

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	P0130- SMW2WL005RFS42
DATE	Jan. 31, 2022
REVISION	A0
DESCRIPTION	SMD Power Wire Wound Resistors, SMW series, <u>SMD4527 Type, Rated Wattage 2W. Nominal Resistance 5 Ω, Tolerance: $\pm 1\%$</u> Operating Temp. Range -55°C ~+150°C, Package in Tape/Reel, 1000pcs/13" Reel RoHS/RoHS III compliant and Halogen Free
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	Aillen SMW2WL5RF
PART CODE	SMW2WL005RFS42

VENDOR APPROVE			
Issued/Checked/Approved			
DATE: Jan. 30, 2022			

CUSTOMER APPROVE
DATE:
2/2/2022

SMD POWER WIRE WOUND RESISTORS SMW SERIES

MAIN FEATURE

- Flameproof UL94V0 Molded Package, Resistant To Heat, Humidity & Insulation
- Special Design For Automatic Surface Mounting
- Excellent Mechanical Strength & Electrical Stability
- Reducing Assemble Cost
- Resistance Value Can Be As High As 2 Mohm
- Resistance Tolerance Can Reach To $\pm 1\%$
- Ultra High Thermal Conductivity Material, Excellent Power Dissipation In Small Volume.
- Cross And Replace Main Competitors' WSC/WSM/SMF series



APPLICATION

- For Photovoltaic Inverters, Automotive, Industrial Control Equipment
- Home Appliance, LED Power etc.
- Outdoor Lighting, Chargers, Monitor Systems
- UPS Devices, Smart Meter, Pump, Washing Machine, Dish Wash

RFQ

[Request For Quotation](#)

PART CODE GUIDE

SMW	2WL	005R	F	S	42
1	2	3	4	5	6

1) **SMW**: SMD Power Wire Wound Resistors, SMW series

2) **2WL**: Rated Wattage code, 1WL: 1W; 2WL: 2W; 3WL: 3W

3) **005R**: Nominal Resistance code, 00R5: 0.5 ohm; 001R: 1 ohm; 002R: 2 ohm; 005R: 5 ohm; 010R: 10 ohm; 020R: 20 ohm;
050R: 50 ohm; 100R: 100 ohm

4) **F**: Tolerance code @25 °C, J: $\pm 5\%$; F: $\pm 1\%$

5) **S**: Package Code, S: Tape/Reel, 1000pcs/13" Reel

6) **42**: Device dimension code,

21: L0.25"xW0.15"xH0.125" (L6.35xW3.81xH3.17mm);

42: L0.455"xW0.275"xH0.177" (L11.56xW6.98xH4.49mm);

62: L0.69"xW0.275"xH0.295" (L17.53xW6.98xH7.49mm);

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DIMENSION (Unit: Inch/mm)

Image for reference



Material:

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

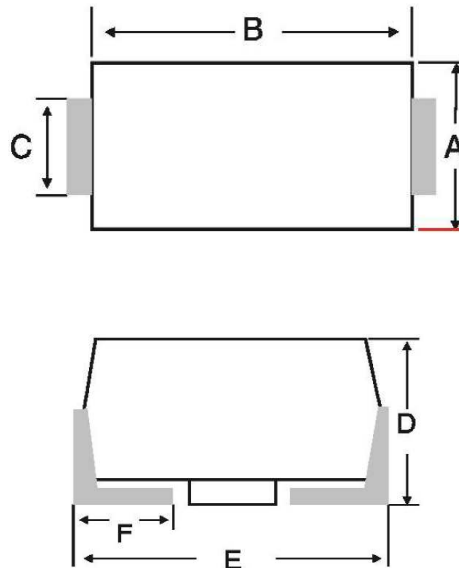
Coating:

Flameproof UL94V0 molded package, resistant to heat, humidity and insulation

Marking:

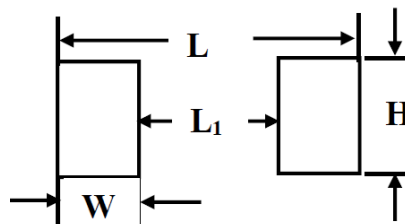
SMW
2WL5ΩF

SMW series,
SMD4527 Type



Symbol	Unit (mm)
A	5.5+/-0.3
B	10.5+/-0.3
C	1.7+/-0.3
D	5.0+/-0.3
E	12.0 Max.
F	2.3+/-0.3

