

2W, 2816, SL Type Low Resistance Chip Resistor (Lead / Halogen Free)

1. Scope

This specification applies to 4.2mm x 7.1mm size 2W, fixed metal foil current sensing resistors used in electronic equipment.

2. Features / Applications

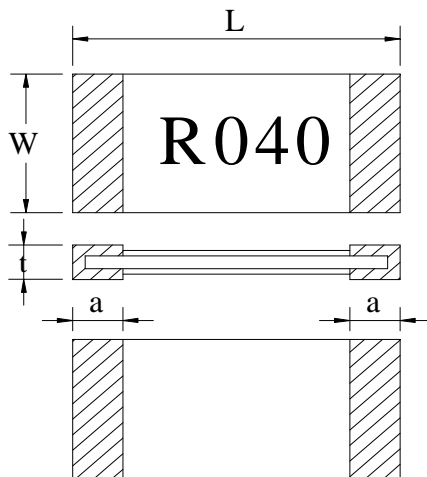
AEC-Q200 qualified / Power modules 、 Switch mode power supplies 、 Frequency converters 、 Automotive grade

3. Type Designation

RL-2816SL-9 - - - AQ - NH
 (1) (2) (3) (4) (5)

- Where
- (1) Series No.
 - (2) Resistance value : Four digits of number
 For example :
 1R2m = 1.2mΩ
 R040 = 40mΩ
 - (3) Tolerance :
 Refer to paragraph 5
 - (4) AQ = AEC-Q200 qualified
 - (5) NH = Sn plating (Lead free / Halogen free)

4. Dimensions and schematic



Code Letter	Dimensions (mm)
	2816
L	7.0 ± 0.3
W	4.2 ± 0.30
a	1.3 ± 0.30
t	0.6 ± 0.3

Note: Marking (No Direction)

Figure 1. Construction and Dimensions

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5. Specification

Characteristics	Feature
Power Rating*	2W
Resistance Value	10 ~ 100 mΩ
Temperature Coefficient of Resistance	± 75ppm/°C
Operation Temperature Range	-55°C ~ +170°C
Resistance Tolerance	± 1%(F) , ± 2%(G) , ± 5%(J)
Insulation Resistance	Over 100MΩ
Maximum Working Voltage (V)	$(P \cdot R)^{1/2}$

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.

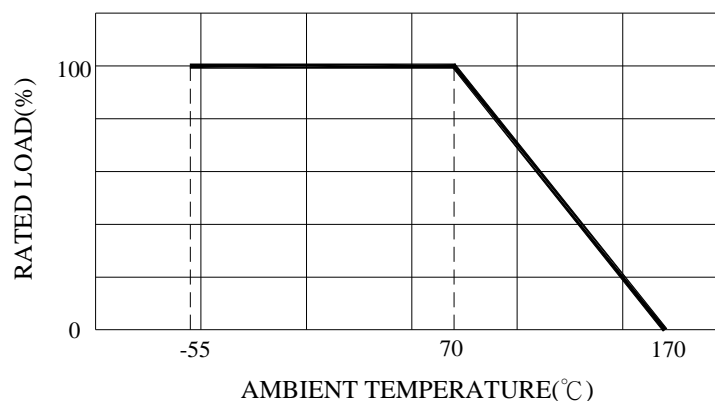


Figure 2. : Power Temperature Derating Curve

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6. Reliability Performance –AEC-Q200

Test Item	Condition of Test	Requirements
Short Time Over Load	2.5 x Rated power for 5 seconds Refer to JIS C 5201-1 4.13	$\Delta R : \pm 0.5\%$ Without significant damage by flashover(Spark, arching), burning or breakdown, etc.
High temperature Storage	Kept at 170°C, 1000hrs. Measurement at 24±4 hours after test conclusion. Refer to: MIL-STD-202 Method 108	$\Delta R : \pm 1\%$ Without distinct damage in appearance.
Temperature Cycling	1000 cycles, (-55°C~125°C) 30min maximum dwell time at each temperature Measurement at 24±4 hours after test conclusion. Refer to: JESD22 Method JA-104	$\Delta R : \pm 0.5\%$ Without distinct damage in appearance.
Biased Humidity	1000 hours, 85°C/85%R.H, applied for 10% rated power Measurement at 24±4 hours after test conclusion. Refer to: MIL-STD-202 Method 103	$\Delta R : \pm 1\%$ Without distinct damage in appearance.
Operational Life	1000 hours, 70°C, applied for 100% rated power Measurement at 24±4 hours after test conclusion. Refer to: MIL-STD-202 Method 108	$\Delta R : \pm 1\%$ Without distinct damage in appearance.

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Test Item	Condition of Test	Requirements
Mechanical Shock	100g's peak value, 6ms, Half-sine waveform, 12.3ft/sec Refer to: MIL-STD-202 Method 213, (SMD type: Condition F)	$\Delta R : \pm 0.5\%$ Without mechanical damage such as break.
Vibration	5g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000Hz Refer to: MIL-STD-202 Method 204	$\Delta R : \pm 0.5\%$ Without mechanical damage such as break.
Resistance to Soldering Heat	Dipped into solder at 260°C, 10 seconds Refer to: MIL-STD-202 Method 210	$\Delta R : \pm 0.5\%$ Without distinct deformation in appearance.
Solderability	Method D category 3 @ 260°C Refer to: J-STD-002	Uniform coating of solder cover minimum of 95% surface being immersed
Board Flex	2mm for 60 seconds Refer to: AEC-Q200-005	$\Delta R : \pm 0.5\%$ Without mechanical damage such as break.

