1 Scope:

This specification is applicable to lead and halogen free RTA series thick film chip resistors array。

2 Explanation Of Part Numbers:

(EX) **RTA 03 — 4 D 101 J TP**

Type	Size	Number of Circuits	Terminal Type
Lead-Free Thick Thick Film Chip Resistors Array	01(0201) 02(0402) 03(0603)	2: 2 circuits 4: 4 circuits 8: 8 circuits	D:Convex C:Concave

Nominal Resistance		
Resistors	3-Digit	E24 Series EX 10Ω =100 4.7Ω =4R7
	4-Digit	E24/E96 Series EX 10.2Ω =10R2 10KΩ =1002
Jumper		000

Resistance Tolerance
D=± 0.5% F=± 1% G=± 2% J=± 5%

Packaging	
TH	2 mm Pitch Paper(Taping) 10000 pcs
H2	2 mm Pitch Paper(Taping) 20000 pcs
H3	2 mm Pitch Paper(Taping) 30000 pcs
H4	2 mm Pitch Paper(Taping) 40000 pcs
TP	4 mm Pitch Paper(Taping) 5000 pcs
P2	4 mm Pitch Paper(Taping) 10000 pcs
P3	4 mm Pitch Paper(Taping) 15000 pcs
P4	4 mm Pitch Paper(Taping) 20000 pcs

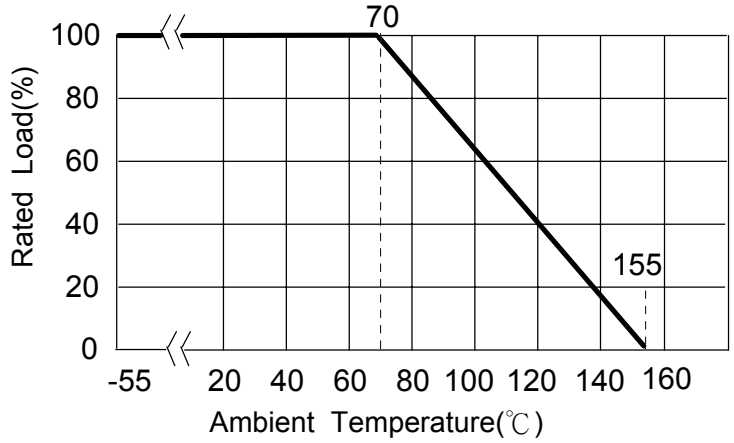
3 General Specifications:

Type	Rated Power at 70℃	Max. Working Voltage	Max. Overload Voltage	T.C.R. (ppm/℃)	Resistance Range D(± 0.5%) E-24、E-96	Resistance Range F(± 1%) E-24、E-96	Resistance Range G(± 2%) J(± 5%) E-24	Number of Terminals	Number of Resistors	JUMPER (0Ω) Rated Current	JUMPER (0Ω) Resistance Value
RTA01-2D (0201)	1/32W	12.5V	25V	± 500	-----	-----	3Ω≦R＜10Ω	4	2	0.5A	50mΩMax.
				± 300	-----	-----	10Ω≦R＜1K Ω				
				± 200	-----	-----	1KΩ≦R ≦1 MΩ				
RTA02-2D (0402)	1/16W	25V	50V	± 300	-----	1Ω≦R＜10Ω	1Ω≦R＜10Ω	4	2	1A	50mΩMax.
				± 200	-----	10Ω≦R≦1MΩ	10Ω≦R≦1MΩ				
RTA03-2D (0603)	1/16W	50V	100V	± 200	-----	10Ω≦R≦1MΩ	1Ω≦R≦10MΩ	4	2	1A	50mΩMax.
RTA02-4D (0402)	1/16W	25V	50V	± 300	-----	1Ω≦R＜10Ω	1Ω≦R＜10Ω	8	4	1A	50mΩMax.
				± 200	-----	10Ω≦R≦1MΩ	10Ω≦R≦1MΩ				
RTA02-4C (0402)	1/16W	25V	50V	± 400	-----	1Ω≦R＜10Ω	1Ω≦R＜10Ω	8	4	1A	50mΩMax.
				± 200	-----	10Ω≦R≦1MΩ	10Ω≦R≦1MΩ				
RTA03-4D (0603)	1/16W	50V	100V	± 200	22Ω≦R≦470KΩ	1Ω≦R≦10MΩ	1Ω≦R≦10MΩ	8	4	1A	50mΩMax.
RTA03-4C (0603)	1/16W	50V	100V	± 200	-----	1Ω≦R≦1MΩ	1Ω≦R≦10MΩ	8	4	1A	50mΩMax.
RTA02-8D (0402)	1/16W	25V	50V	± 250	-----	10Ω≦R≦1MΩ	1Ω≦R≦1MΩ	16	8	1A	50mΩMax.
RTA03-8C (0603)	1/16W	50V	100V	± 200	-----	1Ω≦R≦1MΩ	1Ω≦R≦10MΩ	16	8	1A	50mΩMax.
RTA03-2C (0603)	1/16W	50V	100V	± 200	-----	1Ω≦R≦1MΩ	1Ω≦R≦10MΩ	4	2	1A	50mΩMax.
RTA02-2C (0402)	1/16W	25V	50V	± 650	-----	3Ω≦R＜10Ω	3Ω≦R＜10Ω	4	2	1A	50mΩMax.
				± 250		10Ω≦R≦1MΩ	10Ω≦R≦1MΩ				
Operating Temperature Range					**－55℃ ~ ＋155℃**						

3.1 Power Derating Curve:

Operating Temperature Range： - 55～155 ℃

For resistors operated in ambient temperatures above 70 ℃ , power rating shall be derated in accordance with figure below.



3.2 Voltage Rating:

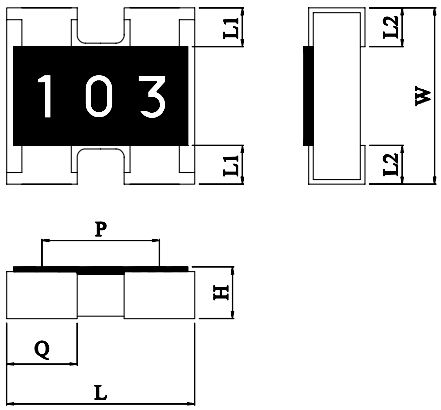
Rated Voltage: The resistor shall have a DC continuous working voltage or a rms. AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined from the following:

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

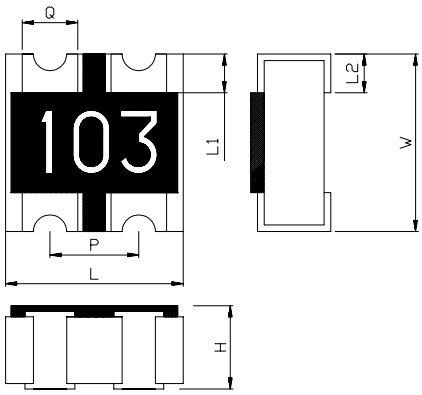
E= Rated voltage (v)
P= power rating (w)
R= Nominal resistance(Ω)

