

## SPECIFICATION FOR APPROVAL

### 3W 3637 Low Resistance Chip Resistor (Lead free / Halogen Free)

#### 1. Scope

This specification applies to 9.14mm x 9.4mm size 3W, fixed metal foil with ceramic carrier current sensing resistors used in electronic equipment.

#### 2. Type Designation

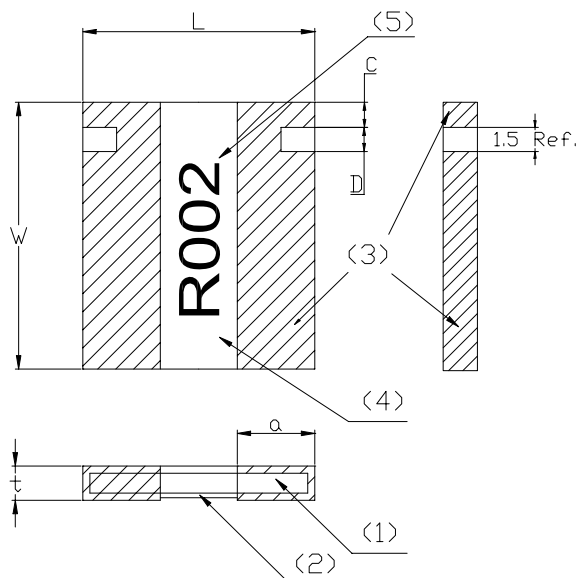
RL36370 -  -

(1) (2) (3)

Where (1) Series No.  
 (2) Resistance value :  
 For example :  
 R002 = 2mΩ  
 R010 = 10mΩ  
 (3) Tolerance :  
 F = ± 1%  
 G = ± 2%  
 J = ± 5%

#### 3. Outline Designation and Marking

##### 3-1 Outline Designation



- (1) Substrate Alumina 96%
- (2) Resistor Ni alloy
- (3) Terminals Sn (on Cu)
- (4) Protection coat Heat resistive epoxy resin
- (5) Marking Epoxy resin

Code Letter	Dimensions (mm)
	3637
L	9.14 ± 0.25
W	9.40 ± 0.25
C	1.55 ± 0.25
D	0.85 ± 0.25
a	(1mΩ) 3.5 ± 0.25 (≥ 2mΩ) 2.2 ± 0.25
t	0.88 ± 0.20

Figure 1. Construction and Dimensions



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### 3-2 Marking

Resistance value is marked on the top surface.

Ex.)  $2\text{m}\Omega \rightarrow \text{R002}$

$10\text{m}\Omega \rightarrow \text{R010}$

## 4. Ratings

### 4-1 Specification

Power Rating*	3 W	
Resistance Value	1 mΩ ~ <2 mΩ	2 ~ 10mΩ
Temperature Coefficient of Resistance	0~+150 ppm/°C	±100ppm/°C
Resistance Tolerance	± 1%, ± 2%, ± 5%	
Insulation Resistance	Over 100MΩ	
Rated 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.

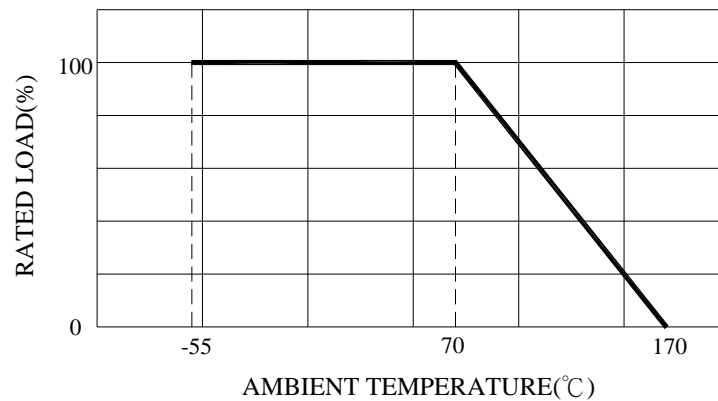


Figure 2. : Power Temperature Derating Curve

### 4-2 Operation and Storage Temperature Range

-55°C to +170°C



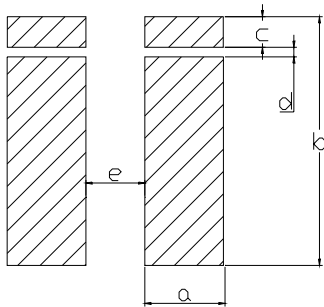
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### 5. Life test