Recommend Pad Layout

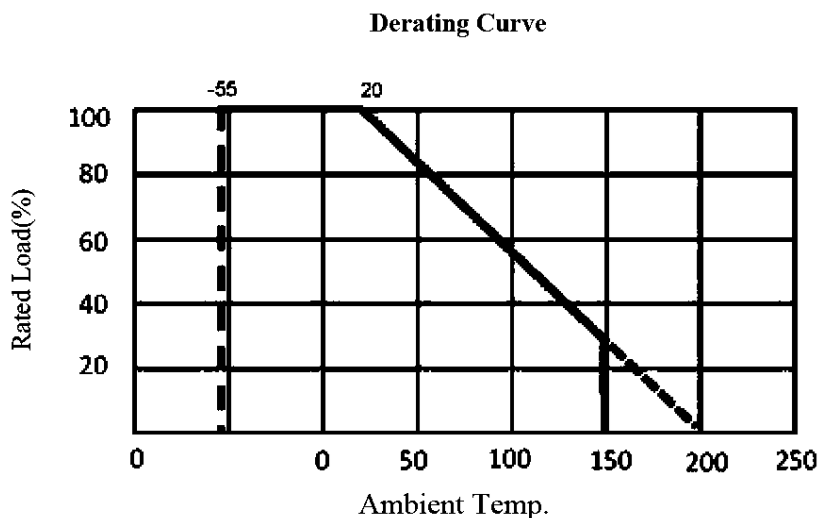


Symbol	Unit (mm)
W	4.0
H	3.4
L	14
L1	6.0

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RATED POWER

Rated power is the values of load power Max. specified at the ambient temperature of 20 °C, and shall meet the functions of electrical and mechanical performance. When the ambient temperature surpasses above mentioned temperature, the value declines as per following curve.



STANDARD ELECTRICAL SPECIFICATION

Type	Power Rating (P 70°C W)	Tolerance (%)	Resistance Range (ohm)
SMW2WL005RFS42	2	±1	5

STANDARD ELECTRICAL SPECIFICATION

Parameter	Unit	Characteristics
Temperature Coefficient	ppm/°C	±50
Dielectric Withstanding Voltage	V AC	500
Operating Temperature Range	°C	-55 ~+ 150
Insulation Resistance	Ω	> 10 ⁹
Working Voltage Max.	V	(PXR) ½ P: Rated Power (W) R: Total nominal Resistance (Ω)

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ELECTRICAL PERFORMANCE

Test Item	Test Condition	Test Limits															
Resistance Temperature Coefficient	It shall be within: $\pm 200 \text{ ppm}/^{\circ}\text{C}$ Max. $T.C > (\text{ppm}/^{\circ}\text{C}) = [(R_2 - R_1)/R_1] \times [(1/(T_2 - T_1))] \times 10^6$ R1: Resistance value at Ref. Temperature R2: Resistance value at Test Temperature T1: Ref. Temperature, $+25^{\circ}\text{C}$ T2: Test Temperature, $+75^{\circ}\text{C}$	/															
Rated Load	When the resistors are applied rated voltage for 30 min. continuously, it show no evidence of arc, flame...etc. Removing the voltage and place the resistors to the normal condition for 30 min.	The resistance value change rate between pre-and-post test shall be within $\pm 1\%$															
Temperature	Following temp. cycles are to be made 5 times and then put at room temp. for one hour: <table border="1"> <thead> <tr> <th>Steps</th><th>Temperature($^{\circ}\text{C}$)</th><th>Time(Min.)</th></tr> </thead> <tbody> <tr> <td>1st Step</td><td>-55 ± 3</td><td>30</td></tr> <tr> <td>2nd Step</td><td>Room Temp.</td><td>2~3</td></tr> <tr> <td>3rd Step</td><td>15 ± 3</td><td>30</td></tr> <tr> <td>4th Step</td><td>Room Temp.</td><td>2~3</td></tr> </tbody> </table>	Steps	Temperature($^{\circ}\text{C}$)	Time(Min.)	1 st Step	-55 ± 3	30	2 nd Step	Room Temp.	2~3	3 rd Step	15 ± 3	30	4 th Step	Room Temp.	2~3	The resistance value change rate between pre-and-post test shall be within $\pm 1\%$.
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4 th Step	Room Temp.	2~3															
Short Time Over Load	When the resistors are applied 5 times as much as rated wattage 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 $\pm 1\%$.															
Insulation Character	Resistors are located in a jig and applying DC 500V	Measuring the Insulation Resistance which shall be over 10000M Ω															
Voltage Withstanding	Resistors are located in a jig and applying AC 500V for 1 Min.	The resistance should find no physical damage to the resistors, such as arc, char...etc.															