4 Dimensions: (mm)

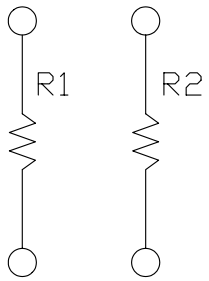
RTA03-2D



RTA03-2C

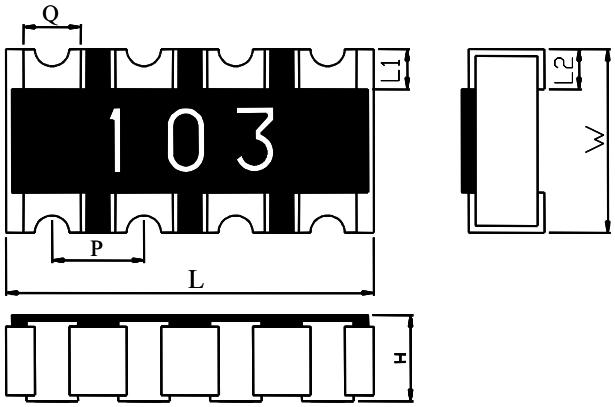


Circuits

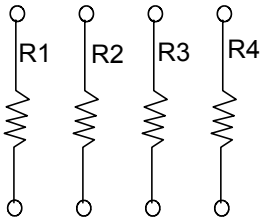


R1=R2

RTA02-4C / RTA03-4C

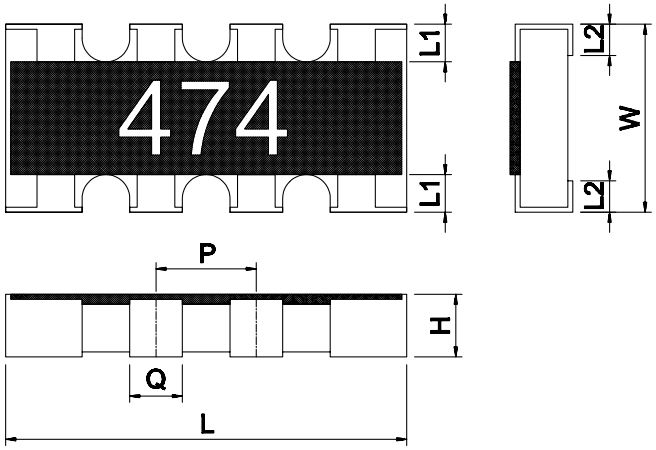


Circuits

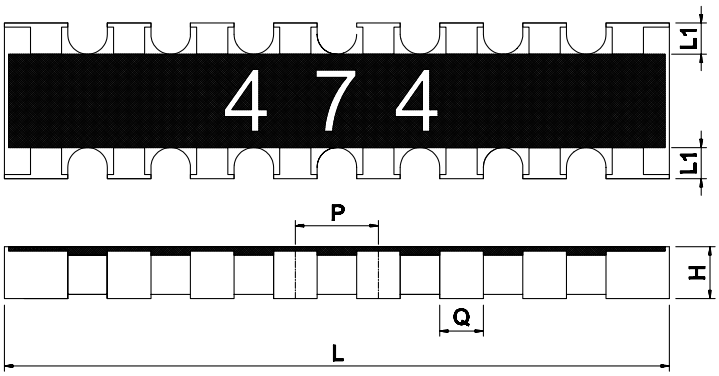


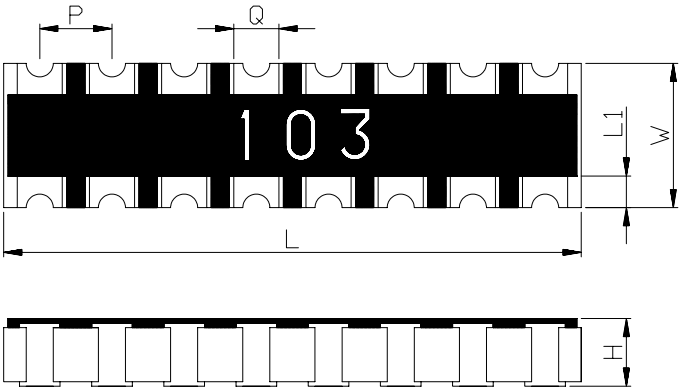
R1=R2=R3=R4

RTA02-4D / RTA03-4D

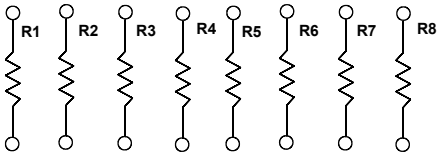


RTA02-8D / RTA03-8C



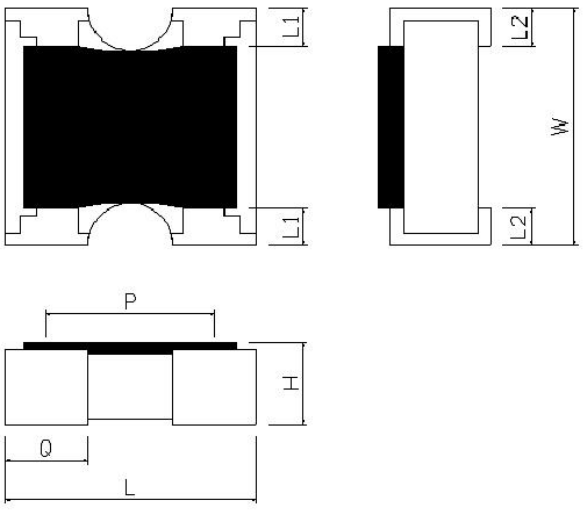


Circuits

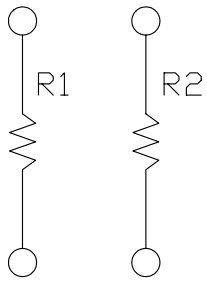


R1 = R2= R3 = R4 = R5 = R6 = R7 = R8

RTA01-2D / RTA02-2D

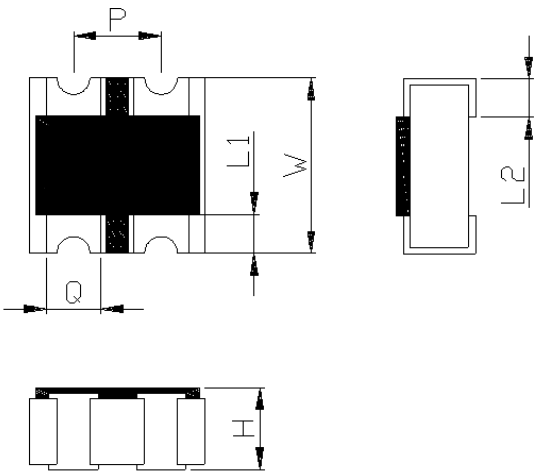


Circuits

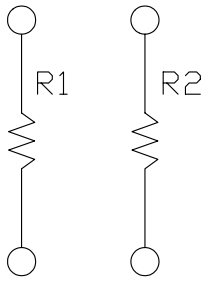


R1=R2

RTA02-2C



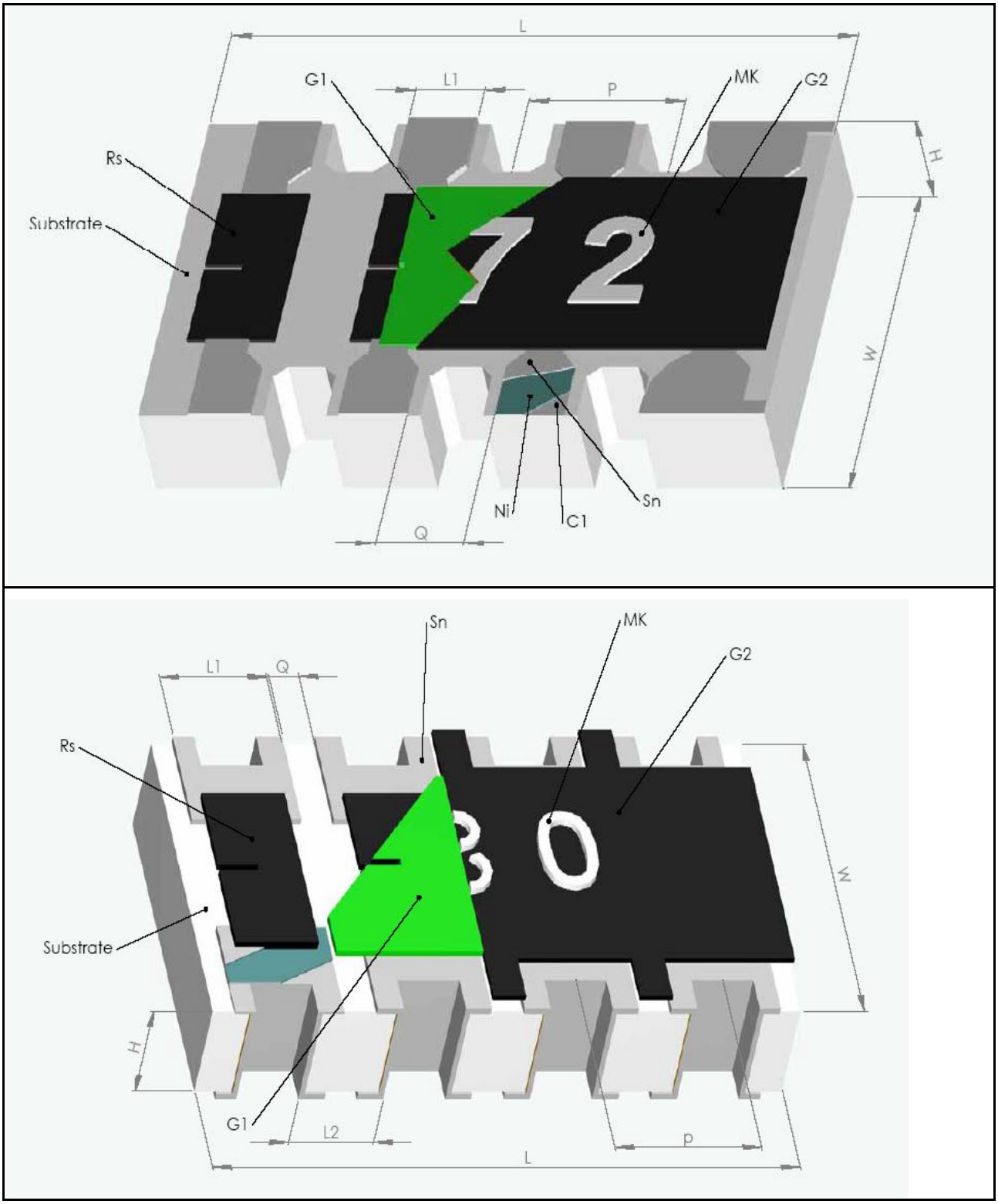
Circuits



R1=R2

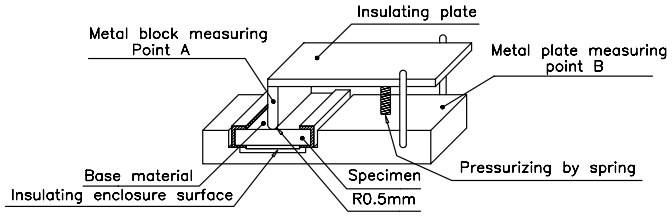
型式 / 尺寸	L	W	H	L1	L2	P	Q
RTA01-2D (0201)	0.80± 0.10	0.60± 0.10	0.30± 0.05	0.15± 0.10	0.15± 0.05	(0.50)	0.35± 0.10
RTA02-2D (0402)	1.00± 0.10	1.00± 0.10	0.30± 0.05	0.15± 0.10	0.25± 0.10	(0.67)	0.33± 0.10
