

3W, 4527, SL Type Low Resistance Chip Resistor (Lead / Halogen Free)

1. Scope

This specification applies to 7.1mm x 12mm size 3W, fixed metal foil current sensing resistors used in electronic equipment.

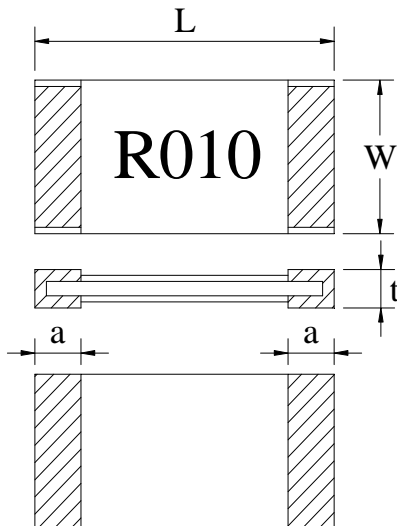
2. Type Designation

RL45270W –

(1) (2) (3)

Where (1) Series No.
 (2) Resistance value :
 For example :
 Four digits of number
 R010 = 10mΩ
 (3) Tolerance :
 Refer to paragraph 4

3. Dimensions and schematic



Code Letter	Dimensions (mm)
	4527
L	12.0 ± 0.20
W	7.10 ± 0.20
a	2.50 ± 0.20
t	0.90 ± 0.20

Figure 1. Construction and Dimensions



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4. Specification

Characteristics	Feature
Power Rating*	3W
Resistance Value	4 mΩ, 10~120mΩ
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.

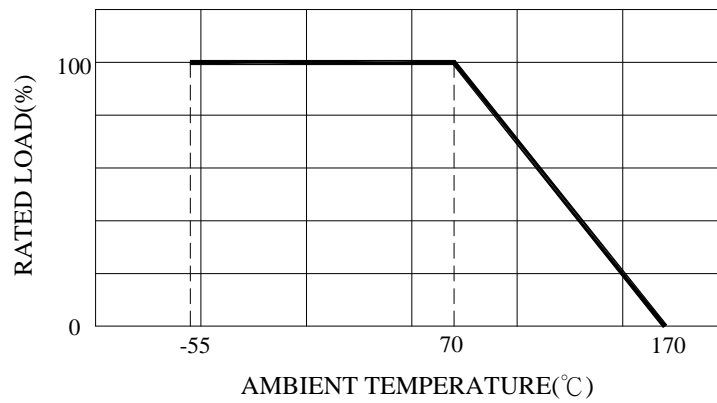


Figure 2. : Power Temperature Derating Curve



SPECIFICATION FOR APPROVAL

DOCUMENT : NP-08-034

(Preliminary specification)

REVISION : A2

PAGE : 3 OF 6

5. Reliability Performance

Test Item	Condition of Test	Requirements
Short Time Overload	5 x Rated power for 5 seconds Refer to JIS C 5201-1 4.13	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
Thermal Shock	-55 ~155°C 100 cycles, 15 min at each extreme condition Refer to JIS C 5201-1 4.19	$\Delta R : \pm (0.5\% + 0.0005\Omega)$
Low Temperature Storage	Kept at -55°C, 1,000 hours Refer to JIS C 5201-1 4.23.4	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
Resistance to Soldering Heat	Dipped into solder at $270 \pm 5^\circ\text{C}$ for 10 ± 1 seconds Refer to JIS C 5201-1 4.18	$\Delta R : \pm (0.5\% + 0.0005\Omega)$
Load Life	Rated voltage for 1.5hours followed by a pause 0.5hour at $70 \pm 3^\circ\text{C}$ Cycle repeated 1,000 hours Refer to JIS C 5201-1 4.25	$\Delta R : \pm (2.0\% + 0.0005\Omega)$
Damp Heat with Load	$40 \pm 2^\circ\text{C}$ with relative humidity 90% to 95%, 1,000 hours Refer to JIS C 5201-1 4.24	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
High Temperature Exposure	Kept at 170°C for 1,000 hours Refer to JIS C 5201-1 4.23.2	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
Solderability	Temperature of Solder : $245 \pm 5^\circ\text{C}$ Immersion Duration : 3 ± 0.5 second Refer to JIS C 5201-1 4.17	Uniform coating of solder cover minimum of 95% surface being immersed
Mechanical Shock	100 G's for 6milliseconds. 5 pulses Refer to JIS C 5201-1 4.21	$\Delta R : \pm (0.5\% + 0.0005\Omega)$
Substrate Bending	Glass-Epoxy board thickness : 1.6mm Bending width : 2mm Between the fulcrums : 90mm Refer to JIS C 5201-1 4.33	$\Delta R : \pm (0.5\% + 0.0005\Omega)$

