	Revised edition release	Doris Chang	/

1.Applicable Scope:

This standard specification is for use in consumer electronics, computers, telecommunications, control instruments...etc.

2.Part Number System:

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package/Terminal Form. e.g.



2.1 Product Type

Code	RSS	RSN
Product Type	MetaloxidefilmResistors, Flameproof (small size)	MetaloxidefilmResistors, Flameproof

2.2 Rated Wattage code

Code	1/4W	1/2W	1W	2W	3W	3WL	4W	5W	6W	7W	10W
Rated Power (W)	1/4W	1/2W	1W	2W	3W	3WL	4W	5W	6W	7W	10W

2.3 Nominal Resistance

Code	10R	10K	100K
Resistance	10Ω	10KΩ	100KΩ

Remark:Ω is its unit which be in accordance with JIS-C6409 article 6 (EIARS-196A) series.

2.4 Resistance tolerance

Code	G	J
Tolerance Range	±2%	±5%

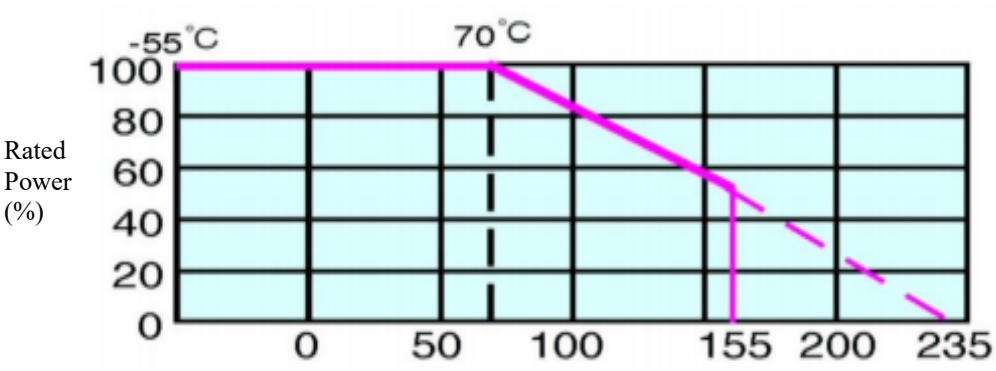
2.5 Package

Code	T/B	T/R	T52	R52	NIL
Inner Code	Standard Tape in box	Standard Tape in reel	52 mm width special tape in box	52 mm width special tape in reel	Bulk

Remark: RSS&RSN Series Resistors are RoHS Compliant.

3. Rated Power:

Rated power is the value of Max load power specified at the ambient temperature of 70℃, and shall meet the functions of electrical and mechanical performance. When the ambient temperature surpasses above mentioned temperature, the value declines as per following DERATING CURVE.



3.1 Rated Voltage:

It is calculated through the following formula:

$$E = \sqrt{P \times R}$$

Where E: rated voltage (V)

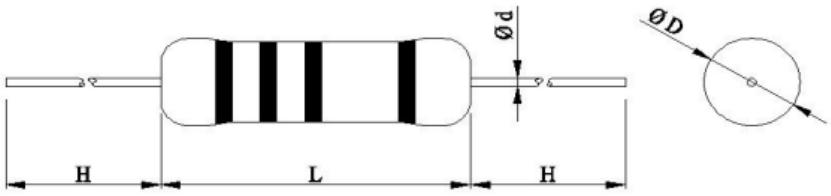
P: rated power (W)

R: total nominal resistance (Ω)

Remark: However, in case the voltage calculated exceeds the maximum load voltage, such the maximum load voltage shall be regarded as its rated voltage, means whichever less.