RTA03-2D (0603)	1.60± 0.15	1.60± 0.15	0.45± 0.10	0.30± 0.15	0.30± 0.15	(0.80)	0.60± 0.10
RTA02-4D (0402)	2.00± 0.10	1.00± 0.10	0.40± 0.10	0.20± 0.10	0.25± 0.10	(0.50)	0.30± 0.10
RTA02-4C (0402)	2.00± 0.10	1.00± 0.10	0.40± 0.10	0.15± 0.10	0.25± 0.10	(0.50)	0.30± 0.10
RTA03-4D (0603)	3.20± 0.20	1.60± 0.15	0.50± 0.10	0.30± 0.15	0.30± 0.15	(0.80)	0.50± 0.10
RTA03-4C (0603)	3.20± 0.15	1.60± 0.15	0.55± 0.10	0.35± 0.15	0.45± 0.15	(0.80)	0.50± 0.10
RTA02-8D (0402)	4.00± 0.20	1.60± 0.10	0.40± 0.10	0.30± 0.15	0.30± 0.10	(0.50)	0.25± 0.10
RTA03-8C (0603)	6.40± 0.20	1.60± 0.20	0.55± 0.10	0.30± 0.15	0.40± 0.15	(0.80)	0.50± 0.10
RTA03-2C (0603)	1.60± 0.15	1.60± 0.15	0.55± 0.10	0.30± 0.15	0.40± 0.15	(0.80)	0.50± 0.10
RTA02-2C (0402)	1.00± 0.10	1.00± 0.10	0.30± 0.10	0.18± 0.10	0.25± 0.10	(0.50)	0.30± 0.10

Unit:mm

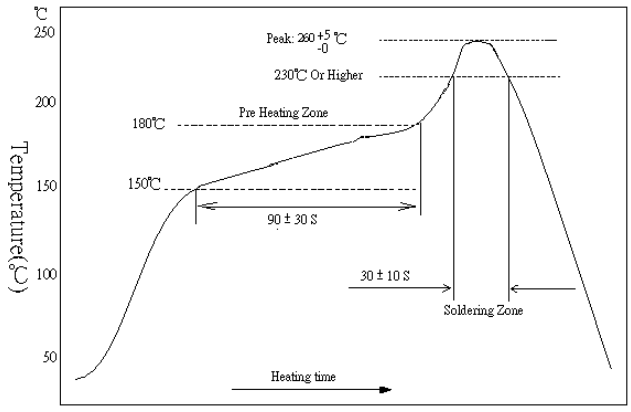

L
G1
L1
P
MK
G2
H
Rs
Substrate
W
Sn
Ni
C1
Q
Sn
MK
G2
L1
Q
Rs
W
Substrate
H
G1
L2
P
L