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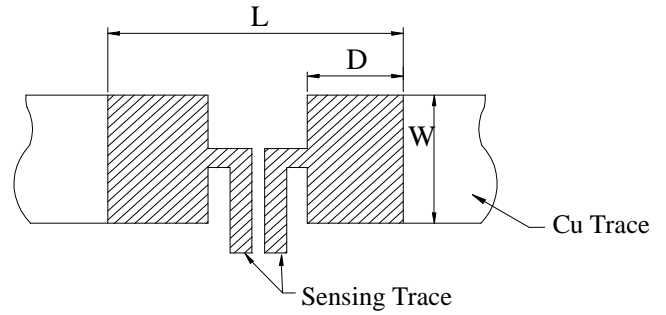
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7. Recommended Solder Pad Dimensions

	W	L	D
2816	4.70	8.10	2.45



Note : We recommend there is no circuit design between pads to avoid circuit short

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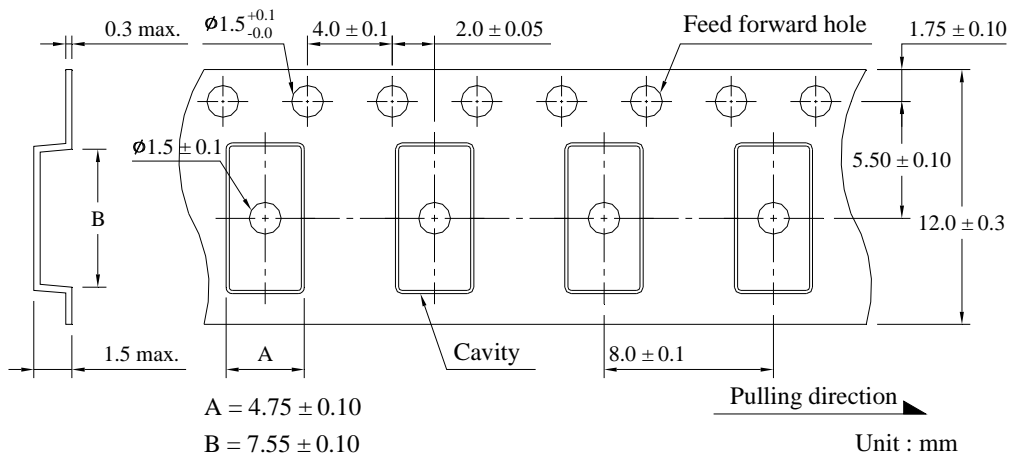
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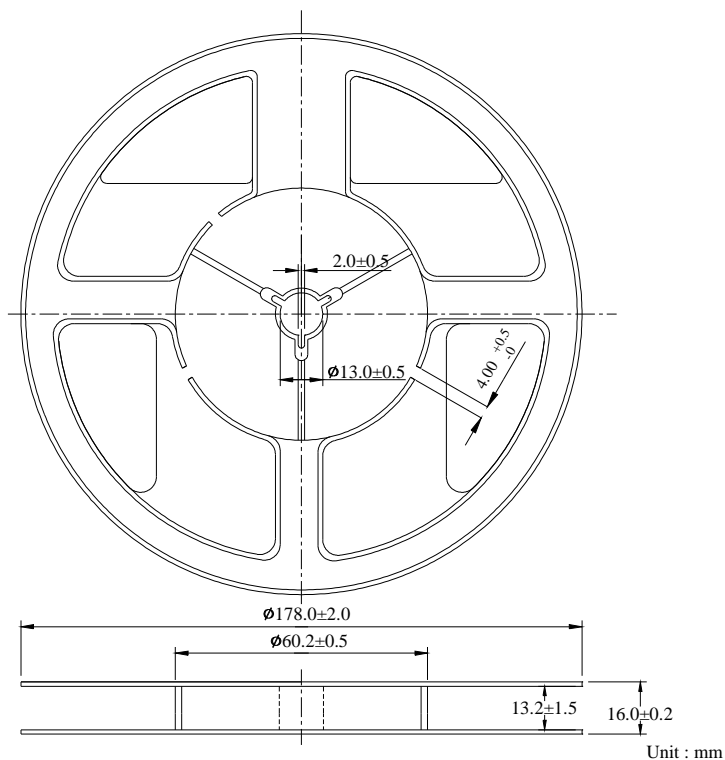
8. Packaging

8-1 Dimensions

8-1-1 Tape packaging dimensions



8-1-2 Reel dimensions



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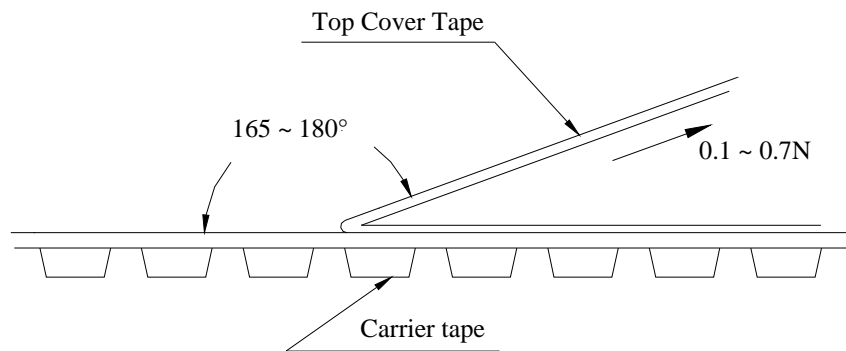
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8-2 Peel Strength of Top Cover Tape

The peel speed shall be about 300mm/min.

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



8-3 Number of Taping

2,000 pieces / reel

8-4 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

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