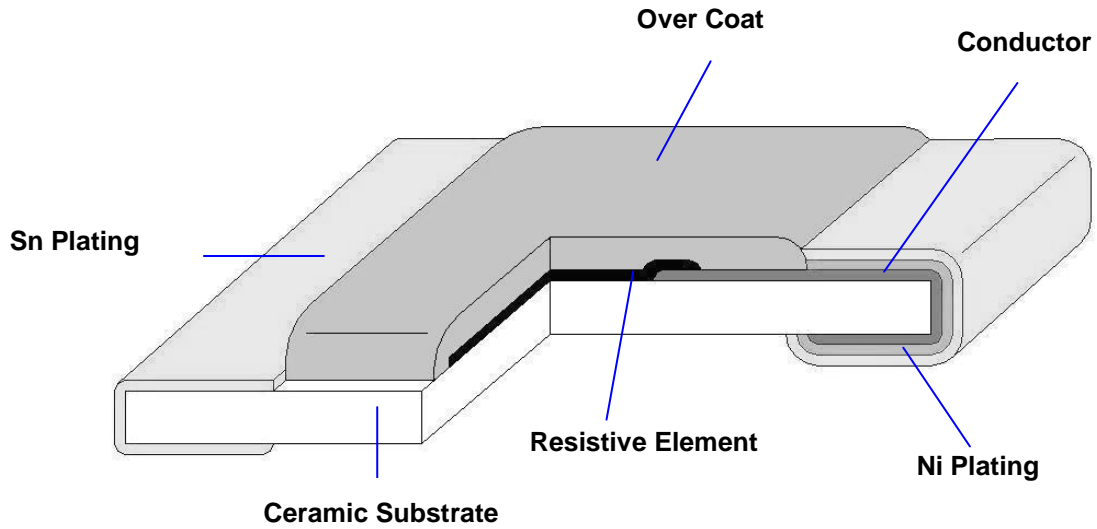


General Purpose Chip Resistors (Lead-Free for RR01 Series)

1. Scope :

This specification applies for the RR01 series of chip resistors

2. Construction:



3. Type Designation:

<u>RR</u>	<u>01</u>	<u>J</u>	<u>TN</u>	<u>102</u>
Product Code	Size	Tolerance	Packaging	Nominal Resistance
RR : Chip Resistor	Power Rating			

01-01005(0402) 1/32W

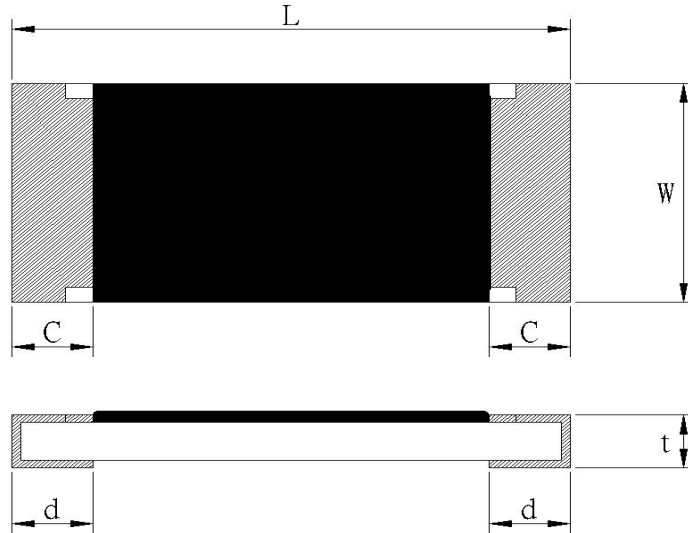
J- ±5%
F- ±1%

T-Paper Tape
+N: Lead-Free

3 digits, e.g.,:
(E-24) 102 = 1kΩ
0Ω
4 digits, e.g., :
(E-96) 1540 = 154Ω
43R2 = 43.2Ω

