

# Data sheet

Title: METAL-PLATE CHIP RESISTOR; LOW OHM

Style: WLP63

RoHS COMPLIANCE ITEM  
Halogen and Antimony Free

- Note:
- Products are recommended to be used up within 2 years as ensured shelf life. Check solder ability in case shelf life extension is needed.
  - To store products with following condition:  
Temperature:5 to 35°C; Humidity:25 to 75% relative humidity.
  - Product specification contained in this data sheet are subject to change at any time without notice
  - If you have any questions or a Purchasing Specification for any quality Agreement is necessary, please contact our sales staff.



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WLP63

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## 1. Scope

1.1 This data sheet covers the detail requirements for metal-plate chip resistor ; low ohm, style of WLP63.

### 1.2 Applicable documents

JIS C 5201-1: 2011, JIS C 5201-8: 2014, JIS C 5201-8-1: 2014

IEC60115-1: 2008, IEC60115-8: 2009, IEC60115-8-1: 2014

## 2. Classification

Type designation shall be the following form.

(Example) 

WLP	63	3D	N	R025	F	TE
1	2	3	4	5	6	7

  
Style

1 Metal-plate chip resistor ; low ohm  Style

2 Size

3 Rated dissipation

3A	1W
3D	2W
3F	3W

4 Temperature coefficient of resistance

N	$\pm 70 \times 10^{-6} / ^\circ\text{C}$
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5 Rated resistance

R025	R025-->25m $\Omega$
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6 Tolerance on rated resistance

F	$\pm 1\%$
G	$\pm 2\%$
J	$\pm 5\%$

7 Packaging form

TE	Plastic tape
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### 3. Rating

3.1 The ratings shall be in accordance with Table-1.

Table-1

Style	Rated dissipation Symbol	(W)	Rated current (A)	Temperature coefficient of resistance (10 <sup>-6</sup> /°C)		Rated resistance (mΩ)	Type	Tolerance on rated resistance
WLP63	3A	1.0	15.8~31.6	N	±70	1,2,3,4	Low EMF	F(±1%) G(±2%) J(±5%)
			3.16~14.1			5,6,7,8,9,10,12,15,20,25,30,33,35,40,50,60,75,80,100	Standard	
	3D	2.0	22.3~44.7			1,2,3,4	Low EMF	
			4.47~20			5,6,7,8,9,10,12,15,20,25,30,33,35,40,50,60,75,80,100	Standard	
	3F	3.0	27.3~54.8			1,2,3,4	Low EMF	
			5.48~24.5			5,6,8,10,12,15,20,25,30,33,35,40,50,60,75,80,100	Standard	

Style	Rated dissipation Symbol	(W)	Rated resistance (mΩ)	Max. working voltage (V)	Max. Overload voltage (V)	Insulation Voltage (V)	Category temperature range (°C)
WLP63	3A	1.0	1,2,3,4	0.063	0.141	100	-55~+170
			5,6,7,8,9,10,12,15,20,25,30,33,35,40,50,60,75,80,100	0.316	0.707		
	3D	2.0	1,2,3,4	0.089	0.200		
			5,6,7,8,9,10,12,15,20,25,30,33,35,40,50,60,75,80,100	0.447	1.000		
	3F	3.0	1,2,3,4	0.110	0.245		
			5,6,8,10,12,15,20,25,30,33,35,40,50,60,75,80,100	0.548	1.225		

### 3.2 Derating

The derated values of dissipation at temperature in excess of 70 °C shall be as indicated by the following curve.