Test Item	Condition of Test	Requirements
Short Time Overload	5 * Rated power for 5 seconds Refer to JIS C 5201-1 4.13	$\Delta R : \pm (0.5\% + 0.0005\Omega)$
Thermal Shock	-55 ~150°C 1,000 cycles, 15 min at each extreme condition Refer to JIS C 5201-1 4.19	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
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 $20 \pm 1$ seconds Refer to JIS C 5201-1 4.29	$\Delta R : \pm (0.5\% + 0.0005\Omega)$
Load Life	Rated voltage for 1.5hours followed by a pause 0.5hour at $70 \pm 3^\circ\text{C}$ . Cycle repeated 1000 hours Refer to JIS C 5201-1 4.25	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
Damp Heat with Load	$40 \pm 2^\circ\text{C}$ with relative humidity 90% to 95%. Cycle repeated 1,000 hours Refer to JIS C 5201-1 4.24	$\Delta R : \pm (1.0\% + 0.0005\Omega)$
High Temperature Exposure	Kept at $170^\circ\text{C}$ 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 : $3 \pm 0.5$ seconds 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	$\Delta R : \pm (0.5\% + 0.0005\Omega)$
Bending Test	Glass-Epoxy board thickness : 1.6mm Bending width : 2mm Between the fulcrums : 90mm Refer to JIS C 5201-1 4.33	$\Delta R : \pm (0.5\% + 0.0005\Omega)$

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### 6. Recommended Solder Pad Dimensions



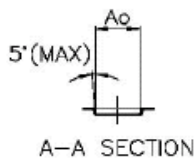
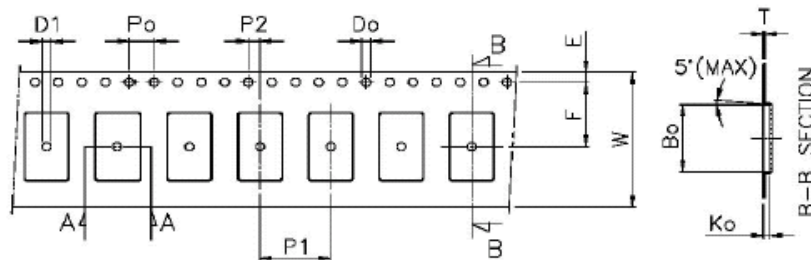
3637	a	b	c	d	e
1mΩ	4.3	9.9	1.68	0.6	1.9
2~10mΩ	2.95	9.9	1.68	0.6	4.6