5 Reliability Test:

5.1 Electrical Performance Test

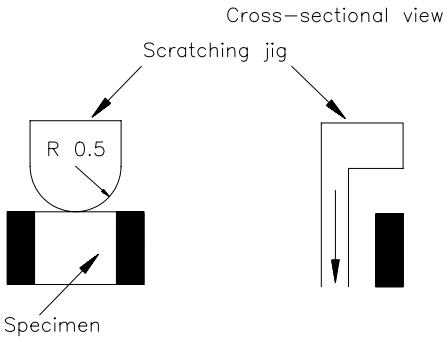
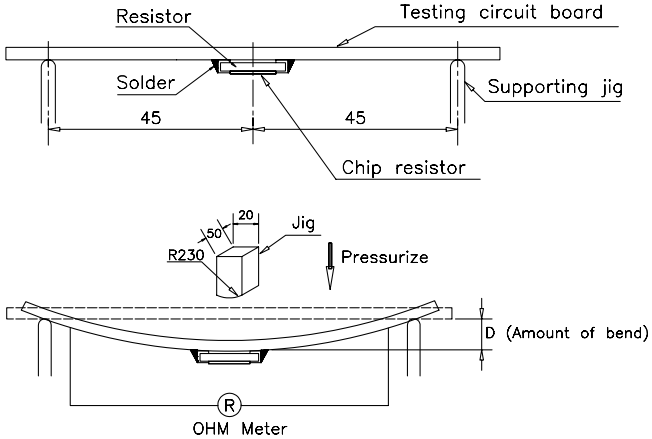
ITEM	Conditions	Specifications	
		Resistors	Jumper
Temperature Coefficientof Resistance	TCR（ppm/℃）$= \frac{(R2-R1)}{R1\,(T2-T1)} \times 10^6$ R1: Resistance at room temperature R2: Resistance at -55℃ or +125℃ T1: Room temperature T2: Temperature -55℃ or +125℃ Refer to JIS-C5201-1 4.8	Refer item 3. General Specifications	NA
Short Time Overload	Applied 2.5 times rated voltage for 5 seconds and release the load for about 30 minutes , then measure its resistance variance rate. (Rated voltage refer to item 3. general specifications) Refer to JIS-C5201-1 4.13	0.5%、1%:± (1.0%+0.05Ω) 2%、5% :± (2.0%+0.10Ω)	50mΩ Lower
		No evidence of mechanical damage,	
Insulation Resistance	Put the resistor in the fixture, add 100 VDC in + ,- terminal for 60 sec then measured the insulation resistance between electrodes and insulating enclosure or between electrodes and base material. Refer to JIS-C5201-1 4.6  	≧10^9Ω	
Dielectric Withstand Voltage	Put the resistor in the fixture, add 300 VAC in +,- terminal for 60 sec. Refer to JIS-C5201-1 4.7	No short or burned on the appearance.	
Intermittent Overload	Put the tested resistor in chamber under temperature 25± 2℃ and load 2.5 times rated DC voltage for 1 sec on , 25 sec off , 10000^{+400}_{0} test cycles, then it be left at no-load for 1 hour , then measure its resistance variance rate. Refer to JIS-C5201-1 4.13	± (5.0%+0.10Ω)	50mΩ Lower
Noise Level	Refer to JIS-C5201-1 4.12	**Resistance** / **Noise** R ＜100Ω / ≦-10db(0.32 uV/V) 100Ω ≦R＜1KΩ / ≦ 0db(1.0 uV/V) 1KΩ ≦R＜10KΩ / ≦ 10db(3.2 uV/V) 10KΩ ≦R＜100KΩ / ≦ 15db(5.6 uV/V) 100KΩ ≦R＜1MΩ / ≦ 20db(10 uV/V) 1MΩ ≦R / ≦ 30db(32 uV/V)	NA

5.2 Mechanical Performance Test

<table>
<tr><th rowspan="2">ITEM</th><th rowspan="2">Conditions</th><th colspan="2">Specifications</th></tr>
<tr><th>Resistors</th><th>Jumper</th></tr>
<tr><td>Resistance to solvent</td><td>The tested resistor be immersed into isopropyl alcohol of 20~25℃ for 5 minutes, then the resistor is left in the room for 48 hr , then measure its resistance variance rate.
Refer to JIS-C5201-1 4.29</td><td>01-2D:± (1.0%+0.05Ω)
Other:± (0.5%+0.05Ω)
No evidence of mechanical damage, no G2 overcoating and Sn layer by leaching.</td><td>50mΩ Lower</td></tr>
<tr><td>Resistance to soldering heat</td><td>◎Test method 1 (Reflow test):
The tested resistor should be subject in the following procedure, and after finish each step, it should be left for a duration of 2 hours or longer at a temperature of 30℃ or lower and a humidity of 70% RH or lower.
<table>
<tr><th>Step</th><th>Procedure</th><th>Environmental test condition</th></tr>
<tr><td>1</td><td>Resistance measuring</td><td>Room temperature</td></tr>
<tr><td>2</td><td>Baking</td><td>125℃ ， 24 hours</td></tr>
<tr><td>3</td><td>Humidification</td><td>85℃ ，85% ，168 hours</td></tr>
<tr><td>4</td><td>Reflow (1)</td><td>Reflow temperature curve and component surface temperature Table 1</td></tr>
<tr><td>5</td><td>Humidification</td><td>85℃ ，65% ，24 hours</td></tr>
<tr><td>6</td><td>Reflow (2)</td><td>Reflow temperature curve and component surface temperature Table 2</td></tr>
<tr><td>7</td><td>Resistance measuring</td><td>Room temperature</td></tr>
</table>
◎Reflow temperature curve
 

◎Component surface temperature
<table>
<tr><th colspan="3">Table 1 Description example in specification document(1)</th></tr>
<tr><td>Temperature-retaining time:230℃ or higher</td><td>Peak temperature</td><td>Temperature measured at the component body surface during preheating</td></tr>
<tr><td>30 seconds</td><td>240℃</td><td>150 to 160 ℃</td></tr>
</table></td><td>± (1.0%+0.05Ω)
No evidence of electrode damage.
No side conductive peel off.</td><td>50mΩ Lower</td></tr>
</table>