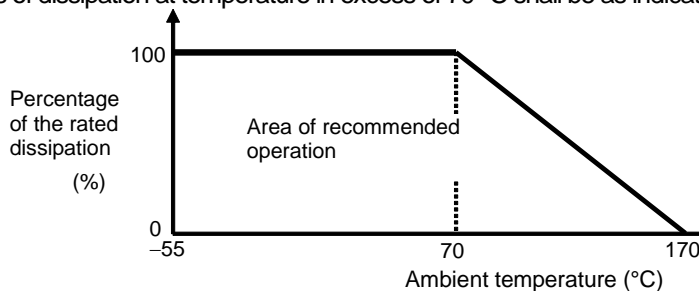


Figure-1 Derating curve

### 3.3 Rated voltage

d.c. or a.c. r.m.s. voltage calculated from the square root of the product of the rated resistance and the rated dissipation.

$$E = \sqrt{P \cdot R}$$

E: Rated voltage (V)

P: Rated dissipation (W)

R: Rated resistance (Ω)

### 3.4 Rated current

The rated current calculated from the square root of the quotient of the rated resistance and the rated dissipation.

$$I = \sqrt{P / R}$$

I: Rated current (A)  
 P: Rated dissipation (W)  
 R: Rated resistance ( $\Omega$ )

The rated current shall be corresponding to rated voltage.

\*Power testing with total solder-pad and trace size of 300 mm<sup>2</sup>

### 4. Packaging form

The standard packaging form shall be in accordance with Table-2.

Table-2

Symbol	Packaging form		Standard packaging quantity / units
TE	Plastic tape	12mm width, 4mm pitches	4,000 pcs.

### 5. Dimensions

5.1 The resistor shall be of the design and physical dimensions in accordance with Figure-2 and Table-3.

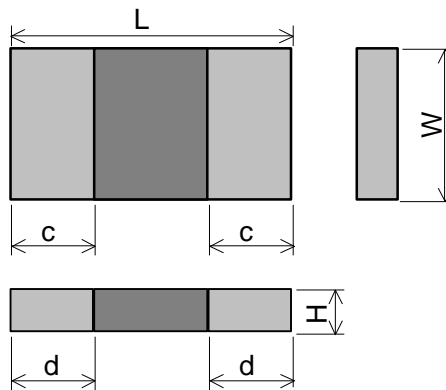


Figure-2

Table-3

Unit: mm

Style	Rated dissipation Symbol	Rated dissipation (W)	Rated resistance (m $\Omega$ )	L	W	H	c	d
WLP63	3A	1.0	1~2	6.4 $\pm$ 0.2	3.25 $\pm$ 0.2	0.75 $\pm$ 0.25	2.0 $\pm$ 0.25	2.0 $\pm$ 0.25
			3~100	6.4 $\pm$ 0.2	3.25 $\pm$ 0.2	0.75 $\pm$ 0.25	1.0 $\pm$ 0.25	1.0 $\pm$ 0.25
	3F	3.0	1	6.4 $\pm$ 0.2	3.25 $\pm$ 0.2	0.75 $\pm$ 0.25	2.0 $\pm$ 0.25	2.0 $\pm$ 0.25
			1~3	6.4 $\pm$ 0.2	3.25 $\pm$ 0.2	0.75 $\pm$ 0.25	2.0 $\pm$ 0.25	2.0 $\pm$ 0.25
			4~100	6.4 $\pm$ 0.2	3.25 $\pm$ 0.2	0.75 $\pm$ 0.25	1.0 $\pm$ 0.25	1.0 $\pm$ 0.25

### 5.2 Net weight (Reference)

Style	Net weight (mg)
WLP63	62.5

### 6. Marking

The rated resistance shall be marked in 4 characters consisting of 3 figures and a letter and marked on over coat side.

(Example) "R025"  $\rightarrow$  0.025 [ $\Omega$ ]  $\rightarrow$  25 [m $\Omega$ ]

## 7. Performance

7.1 The standard condition for tests shall be in accordance with Sub-clause 4.2, JIS C 5201-1: 2011.

7.2 The performance shall be satisfied in Table-4.

Table- 4(1)

