

FrelTec GmbH

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Chip Resistor Array SMD

SMD

SPECIFICATION

Part
Number

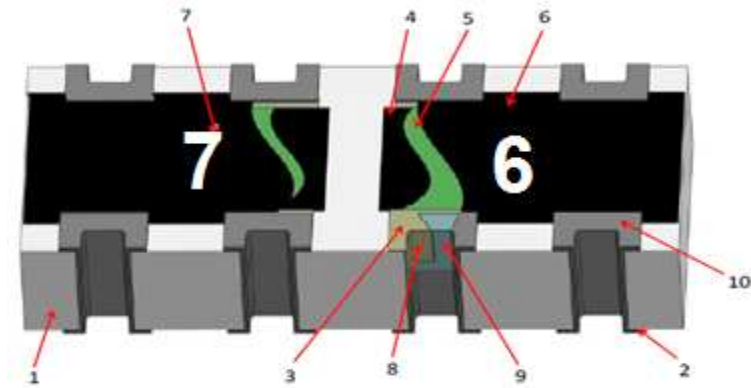
040	03*	8*	D*	1001*	J*	T05**
Type	Size	Number of Circuits	Termination Type	Value	Tolerance	Packing
040 : SMD Chip Resistor Array	01 : 0201	2 : 2 circuits	C : Concave	The last digit is the multiplier	D : $\pm 0,5\%$	H10: Tape and reel for 10k pc (7"reel)
	02 : 0402	4 : 4 circuits	D : Convex	which denotes the number of zero following	F : $\pm 1\%$	H20: Tape and reel for 20k pc (10"reel)
	03 : 0603	8 : 8 circuits		0000=0Ohm	J : $\pm 5\%$	H30: Tape and reel for 30k pc (10"reel)
				R=Decimal		H40: Tape and reel for 40k pc (13"reel)
				Example: R010 = 0,01Ohm		H50: Tape and reel for 50k pc (13"reel)
				97R6=		T05: Tape and reel for 5k pc (7"reel)
				9760 = 976Ohm		T10: Tape and reel for 10k pc (10"reel)
				1001 = 1kOhm		T15: Tape and reel for 15k pc (13"reel)
				E24-Series is first digit "0"		T20: Tape and reel for 20k pc (13"reel)
						** H10 to H50 for 0201 and 0402, two or four circuits; Paper Type, 2mm Pitch
						** T05 for 0402 (eight circuits) and 0603, all Paper Type, 4mm Pitch
						** T10, T15 and T20 for 0603 (two and four circuits), all Paper Type, 4mm Pitch
				* not all combination is possible		

All products according to RoHS (2011/65/EU)
And according to REACH, status June 2015

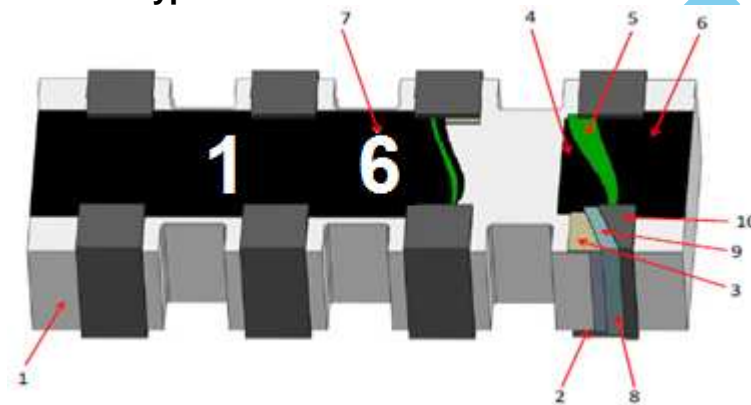
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THICK FILM CHIP RESISTORS

Concave Type



Convex Type



1	Ceramic substrate	6	2 nd Protective coating
2	Bottom inner electrode	7	Marking
3	Top inner electrode	8	Terminal inner electrode
4	Resistive layer	9	Ni plating
5	1 st Protective coating	10	Sn plating

Plating Thickness:

