ALTERNATION HISTORY RECORDS变更记录

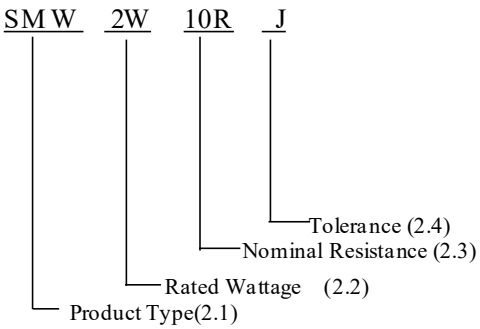
Date	Version	Mark	Page	Description	Drafter	Approver
2025-12-15	B	/	/	Revised edition release	Doris Chang	/

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 and Tolerance. e.g.



2.1 Product Type

Code	SMW
Product Type	Power Wire Wound Chip Resistors

2.2 Rated Wattage code

Code	2W	3W	5W
Rated Power (W)	2W	3W	5W

2.3 Nominal Resistance

Code	0R1	10R	100R
Resistance	0.1Ω	10Ω	100Ω

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

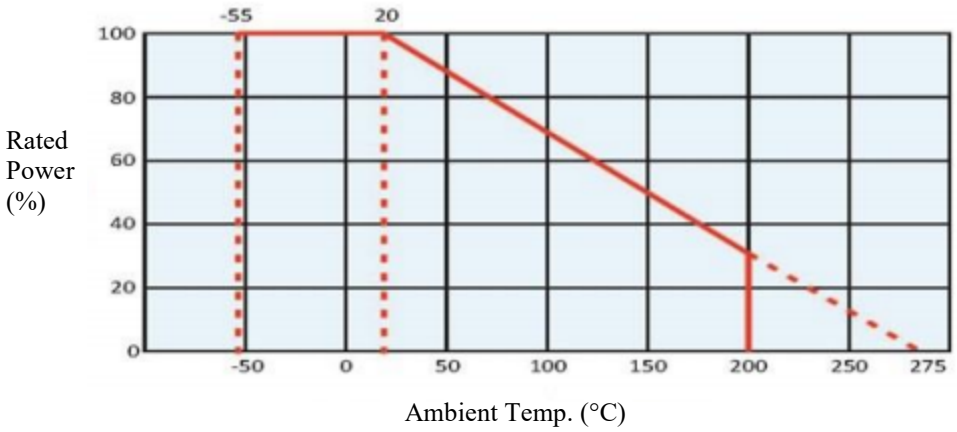
2.4 Resistance tolerance

Code	F	J
Tolerance Range	±1%	±5%

Remark :SMW Series Resistors are RoHS & Halogen Free Compliant.

3. Rated Power:

Rated power is the value of Max load power specified at the ambient temperature of 20℃, 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:

$$E = \sqrt{PxR}$$

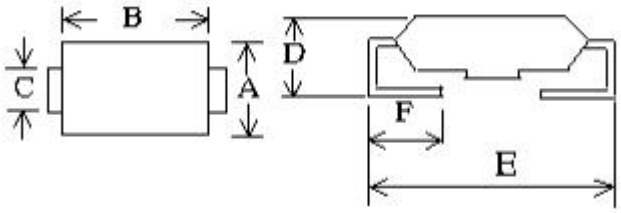
Where E: rated voltage (V)

P: rated power (W)

R: total nominal resistance (Ω)

4.Dimension and Structure:

4.1 Dimension:



TYPE	Dimension (mm)						Resistance Range
SMW	A±0.3	B±0.3	C±0.3	D±0.3	E max.	F±0.3	
2W	4.0	6.7	1.4	3.55	7.9	1.5	0.1Ω~200Ω
3W	5.5	10.5	1.7	5.0	12	2.3	0.1Ω~300Ω
5W	7.3	13.5	1.7	6.8	17	2.5	0.1Ω~680Ω
Note:Too low or too high ohmic values can be supplied only case by case.							

4.2 Structure:

4.2.1 Terminal:

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

4.2.2 Coating:

Flameproof UL94V0 molded package, resistant to heat, humidity & insulation.

4.2.3 Marking:

Marking is made on the surface with Rated Wattage, Nominal Resistance and Tolerance.