No.	Test items	Condition of test	Performance requirements
1	DC Resistance	<u>IEC 60115-1 4.5</u> Measure the resistance value	F(±1%), G(±2%), J(±5%)
2	Temperature Cycling	<u>IEC 60115-1 4.19</u> Repeat 5 cycles as follows -55°C(30min.)→25°C(2~3min.)→ +155°C(30min.)→25°C(2~3min.)	J,G :ΔR ≤±1% F :ΔR ≤±0.5% No mechanical damage
3	Resistance to Solder Heat	<u>MIL-STD-202 Method 210</u> Solder dipping @ 270°C±5°C for 10sec.±1sec	J,G :ΔR ≤±1% F :ΔR ≤±0.5% No mechanical damage
4	Solder Ability	<u>IEC 60115-1 4.17</u> After immersing flux, dip in the 235±2°C molten solder bath for 3±0.5 sec.	Over 95% of termination must be covered with solder
5	Board Flex	Bending 2mm, maintains 10 sec.	J,G :ΔR ≤±1% F :ΔR ≤±0.5% No mechanical damage
6	Short time overload	<u>IEC 60115-1 4.13</u> 5 x Rated power for 5seconds.	J,G :ΔR ≤±2% F :ΔR ≤±1% No mechanical damage
7	Load life in Humidity	<u>IEC 60115-1 4.24</u> 40±2°C with relative humidity 90%~95% D.C. rated current for 1.5 hours ON 30 minutes OFF. Cycle repeated 1000 hours.	ΔR ≤±3%
8	Temperature coefficient of resistance (TCR)	<u>IEC 60115-1 4.8</u> Test temperature: T <sub>1</sub> ~T <sub>2</sub> : +25°C~+155°C TCR(ppm/°C)=(R <sub>2</sub> -R <sub>1</sub> )/R <sub>1</sub> ×1/(T <sub>2</sub> -T <sub>1</sub> )×10 <sup>6</sup> (+25°C ~-55°C please contact.)	See Table-1.
9	Load life	<u>IEC 60115-1 4.25</u> Rated voltage for 1.5 h for followed by a pause 0.5 h at 70±2°C. Cycle repeated 1,000 hours.	ΔR ≤±3%
10	Insulation resistance	<u>IEC 60115-1 4.6</u> Test voltage: 100±15Vdc maintains 60 sec.	Between termination and coating must be over 1000MΩ

## 8. Taping

### 8.1 Peel strength of top cover tape

The peel speed shall be about 300 mm/min

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

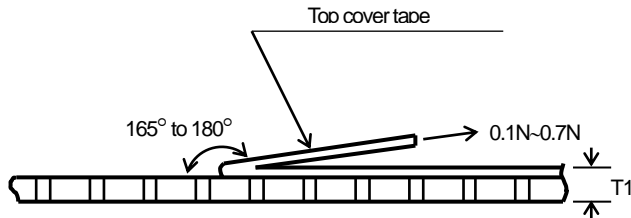
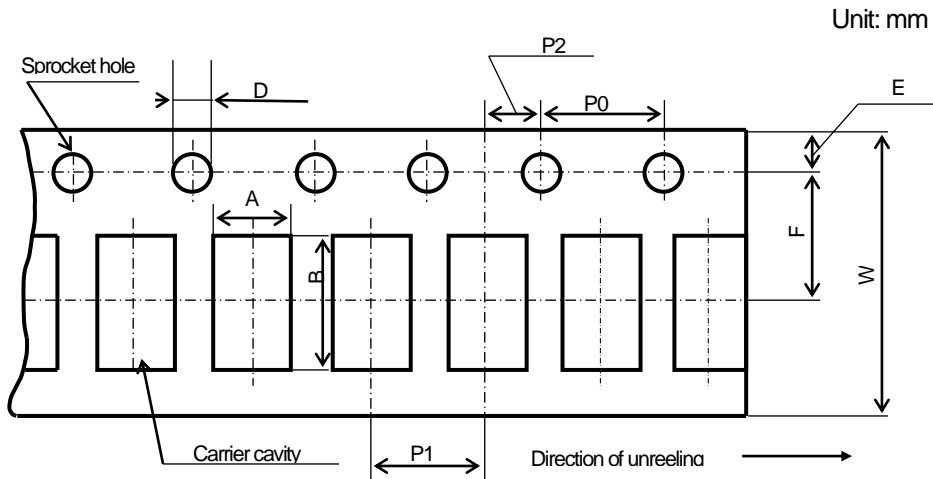


Figure-3

### 8.2 Taping dimensions

Taping dimensions shall be in accordance with Figure-4 and Table-5.