<table>
<tr><th rowspan="2">ITEM</th><th rowspan="2">Conditions</th><th colspan="2">Specifications</th></tr>
<tr><th>Resistors</th><th>Jumper</th></tr>
<tr><td></td><td>
Table 2 Description example in specification document(2)
<table>
<tr><th>Temperature</th><th>Temperature-retaining time</th><th>Temperature measured at the component body surface during preheating</th></tr>
<tr><td>220℃ or higher</td><td>90 seconds</td><td rowspan="4">150 to 160℃</td></tr>
<tr><td>230℃ or higher</td><td>60 seconds</td></tr>
<tr><td>240℃ or higher</td><td>5 seconds</td></tr>
<tr><td>Peak</td><td>245℃</td></tr>
</table>
◎Test method 2 (sloder pot test):
The tested resistor should be subject in the following procedure, and after finish each step, it should be left for a duration of 2 hours or lower at a temperature of 30℃ or lower and a humidity of 70% RH or lower.
<table>
<tr><th>Step</th><th>Procedure</th><th>Environmental test condition</th></tr>
<tr><td>1</td><td>Resistance measuring</td><td>Room temperature</td></tr>
<tr><td>2</td><td>Baking</td><td>125℃， 24 hours</td></tr>
<tr><td>3</td><td>Humidification</td><td>85℃，85%，168 hours</td></tr>
<tr><td>4</td><td>Sloder pot test</td><td>260± 3℃， 10 sec</td></tr>
<tr><td>5</td><td>Placed</td><td>85℃，65%，24 hours</td></tr>
<tr><td>6</td><td>Sloder pot test</td><td>260± 3℃， 10 sec</td></tr>
<tr><td>7</td><td>Resistance measuring</td><td>Room temperature</td></tr>
</table>
By Sony (SS-00254-5)
Refer to JIS-C5201-1 4.18
</td><td></td><td></td></tr>
<tr><td>Solderability</td><td>Preconditioning:
Put the tested resistor in the apparatus of PCT, at a temperature of 105℃, humidity of 100% RH, and pressure of 1.22× 10^5 Pa for a duration of 4 hours. Then after left the tested resistor in room temperature for 2 hours or more.
Test method:
◎Test item 1 (solder pot test):
The resistor be immersed into solder pot in temperature 235± 5℃ for 2 sec, then the resistor is left as placed under microscope to observed its solder area.
By SONY (SS-00254-2)
Refer to JIS-C5201-1 4.17</td><td colspan="2">1.Test item 1:
Solder coverage over 95%</td></tr>
</table>

ITEM	Conditions	Specifications	
		Resistors	Jumper
Joint strength of solder	Preconditioning: Put the tested resistor in the apparatus of PCT, at a temperature of 105℃, humidity of 100% RH, and pressure of 1.22× 10^5 Pa for a duration of 4 hours. Then after left the tested resistor in room temperature for 2 hours or more. Test method: ◎Test item 1 (Adhesion): A static load using a R0.5 scratch tool shall be applied on the core of the component and in the direction of the arrow and held for 10 seconds and under load measure its resistance variance rate. 1.02-2C=10N load 2.Other=20N load 3.01-2D=5N load  Refer to JIS-C5201-1 4.32 ◎Test item 2 (Bending Strength): Solder tested resistor on the PC board, add force in the middle down, and under load measure its resistance variance rate . D=(1)01-2D=3mm (2)Other=5mm  Refer to JIS-C5201-1 4.33	Test item1: 1.△R%=± (1.0%+0.05Ω) 2.No evidence of mechanical damage. No terminal peel off. Test item2: 1.△R%=± (1.0%+0.05Ω) 2.No evidence of mechanical damage. No terminal peel off and core body cracked. Test item3: (1).Adhesion After application of temperature cycle, adhesion should be 50% or more of initial strength. (2).Bending Strength: After application of temperature cycle, bending load should be 50% or more of initial strength.	50mΩ Lower

<table>
<tr><th rowspan="2">ITEM</th><th rowspan="2">Conditions</th><th colspan="2">Specifications</th></tr>
<tr><th>Resistors</th><th>Jumper</th></tr>
<tr><td></td><td>◎Test item 3 (Endurance measurement):
Put the tested resistor in the chamber under the temperature cycle which shown in table 1 shall be repeated 1000± 4 times consecutively. Then separate follow test item 1 and test item 2 50% condition to test, measured its resistance variance rate.
<table>
<tr><th colspan="2">Table 1 Temperature cycle test condition</th></tr>
<tr><td></td><td>Testing condition</td></tr>
<tr><td>Lowest temperature</td><td>-35± 5℃</td></tr>
<tr><td>Highest temperature</td><td>105± 5℃</td></tr>
<tr><td>Temperature-retaining time</td><td>15 minutes each</td></tr>
</table>
By SONY (SS-00254-9)</td><td></td><td></td></tr>
<tr><td>Leaching Test</td><td>The tested resistor be immersed into molten solder of 260± 5℃ for 30 seconds. Then the resistor is left as placed under microscope to observed its solder area.
By SONY (SS-00254-9)</td><td colspan="2">1.Solder coverage over 95%.
2.The underlying material (such as ceramic) shall not be visible at the crest corner area of the electrode.</td></tr>
</table>