4.Dimension and Structure:

4.1 Dimension:



Unit: mm

TYPE		D±1	L±1	H±3	d±0.1	Resistance Range	Max Working Voltage	Max Overload Voltage
RSS	RSN							
1/2W	1/4W	2.6±0.5	6.8	28	0.6	0.22Ω~33KΩ	250V	400V
	1/2W	3	9	28	0.65	0.22Ω~33KΩ	300V	400V
1W		3.5	9	28	0.65	0.22Ω~50KΩ	350V	600V
2W	1W	4.5	11	28	0.8	0.22Ω~50KΩ	350V	600V
3W	2W	5	15	28	0.8	0.22Ω~50KΩ	350V	600V
5W	3WL	8.5	24	38	0.8	0.22Ω~100KΩ	500V	800V
6W	4W	8.5	32	33	0.8	0.22Ω~150KΩ	500V	800V
7W	5W	8.5	41	38	0.8	0.22Ω~200KΩ	750V	1000V
10W	7W	8.5	53	38	0.8	0.22Ω~200KΩ	800V	1500V

Notes:1. too low or too high ohmic values can be supplied only case by case.

2 .if high resistance values are required, we suggest using RDN series.

3. 0.22Ω~9.1Ω are using alloy film.

4.2 STRUCTURE:

4.2.1 Ceramic Rod:
It is made of Forsterite imported.

4.2.2 Terminal:
Terminal is to be firmly connected with resistors element, both electrically and mechanically, and allow easy soldering.

4.2.3 Coating:
Coating is done by light gray flameproof paint for RSN type and dark gray flameproof for RSS (resistant to 800℃) which is solid enough to be free from looseness, crack and easy breakage. It is also resistant to cleaning and industrial solvents, and the paint shall be limited within 2mm of lead wires from resistor body.

4.2.4 Marking:
Marking is made on resistors surface, by four color coding; 1st, 2nd, 3rd: nominal resistance, 4th: tolerance. or marked with type of resistor, rated wattage, nominal resistance, tolerance.

5. Operating Temperature Range: -55℃~155℃

6.Storage Conditions:

The resistors with appropriate package would have a preservative duration of 1 year, under the following conditions.

T=5℃ ~ 35℃

H=40% ~ 75%

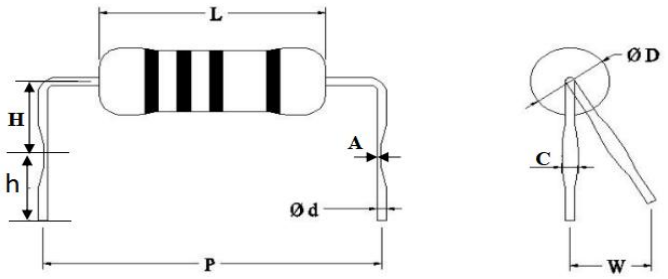
7. Test And Requirements:

Test		Test Method	Condition	Criteria
Mechanical Performance	Terminal tensile	IEC 60115-14.16	To fix the resistor body, a static load of 2.5kg. （1/2W:1kg) is to be gradually applied into the terminal for 10 seconds	Without causing any looseness and fall.
	Twist withstand		To bend the lead wire at the point of about 6mm from resistor body to 90°, then catch the wire at 1.2 ±0.4mm apart from the bent point end and turn it (clockwise) by 360 degrees perpendicular to the resistor axis at speed of 5 seconds per turn, and do the same counterclockwise again which constitute a whole turn. Repeat the turn 2 times	Without causing any break and looseness.
Resistance Temperature Coefficient:		IEC 60115-1 4.8	T.C (ppm/℃) =〔(R2－R1) ÷R1〕 ×〔1÷(T2－T1)〕×10^6 where R1: resistance value at reference temperature R2: resistance value at test temp. T1: reference temp. T2: test temp.	It shall be within ±300ppm/℃.
Temperature Cycle		IEC 60115-1 4.19	Following temp. cycles are to be made 5 times and then put at room temp. for one hour Steps / Temperature (℃) / Time (minutes) 1st step: -55 ± 3 / 30 2nd step: Room temp. / 3 3rd step: 155 ± 3 / 30 4th step: Room temp. / 3	The resistance value change rate between pre-and-post test shall be within ±1%
Voltage Withstanding		IEC 60115-1 4.7	Resistors are located in a V-shaped metal trough. Applying Max Working Voltage for one minute.	The resistance should find no physical damage to the resistors, such as arc, char...etc.