5. Operating Temperature Range: -55℃~200℃

6.Storage Conditions:

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

T=5℃ ~ 35℃

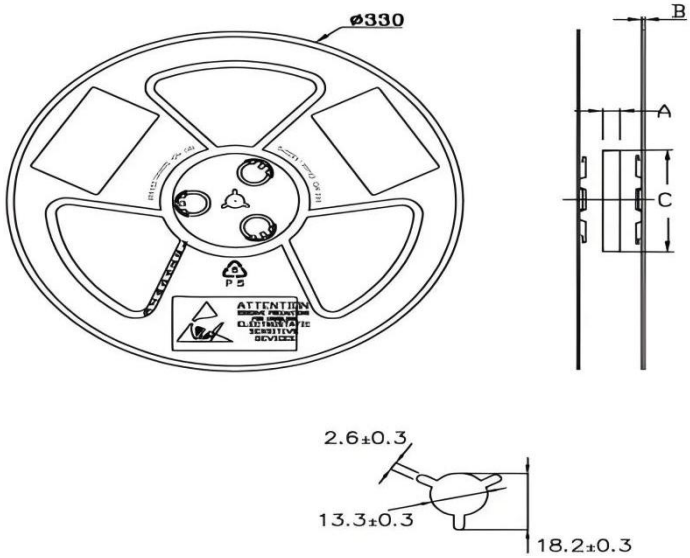
H=40% ~ 75%

7. Test And Requirements:

<table>
<tr><th>Test</th><th>Test Method</th><th>Condition</th><th>Criteria</th></tr>
<tr><td>Resistance Temperature Coefficient:</td><td>IEC 60115-1 4.8</td><td>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.</td><td>It shall be within ±200ppm/℃.</td></tr>
<tr><td>Temperature Cycle</td><td>IEC 60115-1 4.19</td><td>Following temp. cycles are to be made 5 times and then put at room temp. for one hour
<table>
<tr><th>Steps</th><th>Temperature (℃)</th><th>Time (minutes)</th></tr>
<tr><td>1st step</td><td>-55 ± 3</td><td>30</td></tr>
<tr><td>2nd step</td><td>Room temp.</td><td>3</td></tr>
<tr><td>3rd step</td><td>200 ± 3</td><td>30</td></tr>
<tr><td>4th step</td><td>Room temp.</td><td>3</td></tr>
</table></td><td>The resistance value change rate between pre-and-post test shall be within ±1%</td></tr>
<tr><td>Voltage Withstanding</td><td>IEC 60115-1 4.7</td><td>Resistors are located in a jig and applying AC 500V for 1 minute</td><td>The resistance should find no physical damage to the resistors, such as arc, char...etc.</td></tr>
<tr><td>Short Time Over Load</td><td>IEC 60115-14.13</td><td>When the resistors are applied 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,</td><td>The resistance value change rate between pre-and-post test shall be within 1% .</td></tr>
<tr><td>Insulation Character</td><td>IEC 60115-1 4.6</td><td>Resistors are located in a jig and applying DC 500V</td><td>Measuring the Insulation Resistance which shall be over 10000MΩ</td></tr>
<tr><td>Rated Load</td><td>/</td><td>When the resistors are applied rated voltage for 30 minutes continuously, it shows noevidence of arc, flame...etc. Removing the voltage and place the resistors to the normal condition for 30 minutes</td><td>The resistance value change rate between pre-and-post test shall be within ±1%.</td></tr>
</table>

Test	Test Method	Condition	Criteria
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-+048 hours in total. Then, after removing the voltage, take the resistors out of the oven and left under normal temp. for about one hour for cooling.	The resistance value change rate between pre-and-post test shall be within ±2%.
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 ±2%. 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	Immerse the resistors in the solder pot at 235 ±5℃ for 2 seconds	At least 95% solder coverage on the termination
Resistance to Soldering Heat	IEC 60115-1 4.18	Immerse the resistors in the solder pot at 270 ±5℃ for 10 ±1 seconds. Then remove the resistors out of the solder pot and leaving them at room temp. for one hour for cooling.	The resistance value change rate between pre-and-post test shall be within ±1%.

8 .Tape & Reel:



Unit: mm

TYPE	B0±0.2	A0±0.2	P1±0.1	P2±0.1	P0±0.1	D0±0.1	E±0.1	F±0.1	W±0.3	T±0.1	A±1	B±0.2	C±1	pcs/reel
SMW 2W	8	4.3	8	2	4	1.5	1.75	7.5	16	4.15	16.4	2.2	100	2000
SMW 3W	11.8	5.8	12	2	4	1.5	1.75	11.5	24	5.8	24.4	2.2	100	1000