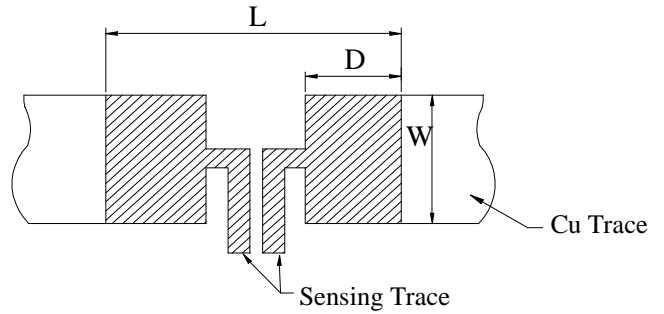


SPECIFICATION FOR APPROVAL

DOCUMENT : NP-08-034
 (Preliminary specification)
 REVISION : A2
 PAGE : 4 OF 6

6. Recommend Land Pattern

	W (mm)	L (mm)	D (mm)	t (μ m)
4527	7.5	13.0	4.0	105



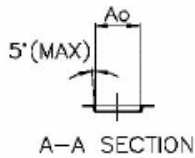
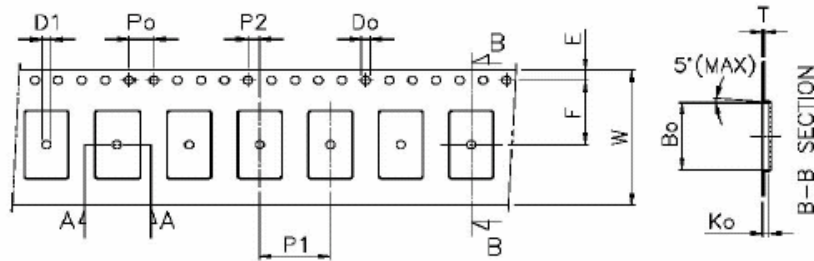
t: Copper foil minimum thickness of PCB