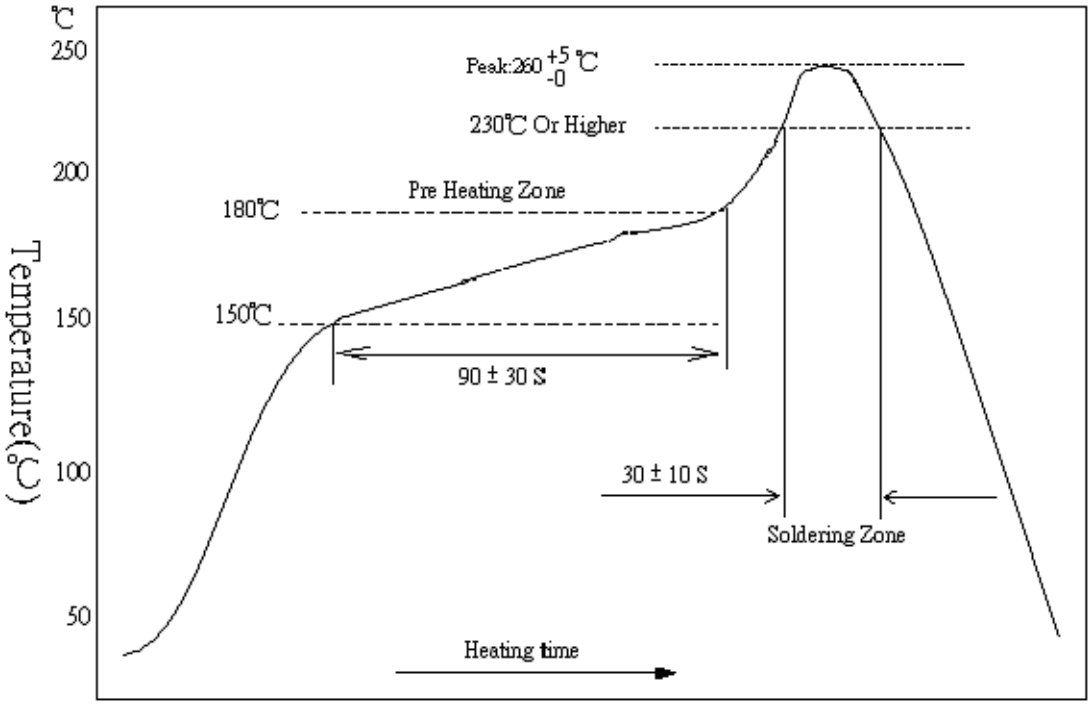
5.3 Environmental Test

<table>
<tr><th rowspan="2">ITEM</th><th rowspan="2">Conditions</th><th colspan="2">Specifications</th></tr>
<tr><th>Resistors</th><th>Jumper</th></tr>
<tr><td>Resistance to Dry Heat</td><td>Put tested resistors in chamber under temperature 155± 5℃ for 1,000± 4 hours. Then leaving in room temperature for 60 minutes, and measure its resistance variance rate
.
Refer to JIS-C5201-1 4.25</td><td>0.5%、1%:± (1.0%+0.05Ω)
2%、5% :± (2.0%+0.10Ω)
No evidence of mechanical damage,
No evidence of mechanical.</td><td>50mΩ Lower</td></tr>
<tr><td>Thermal Shock</td><td>Put the tested resistor in the thermal shock chamber under the temperature cycle which shown in the following table shall be repeated 300 times consecuitively. Then leaving the tested resistor in the room temperature for 1 hours, and measure its resistance variance rate.
<table><tr><th></th><th>Testing Condition</th></tr><tr><td>Lowest Temperature</td><td>-55± 5℃</td></tr><tr><td>Highest Temperature</td><td>125± 5℃</td></tr><tr><td>Temperature-retaining time</td><td>15 minutes each</td></tr></table>Refer to MIL-STD 202 Method 107</td><td>± (1.0%+0.05Ω)
No evidence of mechanical damage,</td><td>50mΩ Lower</td></tr>
<tr><td>Loading Life in Moisture</td><td>Put the tested resistor in the chamber under temperature 40± 2℃, relative humidity 90~95% and load the rated voltage for 90 minutes on, 30 minutes off, total 1000 hours. Then leaving the tested resistor in room temperature for 60 minutes, and measure its resistance variance rate.
Refer to JIS-C5201-1 4.24</td><td>0.5%、1%:± (2.0%+0.10Ω)
2%、5% :± (3.0%+0.10Ω)
No evidence of mechanical damage.</td><td>50mΩ Lower</td></tr>
<tr><td>Load Life</td><td>Put the tested resistor in chamber under temperature 70± 2℃ and load the rated voltage for 90 minutes on, 30 minutes off, total 1000 hours. Then leaving the tested resistor in room temperature for 60 minutes, and measure its resistance variance rate.
Refer to JIS-C5201-1 4.25</td><td>0.5%、1%:± (2.0%+0.10Ω)
2%、5% :± (3.0%+0.10Ω)
No evidence of mechanical damage, no short or burned on the appearance.</td><td>50mΩ Lower</td></tr>
<tr><td>Low Temperature Operation</td><td>Put the tested resistor in the chamber at room temperature 25℃. Decreasing the temperature to -55℃ and keep the temperature at -55℃ for 1 hour. Then load the rated voltage for 45 minutes on, and 15 minutes off. Then leaving the tested resistor in room temperature for 8± 1 hours, and measure its resistance variance rate.
Refer to MIL-R-55342D 4.7.4</td><td>0.5%、1%:± (0.5%+0.05Ω)
2%、5% :± (1.0%+0.05Ω)
No evidence of mechanical damage,</td><td>50mΩ Lower</td></tr>
<tr><td>Whisker Test</td><td>◎Test item 1 (Thermal Shock test):
<table><tr><td>Minimum storage temperature</td><td>-40± 2℃</td></tr><tr><td>Maximum storage temperature</td><td>85± 2℃</td></tr><tr><td>Temperature-rataining time</td><td>7 min.</td></tr><tr><td>Number of temperature cycles</td><td>1,500</td></tr></table>◎Test item 2 (Constant temperature/humidity test):
<table><tr><td>Temperature</td><td>85℃</td></tr><tr><td>Humidity</td><td>85%</td></tr><tr><td>Testing duration</td><td>500± 4 hours</td></tr></table></td><td>Max. 50 μm</td><td></td></tr>
</table>

ITEM	Conditions	Specifications	
		Resistors	Jumper
	◎Inspection: Inspect for whisker formation on specimens that underwent the acceleration test specified in subciause 4.2, with a magnifier (stereomicroscope) of about 40 or higher magnification. If judgment is hard in this method, use a scanning electron micro-scope (SEM) of about 1,000 or higher magnification. By SONY (SS-00254-8)		

6 Recommend Soldering Method

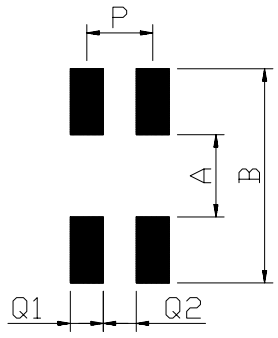
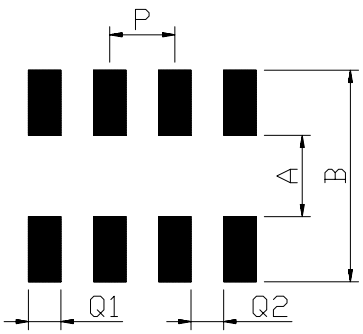
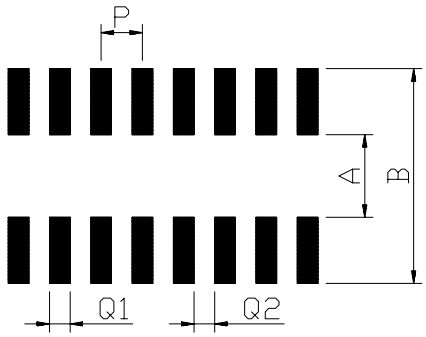
6.1 Lead Free Reflow Soldering Profile



6.2 Soldering Iron: temperature 350℃± 10℃ , dwell time shall be less than 3 sec.

7 Recommend Land Pattern Design (For Reflow Soldering):

Unit : mm

RTA01-2D / RTA02-2D RTA02-2C / RTA03-2D / RTA03-2C	RTA02-4D / RTA02-4C RTA03-4D / RTA03-4C	RTA02-8D / RTA03-8C
		

TYPE / DIM	A	B	P	Q1	Q2
RTA01-2D	0.30	0.90	0.50	0.30	0.30
RTA02-2D	0.50	2.00	0.67	0.33	0.34
RTA03-2D	1.00	2.60	0.80	0.40	0.40
RTA02-4D RTA02-4C	0.50	2.00	0.50	0.28	0.22
RTA03-4D RTA03-4C RTA03-2C	1.00	2.60	0.80	0.40	0.40
RTA02-8D	1.00	2.60	0.50	0.25	0.25
RTA03-8C	1.00	2.60	0.80	0.40	0.40
RTA02-2C	0.50	2.00	0.50	0.28	0.22

8 Marking Diagrams:

8.1 ± 2% 、± 5% Tolerance:

8.1.1 Resistance Range ≧ 10 Ω : 3 digits in E-24 series, first two digits are significant figures, third digit is is multiplier (10^x).