**General Purpose Chip Resistors
(Lead-Free for RR01 Series)**

4. Dimensions:



UNIT: mm

Type	L	W	C	d	t
RR01	0.4 ±0.03	0.2 ±0.03	0.1 ±0.05	0.1±0.05	0.13 ±0.05

5. Ratings & Characteristics :

Type	Power Rating at 70°C	Rated Voltage	Max. Working Voltage	Max Over- Load Voltage	T.C.R (PPM/°C)	Resistance Range(Ω)	
						F(±1%) E-96	J(±5%) E-24
RR01	1/32W	Refer 5.2	15V	30V	±300	10Ω ≤ R < 100Ω	10Ω ≤ R < 100Ω
					±200	100Ω ≤ R ≤ 1MΩ	100Ω ≤ R ≤ 1MΩ
0 Ω CHIP RESISTORS							
Type	Rated Current		Max Overload Current		Resistance Range		
RR01	0.5A		1A		50mΩ MAX		
Operating Temp(°C): : -55°C ~ +125°C							

General Purpose Chip Resistors (Lead-Free for RR01 Series)

5.1 Derating Curve :

For resistors operated at ambient temperature over 70°C , power rating shall be derated in accordance with figure 1.

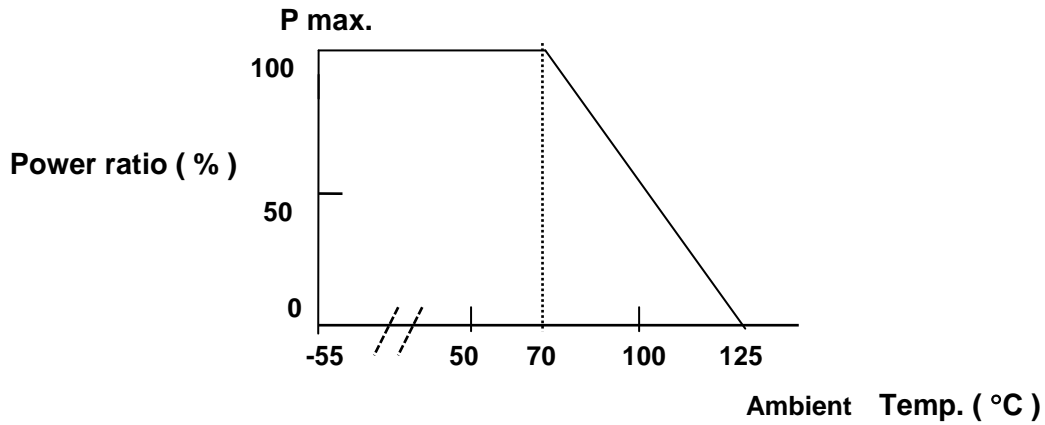


Figure 1

5.2 Rated Voltage:

The rated voltage is calculated by the following formula:

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

E=Rated Voltage(V)
 P=Rated Power(W)
 R=Resistance Value(Ω)

E.G. : What is RR01JTN102 the rated voltage ?