Test	Test Method	Condition	Criteria
Short Time Over Load	IEC 60115-14.13	When the resistors are applied 2.5 times as much as rated voltage for 5 seconds continuously, it shows no evidence of arc, flame...etc. Removing the voltage and place the resistors to the normal condition for 30 minutes,	The resistance value change rate between pre-and-post test shall be within 1% (RSS=±2%).
Insulation Character	IEC 60115-1 4.6	Resistors are located in a V-shaped metal trough. Using the DC 100V or 500V megger instrument 2 poles to clutch either side of lead wires and metal trough	Measuring the Insulation Resistance which shall be over 1000MΩ
Load Life	IEC 60115-14.25	The resistors arrayed are sent into the 70℃ oven, applying rated voltage at the cycle of 1.5 hours ON, 0.5 hour OFF for 1000+48 -0 hours in total. Then, after removing the voltage, take the resistors out of the oven and left under normal temp. for one hour cooling.	The resistance value change rate between pre-and-post test shall be within ±5%.
Moisture-proof Load Life	IEC 60115-14.24	The resistors arrayed are placed into a constant temp./humidity oven at the temp. of 40 ±2℃ and the humidity of 90～95%, then rated power is applied for 1.5 hours and cut off for 0.5 hour. The similar cycle will be repeated for 500^{+24}_{-0} hours in total (including cut-off time). Then remove the voltage,taking the resistors out of the oven and leaving them at room temp. for one hour.	The resistance value change rate between pre-and-post test shall be within ±5%. There also shall be no evidence of remarkable change on appearance, and the marking shall not be illegible.
Solder-ability	IEC 60115-1 4.17	The leads with flux are dipped in a melted solder of 235 ±5℃ for 2 seconds,	more than 95% of the circumference of the lead wires shall be covered with solder.
Resistance to Soldering Heat	IEC 60115-1 4.18	Two leads are together dipped in a melted solder of 270±5℃ for 10±1 seconds, or 350±10℃ for 3.5 ±0.5 seconds, Then remove the resistors and leaving them at room temp. for one hour.	The resistance value change rate between pre-and-post test shall be within ±1%.
Nonflammability	JIS - C 5201-4.26	The resistors are applied the power of 16 times the rated wattage for 5 min.	The resistance shall not get flame.

8. Others:

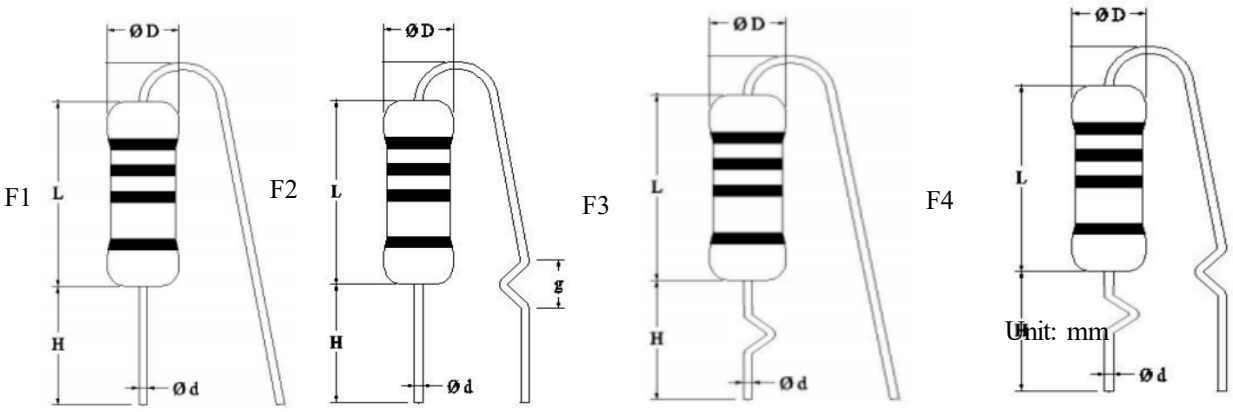
8.1 MG Form:



Unit: mm

RSS	RSN	D±1	L±1	P	H	h±1	A±0.1	B±0.05	C±0.2
	1/2W	3	9	12.5±1.5	7±1	4.5	0.23	0.8	1.2
1W		3.5	9	15±1.5	7±1	4.5	0.23	0.8	1.2
2W	1W	4.5	11	15±1.5	7±1	4.5	0.3	1	1.4
3W	2W	5	15	20±2	10±2	4.5	0.3	1	1.4