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

7. Packaging

7-1 Dimensions

7-1-1 Tape packaging dimensions



Unit: mm

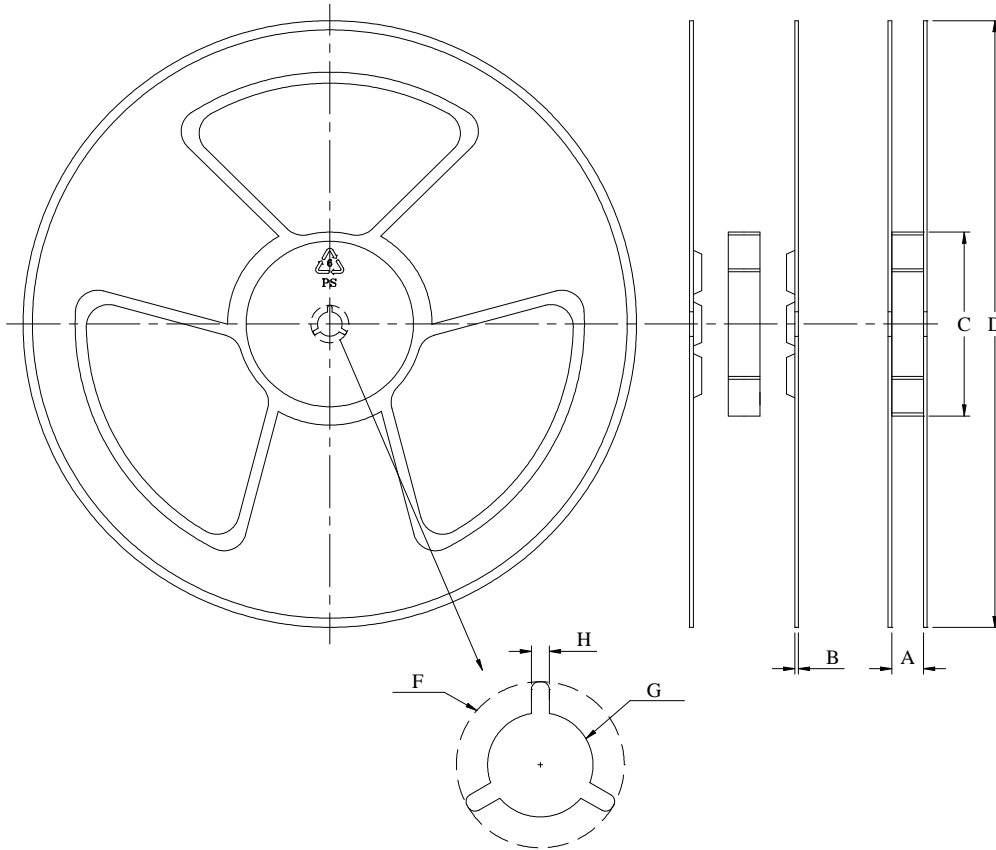
Symbol	Ao	B0	Ko	Po	P1	P2	T
Spec	7.38 \pm 0.10	12.00 \pm 0.10	1.05 \pm 0.10	4.0 \pm 0.10	12.0 \pm 0.10	2.0 \pm 0.10	0.30 \pm 0.10
Symbol	E	F	Do	D1	W	10Po	
Spec	1.75 \pm 0.10	11.50 \pm 0.10	1.55 \pm 0.05	1.50 \pm 0.10	24.0 \pm 0.30	40.0 \pm 0.20	