RR01JTN102 P:1/32W ; R:102 = 1K Ω = 1000 Ω

$$E = \sqrt{0.031(W) * 1000(\Omega)} = 5.56 (V)$$

**General Purpose Chip Resistors
(Lead-Free for RR01 Series)**

6. Reliability Tests:

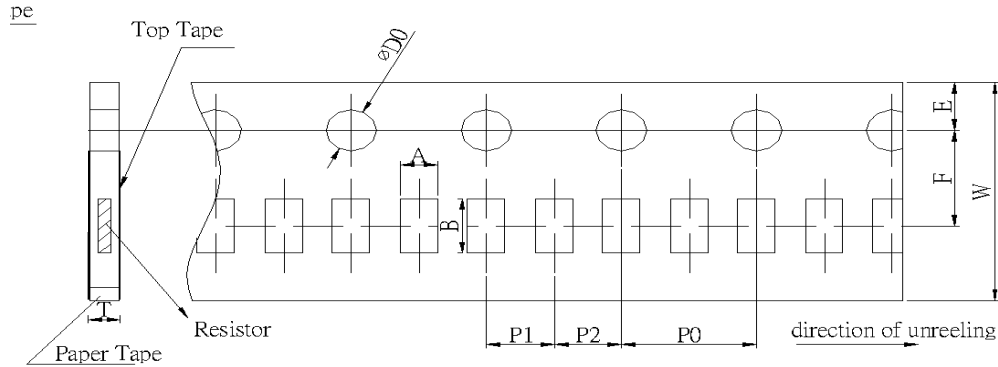
Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-4.8	+25~ +125 °C	Refer 5.0
Short Time Overload	IEC60115-1-4.13 JIS-C5201-4.13	2.5 X rated voltage for 5 sec	± (3% + 0.1Ω) 0Ω : 50mΩ or less
Endurance (Load Life)	IEC60115-1-4.25.1 JIS-C5201-4.25.1	1000 hours at rated voltage, 70°C , 1.5hours "ON ", 0.5hour "OFF"	± (5.0% + 0.1Ω) 0Ω : 100mΩ or less
Load Life with Humidity	IEC60115-1-4.24 JIS-C5201-4.24	1000 hours at rated voltage , 40±2°C , 90~95% RH 1.5hours "ON ", 0.5hour "OFF"	± (5.0% + 0.1Ω) 0Ω : 100mΩ or less
Rapid Change of Temperature	IEC60115-1-4.19 JIS-C5201-4.19	-55°C (30 min.) / +155 °C(30 min.) 5 cycles	±(3.0%+0.1Ω) 0Ω : 50mΩ or less
Solderability	IEC60115-1-4.17 JIS-C5201-4.17	245±5°C solder, 2±0.5 sec dwell. Solder : Sn96.5 / Ag3.0 / Cu0.5	At least 95% of surface area of electrode shall be covered with new solder.
Robustness of Termination (Bending)	IEC60115-1-4.33 JIS-C5201-4.33	3mm deflection	±(1.0%+0.1Ω) 0Ω : 50mΩ or less
Dielectric Withstanding Voltage (Voltage Proof)	IEC60115-1-4.7 JIS-C5201-4.7	Applying voltage : 50V for a minute .	No abnormalities such as flashover, burning dielectric breakdown shall appear.
Insulation Resistance	IEC60115-1-4.6 JIS-C5201-4.6	Applying voltage 50V for 1 minute.	≥ 100MΩ
Resistance to Dry Heat	IEC60115-1-4.23.2 JIS-C5201-4.23.2	125±5°C for 96±4Hrs	±(3.0%+0.1Ω) 0Ω : 50mΩ or less
Resistance to Solder Heat	IEC60115-1-4.18 JIS-C5201-4.18	270 ±5°C solder , 10 ±1 sec dwell .	±(3.0%+0.05Ω) 0Ω : 50mΩ or less

7. Marking : No Marking

**General Purpose Chip Resistors
(Lead-Free for RR01 Series)**

8.Taping & Reel :

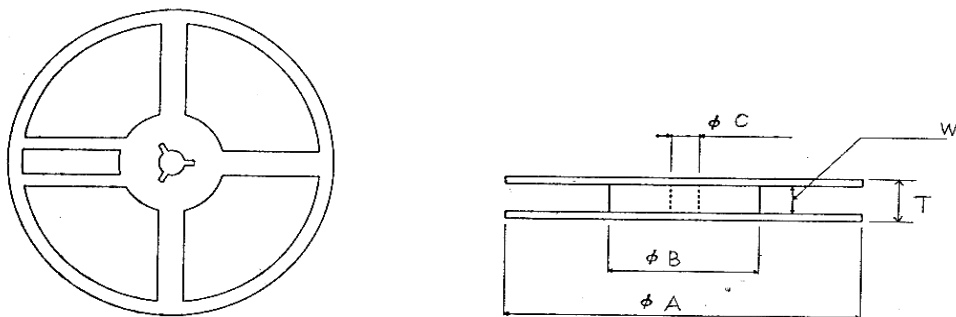
8.1 Taping Dimensions 2 mm pitch paper :



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Paper	RR01	0.24±0.05	0.45±0.1	8.0±0.2	3.5±0.05	1.75±0.1	2.0±0.1	2.0±0.05	4.0±0.1	ϕ 1.5 +0.1 -0	0.40±0.1