8.2 FForm:

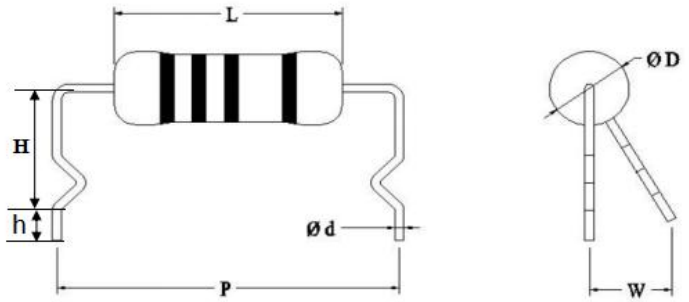


Unit: mm

Unit: mm

RSS	RSN	D±1	L±1	A +1/-0.5	Applicable
1W		3.5	9	3.5	F1~F4
2W	1W	4.5	11	3.5	F1~F4
3W	2W	5	15	3.5	F1~F4

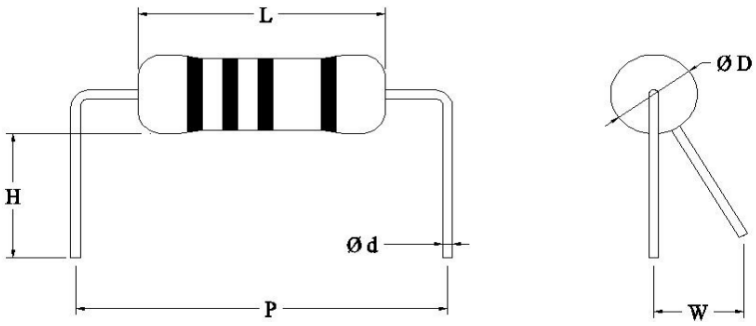
8.3 MB Form:



Unit: mm

RSS	RSN	D±1	L±1	P	H±0.5	h + 1/ - 0.5	B±0.05
	1/2W	3	9	15±1.5	6.5	2	1
1W		3.5	9	15±1.5	6.5	2	1
2W	1W	4.5	11	15±1.5	6.5	2	1
3W	2W	5	15	20±2	6.5	2	1
5W	3WL	8.5	24	30±2	6.5	2	1

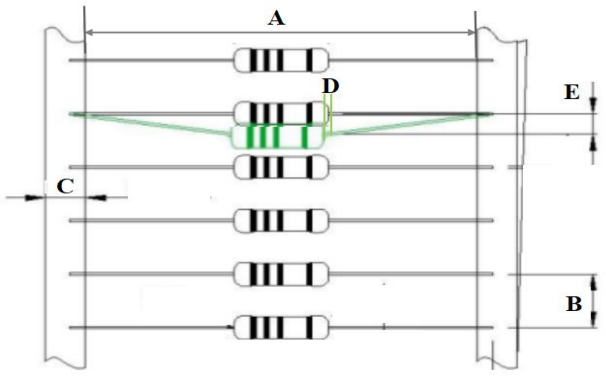
8.4 M Form:



Unit: mm

RSS	RSN	L±1	D±1	P	H±0.5
1/2W	1/4W	6.8	2.6±0.5	10±1	3.5
1W		9	3.5	15±1.5	3.5
2W	1W	11	4.5	15±1.5	3.5
3W	2W	15	5	20±2	3.5
5W	3WL	24	8.5	30±2	3.5