《EX》Marking→100

$100 = 10 \times 10^0 = 10\Omega$

8.1.2 Resistance Range ＜10 Ω: 3 digits in E-24 series, first and thrid digits are significant figures, second digit is multiplier (10^{-1}).

《EX》Marking→4R7

$4R7 = 47 \times 10^{-1} = 4.7\Omega$

8.2 ± 0.5%、1% Tolerance:

8.2.1 Resistance Range ≧100Ω: 4 digits in E-24 series or E-96 series, first three digits are significant figures, forth digit is multiplier (10^x).

《EX》Marking→1002

$1002 = 100 \times 10^2 = 10000\Omega = 10K\Omega$

8.2.2 Resistance Range ＜100Ω: 4 digits in E-24 series or E-96 series, three digits are significant figures,R digit is multiplier (10^x).

《EX》Marking→10R2 ,R digit is multiplier (10^{-1}).

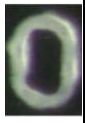
$10R2 = 102 \times 10^{-1} = 10.2\Omega$

Marking→1R02 ,R digit is multiplier (10^{-2}).

$1R02 = 102 \times 10^{-2} = 1.02\Omega$

8.3 RTA01-2D、RTA02-2D、RTA02-2C、RTA02-4C No Marking

8.4 Marking Standard

Standard / TYPE / Marking	1	2	3	4	5	6	7	8	9	0	R
RTA03-2D RTA02-4D RTA03-2C RTA03-4D RTA03-4C RTA02-8D RTA03-8C											

8.5 Marking

8.5.1 E-24 series

10	11	12	13	15	16	18	20	22	24	27	30
33	36	39	43	47	51	56	62	68	75	82	91

8.5.2 E-96 series

100	102	105	107	110	113	115	118	121	124	127	130
133	137	140	143	147	150	154	158	162	165	169	174
178	182	187	191	196	200	205	210	215	221	226	232
237	243	249	255	261	267	274	280	287	294	301	309
316	324	332	340	348	357	365	374	383	392	402	412
422	432	442	453	464	475	487	499	511	523	536	549
562	576	590	604	619	634	649	665	681	698	715	732
750	768	787	806	825	845	866	887	909	931	953	976

9 Plating Thickness:

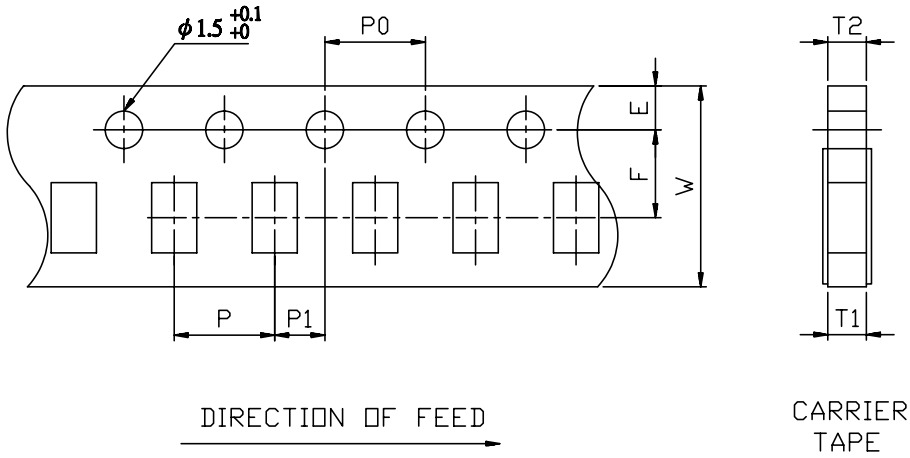
9.1 Ni: ≧1μm

9.2 Sn(Tin): ≧3μm

9.3 Sn(Tin): Matte Sn

10 Taping Specifications

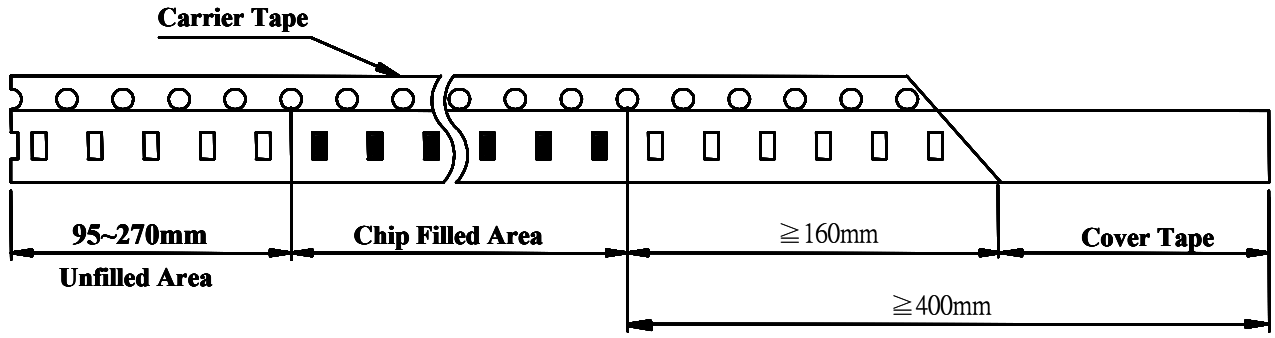
10.1Tape Dimension



Unit : mm

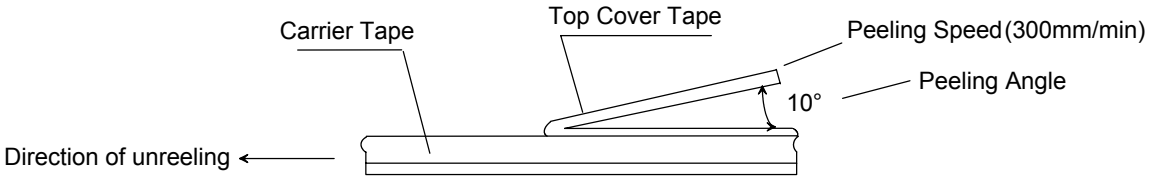
Packaging	Type \ DIM	A	B	W	E	F	T1	T2	P	P0	10x P0	P1
TH Carrier Tape	RTA01-2D	0.90± 0.1	0.70± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.45+0.2/-0	0.43± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA02-2D	1.20± 0.1	1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.45+0.2/-0	0.43± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA02-2C	1.20± 0.1	1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.45+0.2/-0	0.43± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA02-4D	2.20± 0.1	1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.60+0.2/-0	0.60± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA02-4C	2.20± 0.1	1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.60+0.2/-0	0.60± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
TP Carrier Tape	RTA03-2D	1.90± 0.1	1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.60+0.2/-0	0.60± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA03-4D	3.45± 0.1	1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA03-4C	3.45± 0.1	1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA02-8D	4.30± 0.2	1.90± 0.2	12.0± 0.2	1.75± 0.1	5.5± 0.05	0.60+0.2/-0	0.60± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA03-8C	6.90± 0.2	2.00± 0.2	12.0± 0.2	1.75± 0.1	5.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05
	RTA03-2C	1.90± 0.1	1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05