Unit : mm

### 7. Packaging

#### 7-1 Dimensions

##### 7-1-1 Tape packaging dimensions



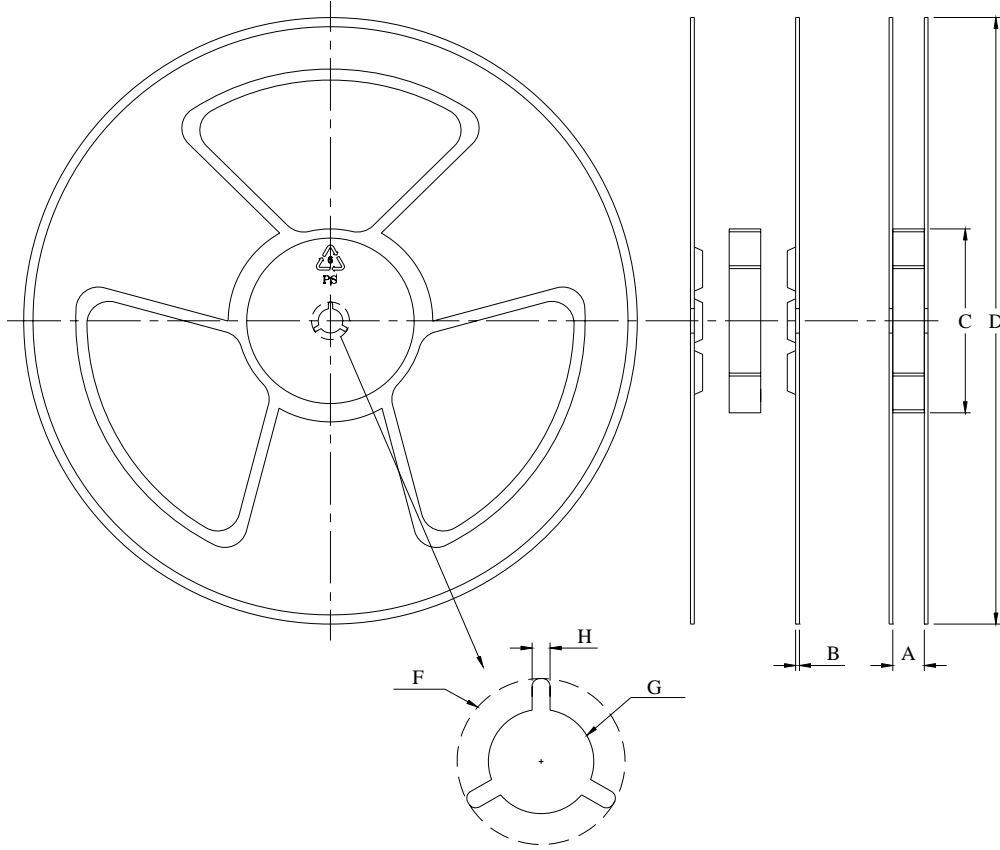
Unit: mm

Symbol	Ao	Bo	Ko	Po	P1	P2
Spec	9.6±0.10	9.9±0.10	1.2 Max.	4.0±0.10	12.0±0.10	2.0±0.10
Symbol	T	E	F	Do	D1	W
Spec	0.4 Max.	1.75±0.10	7.50±0.10	1.5±0.1	1.5 Max.	16.0±0.2



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7-1-2 Reel dimensions



A	$17.4 \pm 1.0$	F	$20.2 \pm 0.1$
B	$2.0 \pm 0.2$	G	$13.5 \pm 0.5$
C	$99 \pm 1.0$	H	$2.5 \pm 0.5$
D	$380 \pm 0.5$		

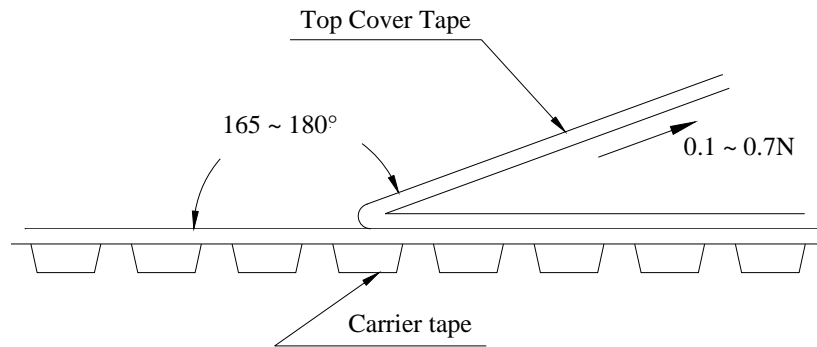
Unit : mm

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

The peel speed shall be about 300mm/minute

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



### 7-3 Number of Taping

1,000 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