Type	Package Size	2 mm pitch
		178mm/R
RR	01	10000

8.2 Reel Specifications:



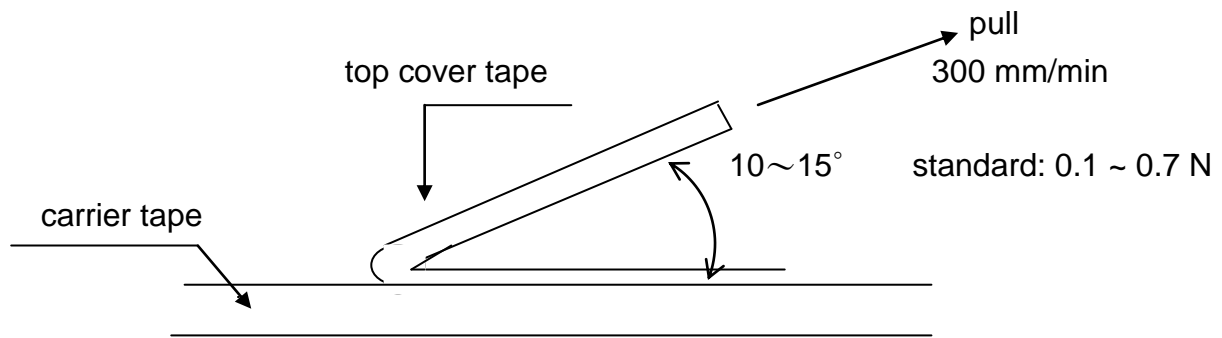
UNIT: mm

Type	ϕA	ϕB	ϕC	W	T
RR 01	178.0 ± 2.0	60.0 ± 1.0	13.0 ± 1.0	9.0 ± 1.0	11.5 ± 1.0

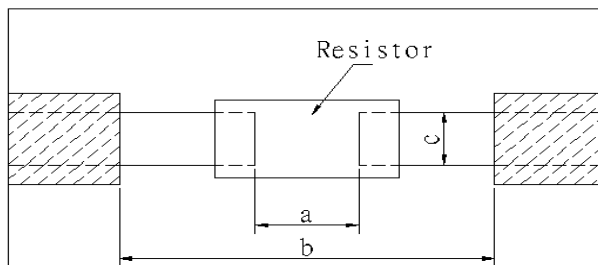
General Purpose Chip Resistors (Lead-Free for RR01 Series)

8.4 Peel –off force :

Peel –off force of paper and blister tape is in accordance with “JIS-C5202 ” that is , 0.1 to 0.7 N at a peel-off speed of 300 mm / minute.



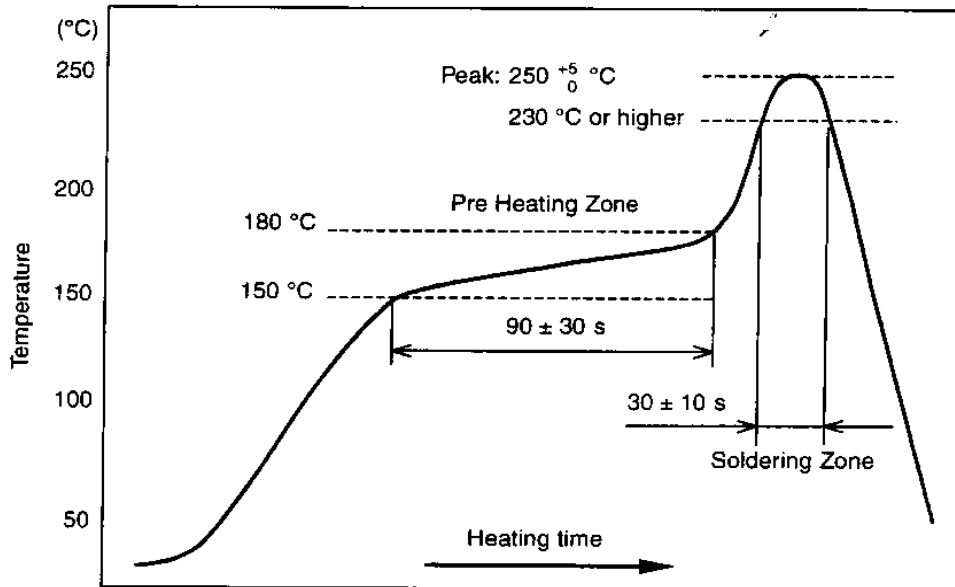
9.Recommended land patterns :



Type	Size	Land pattern		
		Dimension (mm)		
		a	b	c
RR	01 (01005)	0.15~0.20	0.5~0.7	0.20~0.25

**General Purpose Chip Resistors
(Lead-Free for RR01 Series)**

10. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)



Peak : 250 $\begin{matrix} +5 \\ -0 \end{matrix}$ °C , 5 sec

Pre – heat Zone : 150 to 180 °C , 90±30 sec

Soldering Zone : 230°C or higher , 30±10 sec

11. Storage Conditions:

Temperature : 5 to 35 °C

Related Humidity :40 to 75% RH

12. Shelf Life :

2 Years from manufacturing date.

13. ECN :

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.