10.2Lead Dimensions:



10.3Cover Tape Peel off Strength

Specifications:0.07~0.7N (7.1~71.4gf)



10.4Packaging Qty:

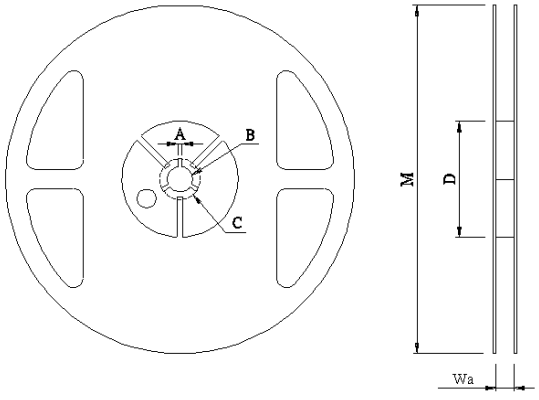
Type	Tape Width	Packaging (pcs/reel)							
		TH				TP			
		2 mm Pitch				4 mm Pitch			
		TH	H2	H3	H4	TP	P2	P2	P4
RTA01-2D	8 mm	10,000	20,000	30,000	40,000	--	--	--	--
RTA02-2D、RTA02-2C	8 mm								
RTA02-4C、RTA02-4D	8 mm								
RTA03-2D、RTA03-2C	8 mm	--	--	--	--	5,000	10,000	15,000	20,000
RTA03-4C、RTA03-4D	8 mm								
RTA02-8D、RTA03-8C	12 mm								
Reel Type		7”	10”	13”	13”	7”	10”	13”	13”

10.4.1Typical taping type: TH、TP

10.4.2Other taping type are upon customer’ s request.

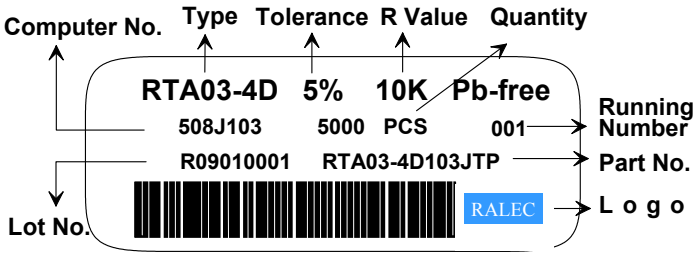
10.5Reel Dimensions:

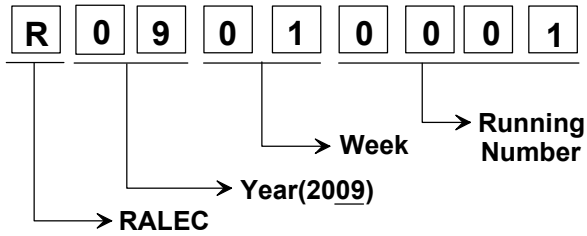
Unit:mm



Reel Type / Tape	Wa	M	A	B	C	D
7” reel for 8 mm tape	9.0 ± 0.5	178 ± 2.0	2.0 ± 0.5	13.5 ± 0.5	21.0 ± 0.5	60.0 ± 1.0
7” reel for 12 mm tape	13.8 ± 0.5	178 ± 2.0				80.0 ± 1.0
10” reel for 8 mm tape	10.0 ± 0.5	254 ± 2.0				100.0 ± 1.0
13” reel for 8 mm tape	10.0 ± 0.5	330 ± 2.0				100.0 ± 1.0

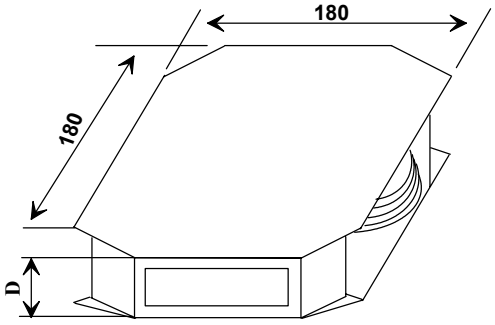
10.6Label:





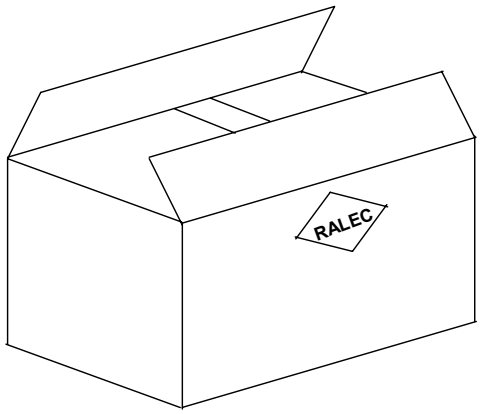
10.7Inner Box

Reel Number	D Dimension (mm)
1	12
2	24
3	36
4	48
5	60
6	72
7	84
8	96
9	108
10	120



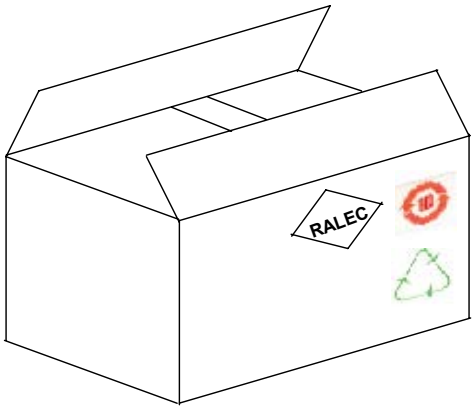
10.8Box

10R Inner Box Number	L(mm)	W(mm)	D(mm)
2	272	205	210
4	375	280	210
8	544	380	210



10.9Box (For China)

10R Inner BoxNumber	L(mm)	W(mm)	D(mm)
2	272	205	210
4	375	280	210
8	544	380	210



11 Stock period

11.1The temperature condition must be controlled at 25± 5℃, the R.H. must be controlled at 60± 15%. The stock can maintain quality level in two years.

12 The carton packaged for electronic-information products is made by the symbol as follows: (For china)

	
Marking for control of pollution cause by electronic-information products	*Marking for package recovery*

13 For this part. It does not use the materials that include the substances specified in RoHS，the detail refer to the part of prohibition or exclusion items in RoHS (2002/95/EC).

1. Cadmium and cadmium compounds *(permissive content＜100 ppm)*
2. Lead and lead compounds *(permissive content＜1000 ppm)*
   Exceptions specified:
   (1). Lead contained in the glass of cathode ray tubes, electronic components and fluorescent tubes.
   (2). The glass material used in the electronic components, which includes resistor elements, conductive pastes (silver or copper ones), adhesives, glass frit and sealing materials.
3. Mercury and its mercury compounds *(permissive content＜100 ppm)*
4. Hexavalent chromium compounds *(permissive content＜100 ppm)*
5. Polybrominated biphenyls(PBB) *(permissive content＜100 ppm)*
6. Polybrominated diphenylethers(PBDE) *(permissive content＜100 ppm)*

14 Attachments

14.1Document Revise Record Paper