\*Accumulated dimensional tolerance  $40\pm 0.2\text{mm}$

Figure-4

Table-5

Unit: mm

Size	A	B	W	F	E
2512	$3.50\pm 0.20$	$6.75\pm 0.20$	$12.0\pm 0.30$	$5.50\pm 0.05$	$1.75\pm 0.10$

Size	P1	P2	P0	D	T1
2512	$4.00\pm 0.10$	$2.00\pm 0.05$	$4.00\pm 0.10$	$1.50\pm 0.10$	$1.15\pm 0.15$

### 8.3 Reel dimension

Reel dimensions shall be in accordance with the following Figure-5 and Table-6.

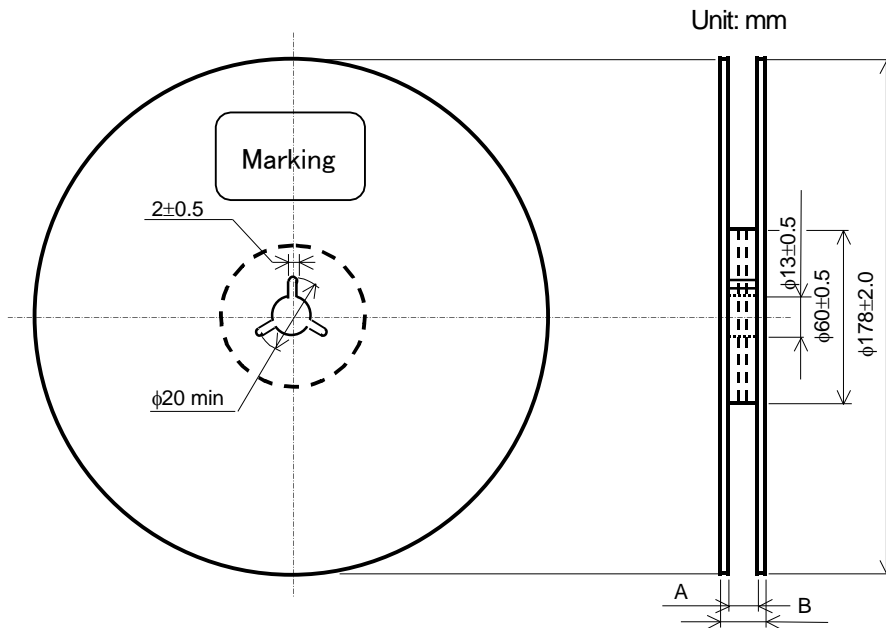


Figure-5

Table-6

Unit: mm

Size	A	B
2512	13.8±1.5	16.7 max.

### 9. Marking on package

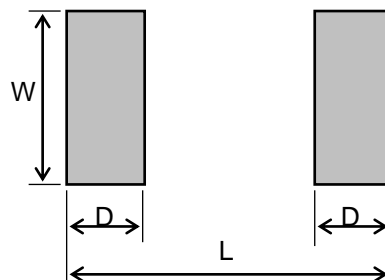
The label of a minimum package shall be legibly marked with follows.

(1) Classification

(Style, Rated dissipation, Temperature coefficient of resistance, Rated resistance, Tolerance on rated resistance, Packaging form)

(2) Lot number (3) Quantity (4) Manufacturer's name or trade mark (5) Others

### 10. Recommend Solder Pad Dimensions



Unit:mm

Type	W	D	L
2512	3.70	1.60	6.38
2512 R001/R002 3W R003	4.00	3.00	7.30