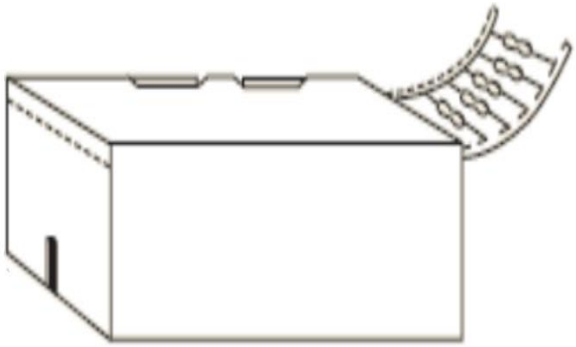
8.5 Taping Specifications：



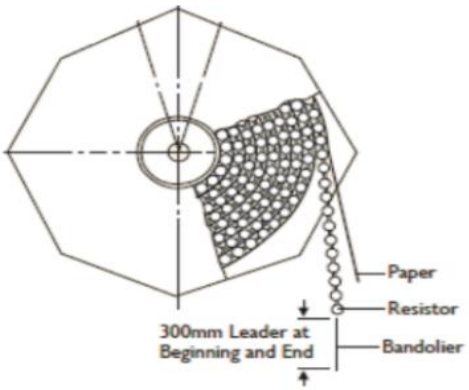
Unit: mm

RSS	RSN	Package	A	B	C ± 1	D Max	E Max
≤1W	≤1/2W	T/B, T/R	52 ± 1	5 ± 0.5	6	0.6	1.2
2W	1W	T52,R52	52 ± 1	5 ± 0.5	6	0.6	1.2
		T/B, T/R	63 ± 1	5 ± 0.5	6	0.6	1.2
3W	2W	T/B, T/R	63 ± 1	10 ± 1	6	0.6	1.2
		T52, R52	52 ± 1	10 ± 1	6	0.6	1.2
		T76,R76	76 ± 1.5	10 ± 1	6	0.6	1.2
5W	3WL	T/B, T/R	93 ± 1.5	10 ± 1	6	0.6	1.2

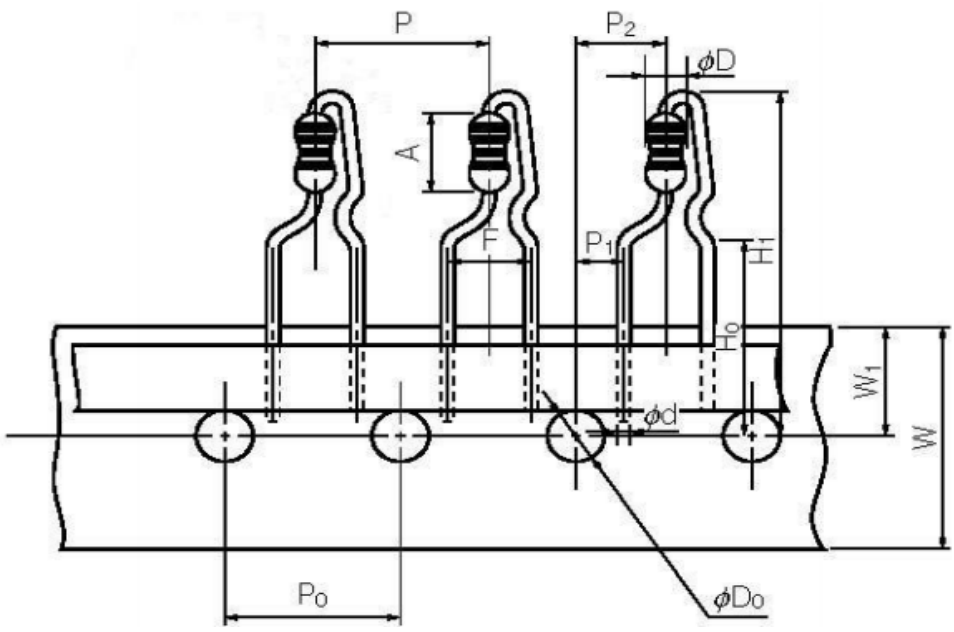
Tape in box



Tape in reel



8.6 Radial type lead taping(PA):



RSS	RSN	P±1	P_0±0.3	P_1±0.7	P_2±1	F±0.8	W±0.5	W_1±0.5	H_1max	H_0±0.5	φD0±0.2	A±1	φd±0.1	φD±1
1/2W	1/4W	12.7	12.7	3.85	6.35	5	18	9	32	16	4	6.8	0.6	2.6±0.5
1W		12.7	12.7	3.85	6.35	5	18	9	32	16	4	9	0.65	3.5
2W	1W	12.7	12.7	3.85	6.35	5	18	9	38	16	4	11	0.8	4.5
3W	2W	12.7	12.7	3.85	6.35	5	18	9	38	16	4	15	0.8	5