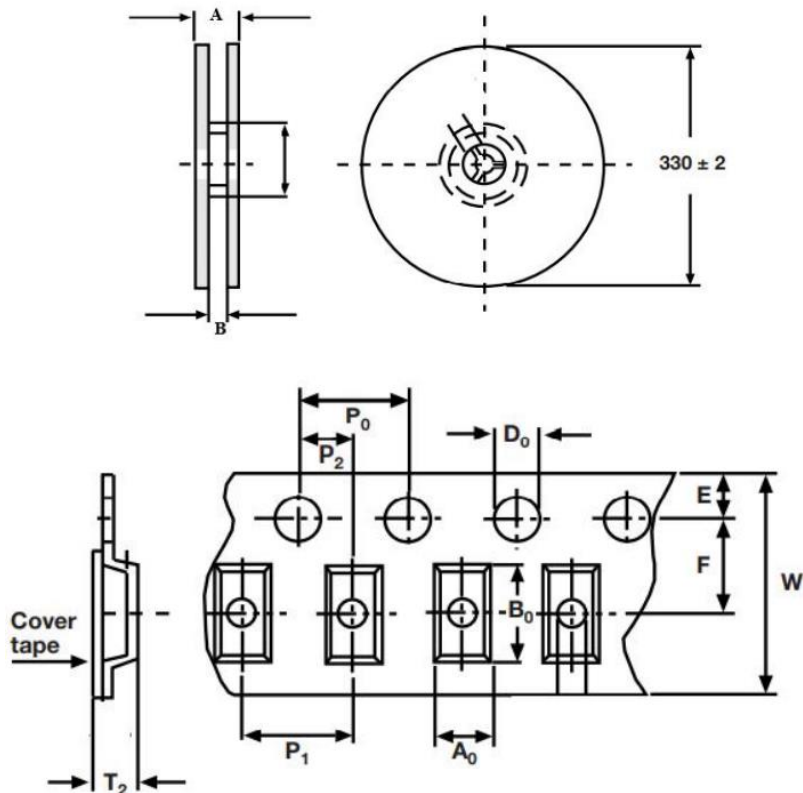
SMD POWER WIRE WOUND RESISTORS SMW SERIES

ELECTRICAL PERFORMANCE

Test Item	Test Condition	Test Limits
Load Life	The resistors arrayed are sent into the 20°C 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 about one hour for cooling.	The resistance value change rate between pre-and-post test shall be within $\pm 2\%$
Moisture-proof Load Life	The resistors arrayed are placed into a constant temp./humidity oven at the temp. of $40 \pm 2^\circ\text{C}$ 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 $\pm 2\%$. There also shall be no evidence of remarkable change on appearance, and the marking shall not be illegible.
Solder-ability	Immerse the resistors in the solder pot at $235 \pm 5^\circ\text{C}$ for 2 seconds.	At least 95% solder coverage on the termination
Resistance to Soldering Heat	Immerse the resistors in the solder pot at $270 \pm 5^\circ\text{C}$ 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 $\pm 1\%$.

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TAPE/REEL (Unit: mm)



Type Code	SMW1WL*****S21 (2000pcs/Reel)	SMW2WL*****S42 (1000pcs/Reel)	SMW3WL*****S62 (500pcs/Reel)
A +/-1.0	21.0	29.0	37.0
B+1/0	16.5	24.5	32.5
A0+/-0.2	4.3	5.8	7.8
B0+/-0.2	8.0	11.8	17.5
P1+/-0.1	8.0	12.0	16.0
P2+/-0.1	2.0	2.0	2.0
P0+/-0.1	4.0	4.0	4.0
D0+/-0.1	1.5	1.5	1.5
E+/-0.1	1.75	1.75	1.75
F+/-0.1	7.5	11.5	14.2
W+/-0.3	16.0	24.0	32.0
T+/-0.1	41.5	5.8	7.5

SMD POWER WIRE WOUND RESISTORS SMW SERIES

PRECAUTIONS IN USE OF RESISTORS

1. If the resistor is used in equipment which request extremely high reliability such as automotive, airplane, satellite, medical device, etc. Please contact us in advance, we will test and confirm it to you.
2. In the process of using a resistor, please derate the power rating according to the derating curve when the ambient temperature is above the rated temperature.
3. A flameproof resistor will not flame or fire but it may emit smoke or red heat when an overload is applied.
4. When a resistor is molded or coated by resin material, the deterioration of the resistor by thermal stress or resin may affect its characteristics. Therefore, please confirm the performance and reliability with us in advance. Moreover, the resistance to moisture and corrosion may deteriorate after the resin absorbs moisture.
5. When the resistor is coated, potted and molded by resin material, the curing stress of the resin may cause a peeling of the protective coating and a crack of the solder fillet. Therefore, please use the resin material which has smaller curing stress and make a judge before using.
6. When a power exceeding the rated power is applied in a short time, we cannot guarantee the safety only that the average power is below the rated power. Please contact us and advise the voltage or current waveform to us for making a judge.
7. The flame retardant resistors are weaker against mechanical stress than general resistors due to the special coating. Please do not apply impact, vibration or pinching with pliers or tweezers to the resistor body. Never apply any external force to the protective coating until drying is fully completed after washing.
8. Avoid stocking the resistors under high temperature, moisture, direct sunlight and corrosion environment. The most suitable temperature and moisture is 5 ~ 35°C / 40 ~ 70%.

DISCLAIMER

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