

3923, Low Resistance Chip Resistor (Lead / Halogen Free)

1. Scope

This specification applies to 10.00mm x 5.75mm size .

2. Features / Applications

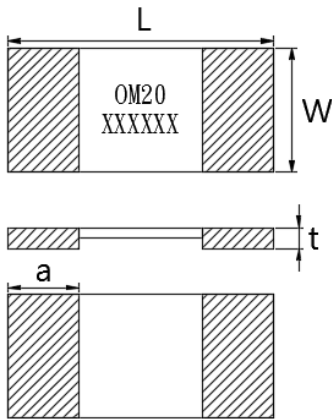
- Welding construction; excellent long-term stability
- Proprietary processing technique produces extremely low resistance values, down to 0.0002 Ω
- Low inductance (<3 nH)
- Ideal for all types of current sensing, voltage division and pulse applications
- Automotive applications & Current Sensor Resistor
- Suited for mounting on DBC / IMS substrate

3. Type Designation

VSML	3923	S	□	—	□ □ □ □	□
(1)	(2)	(3)	(4)		(5)	(6)

- Where
- (1) Series No.
  - (2) Size
  - (3) Terminal Type:  
S = Short terminal type
  - (4) Power Rating:  
9 = 9W, 5 = 5W
  - (5) Resistance value:  
R010 = 0.01Ω, 0M20 = 0.0002Ω
  - (6) Tolerance  
F = ±1%, G = ±2%, J = ±5%

4. Dimensions and schematic



Dimensions (mm)	Resistance Range			
	0.2 mΩ	0.3, 0.5 mΩ	0.7, 2 mΩ	1, 3, 4 mΩ
L	10.0 ± 0.25			
W	5.75 ± 0.25			
t	2.0 ± 0.25	1.6 ± 0.25	1.2 ± 0.25	1.0 ± 0.25
a	2.0 ± 0.25			

Figure 1. Construction and Dimensions

Note: Marking (value, date code.)  
Date code: XX - XX - XX  
(1) (2) (3)  
Where (1) Year : 2016 = 16  
(2) Weekly : 01~53  
(3) Internal No.



5. Specification

Characteristics	Feature		
Power Rating*	5W	3mΩ, 4mΩ	
	7W	2mΩ,	
	9W	0.2mΩ, 0.3mΩ, 0.5mΩ, 0.7mΩ, 1mΩ	
Resistance Value	0.2mΩ, 0.3mΩ	0.5mΩ, 0.7mΩ	1mΩ, 2mΩ, 3mΩ 4mΩ
Temperature Coefficient of Resistance	± 100ppm/°C	± 75ppm/°C	± 50ppm/°C
Operation Temperature Range	-65°C ~ +170°C		
Resistance Tolerance	± 1%(F), ± 2%(G), ± 5%(J)		
Maximum Working Voltage (V)	( P*R) <sup>1/2</sup>		

Note \* :

Power rating is based on continuous full load operation at rated ambient temperature of 70°C . For resistors operated at ambient temperature in excess of 70°C , the maximum load shall be derated in accordance with the following curve.