SPECIFICATION FOR APPROVAL

DOCUMENT : NP-08-034
 (Preliminary specification)
 REVISION : A2
 PAGE : 5 OF 6

7-1-2 Reel dimensions



A	24.5 ± 0.5	F	20.2 ± 0.1
B	2.0 ± 0.2	G	$13.0^{+0.5}_{-1.0}$
C	100 ± 1.0	H	2.2 ± 0.1
D	330 ± 0.5		

Unit : mm



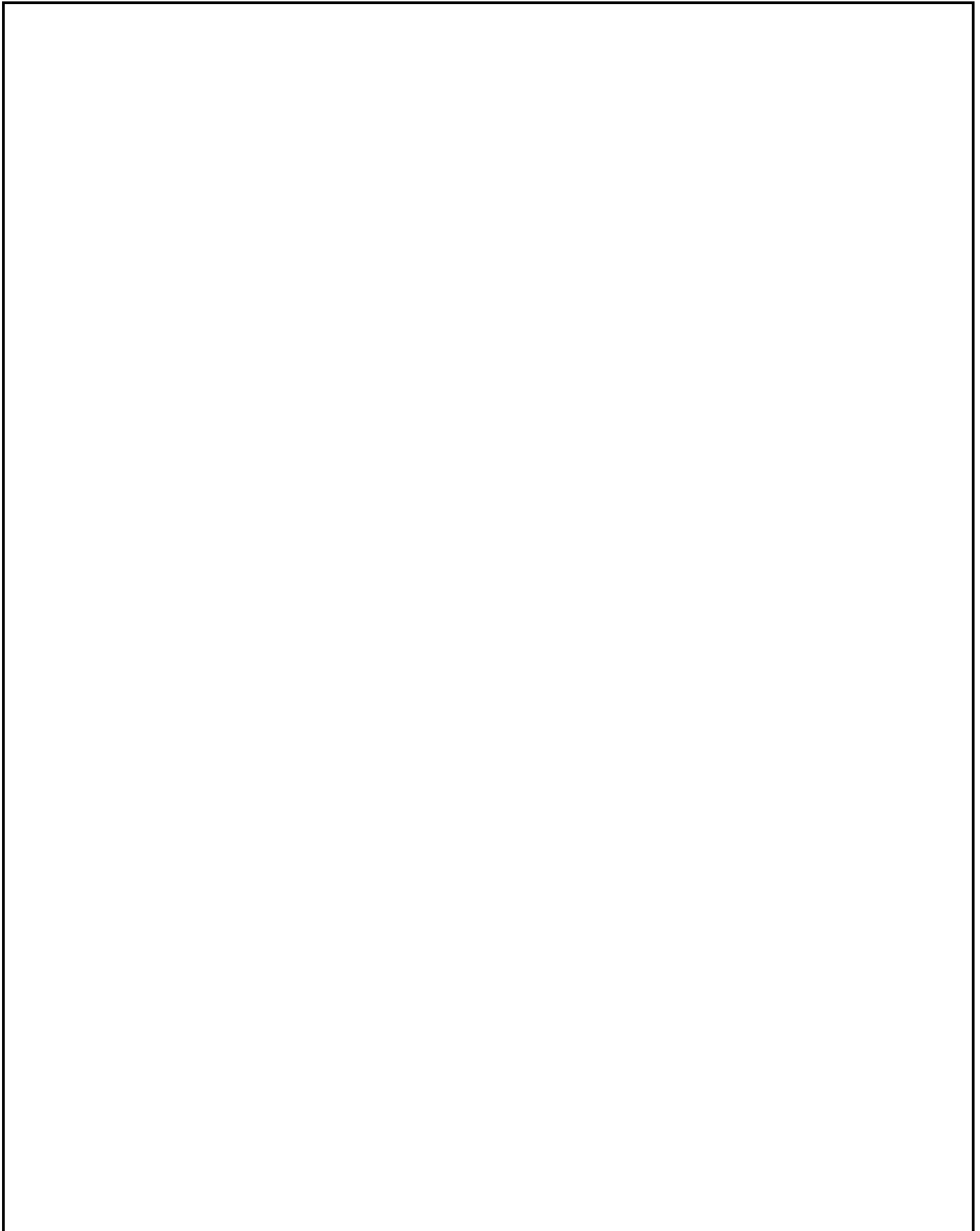
SPECIFICATION FOR APPROVAL

DOCUMENT : NP-08-034

(Preliminary specification)

REVISION : A2

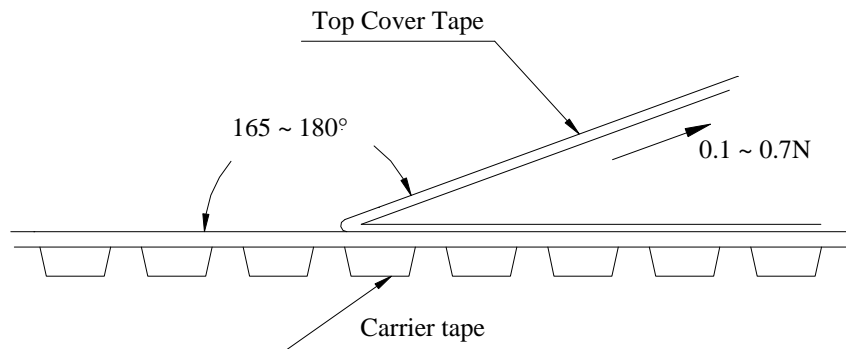
PAGE : 6 OF 6



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

2,000 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