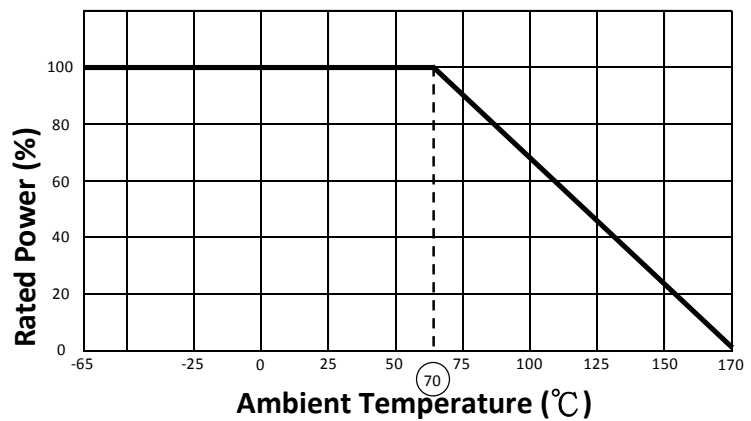


Figure 2. : Power temperature derating curve

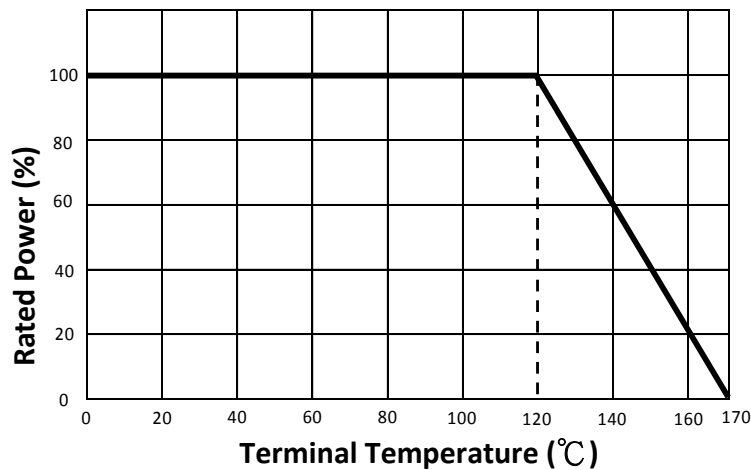
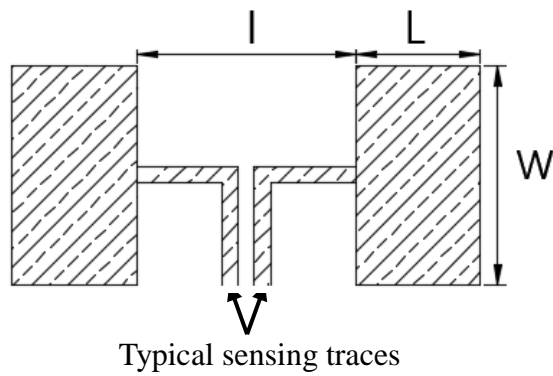


Figure 3. : Power derating curve at 70 °C



6. Recommended Solder Pad Dimensions



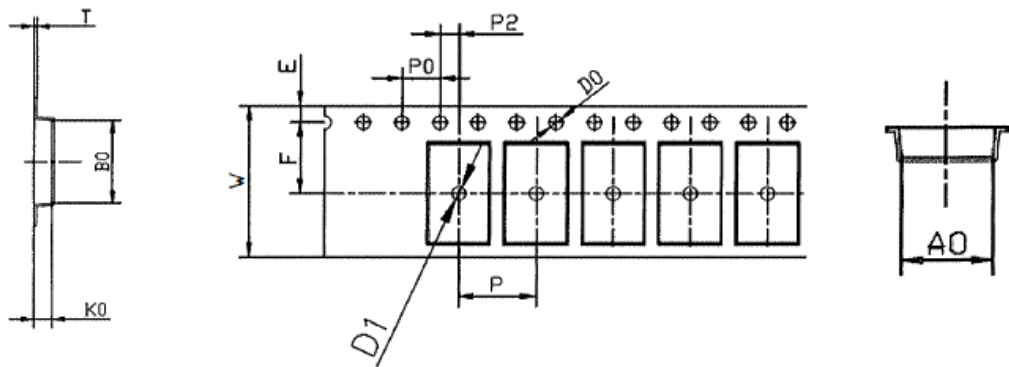
Resistance Range	Dimensions		
	W (mm)	L (mm)	I (mm)
0.2~4mΩ	6.2	2.7	5.6



7. Packaging

7-1 Dimensions

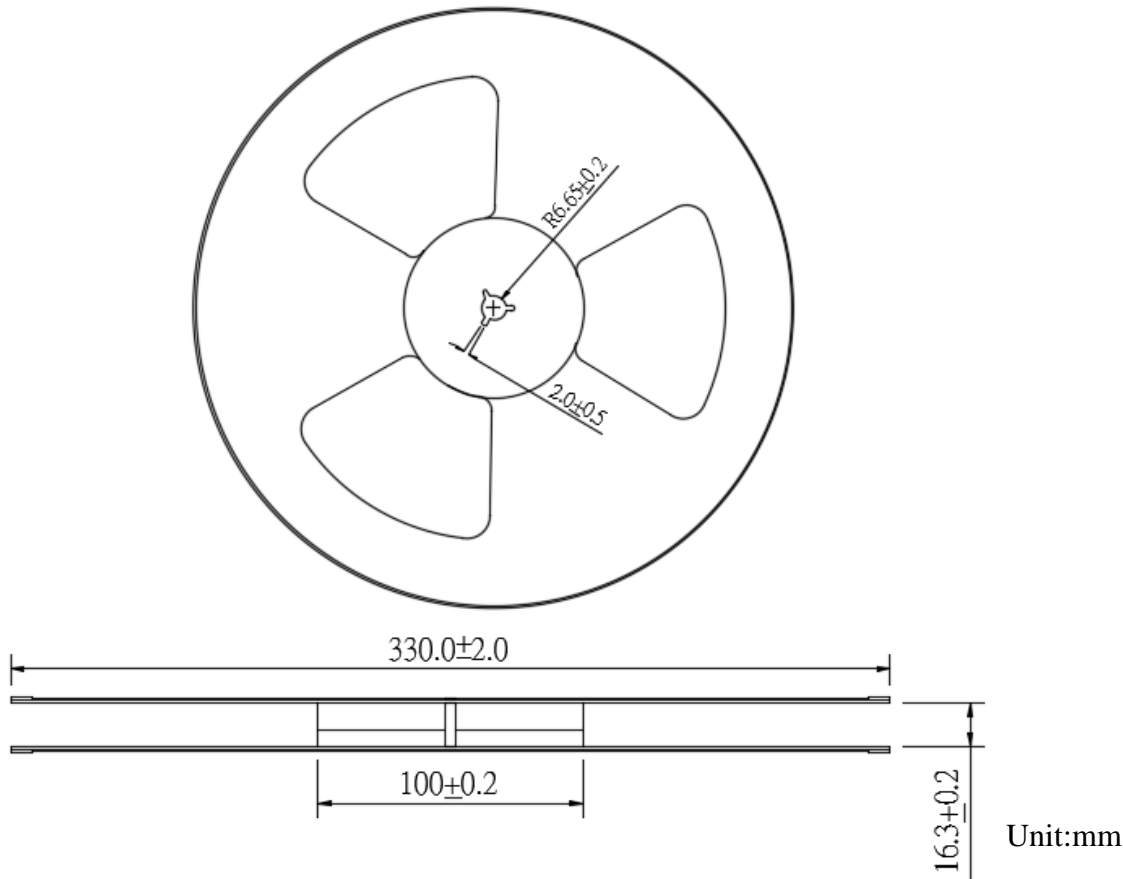
7-1-1 Tape packaging dimensions



項目 規格	A0	B0	P0	P	W	P2	E	F	D0	D1	T
Spec	6.2	10.4	4.0	8.0	16.0	2.0	1.75	7.5	1.5	1.5	0.3
	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.05
	-0.1	-0.1	-0.1	-0.1	-0.3	-0.1	-0.1	-0.1	-0	-0	-0.05
Max	6.3	10.5	4.1	8.1	16.3	2.1	1.85	7.6	1.6	1.6	0.35
Min	6.1	10.3	3.9	7.9	15.7	1.9	1.65	7.4	1.5	1.5	0.25

K0	Resistance Range(mΩ )			
	0.2	0.3, 0.5	0.7, 2	1, 3, 4
Spec	2.4	2	1.6	1.4
	0.1	0.1	0.1	0.1
	-0.1	-0.1	-0.1	-0.1
Max	2.5	2.1	1.7	1.5
Min	2.3	1.9	1.5	1.3

7-1-2 Reel dimensions

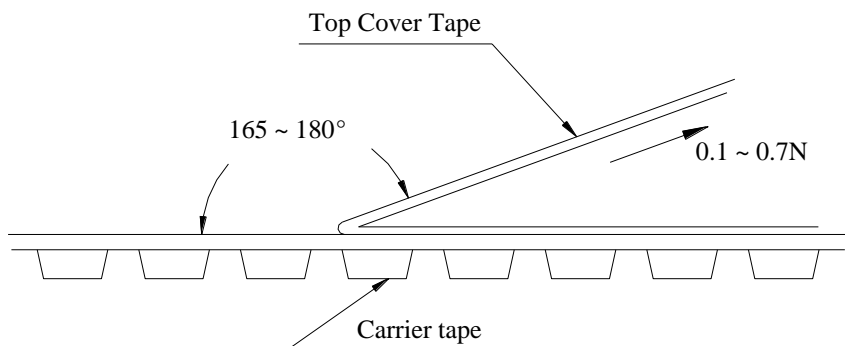




#### 7-2 Peel Strength of Top Cover Tape

The peel speed shall be about 300mm/min.

The peel force of top cover tape shall between 0.1 to 0.7N



#### 7-3 Number of Taping

3,000 pieces / reel

#### 7-4 Label marking

The following items shall be marked on the reel.

- (1) Type designation
- (2) Quantity
- (3) Manufacturing date code
- (4) Manufacturer's name
- (5) The country of origin



8. Care note

8-1 Care note for storage

- (1) Chip resistor shall be stored in a room where temperature and humidity must be controlled. (temperature 5 to 35°C, humidity 45 to 85% RH) However, a humidity keep it low, as it is possible.
- (2) Chip resistor shall be stored as direct sunshine doesn't hit on it.
- (3) Chip resistor shall be stored with no moisture, dust, a material that will make solderability inferior, and a harmful gas (Chloridation hydrogen, sulfurous acid gas, and sulfuration hydrogen)

8-2 Care note for operating and handling

- (1) It is necessary to protect the edge and protection coat of resistors from mechanical stress.
- (2) Handle with care when printing circuit board (PCB) is divided or fixed on support body, because bending of printing circuit board (PCB) mounting will make mechanical stress for resistors.
- (3) Resistors shall be used with in rated range shown in specification. Especially, if voltage more than specified value will be loaded to resistor, there is a case it will make damage for machine because of temperature rise depending on generating of heat, and increase resistance value or breaks.
- (4) In case that resistor is loaded a rated voltage, it is necessary to confirms temperature of a resistor and to reduce a load power according to load reduction curve, because a temperature rise of a resistor depends on influence of heat from mounting density and neighboring element.
- (5) Observe Limiting element voltage and maximum overload voltage specified in each specification
- (6) If there is possibility that a large voltage (pulse voltage, shock voltage) charge to resistor, it is necessary that operating condition shall be set up before use.