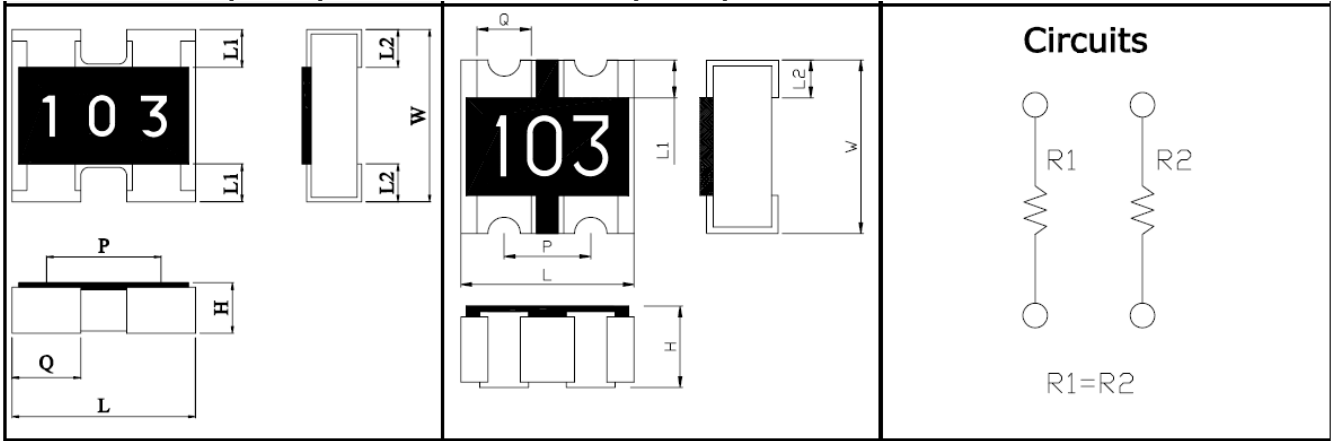
Ni: $\geq 2\mu\text{m}$
Sn(Tin): $\geq 3\mu\text{m}$
SN(Tin): Matte Sn

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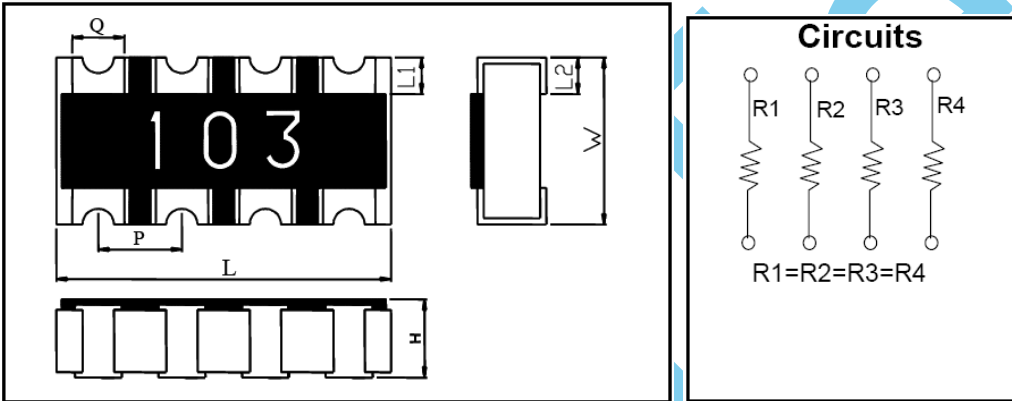
Chip Resistors Array

040032D (0603)

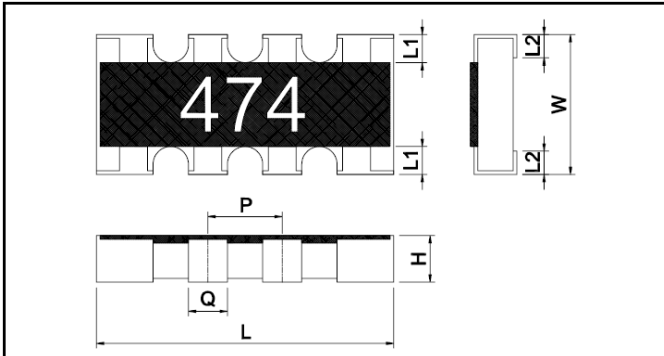
040032C (0603)



040024C (0402) 040034C (0603)



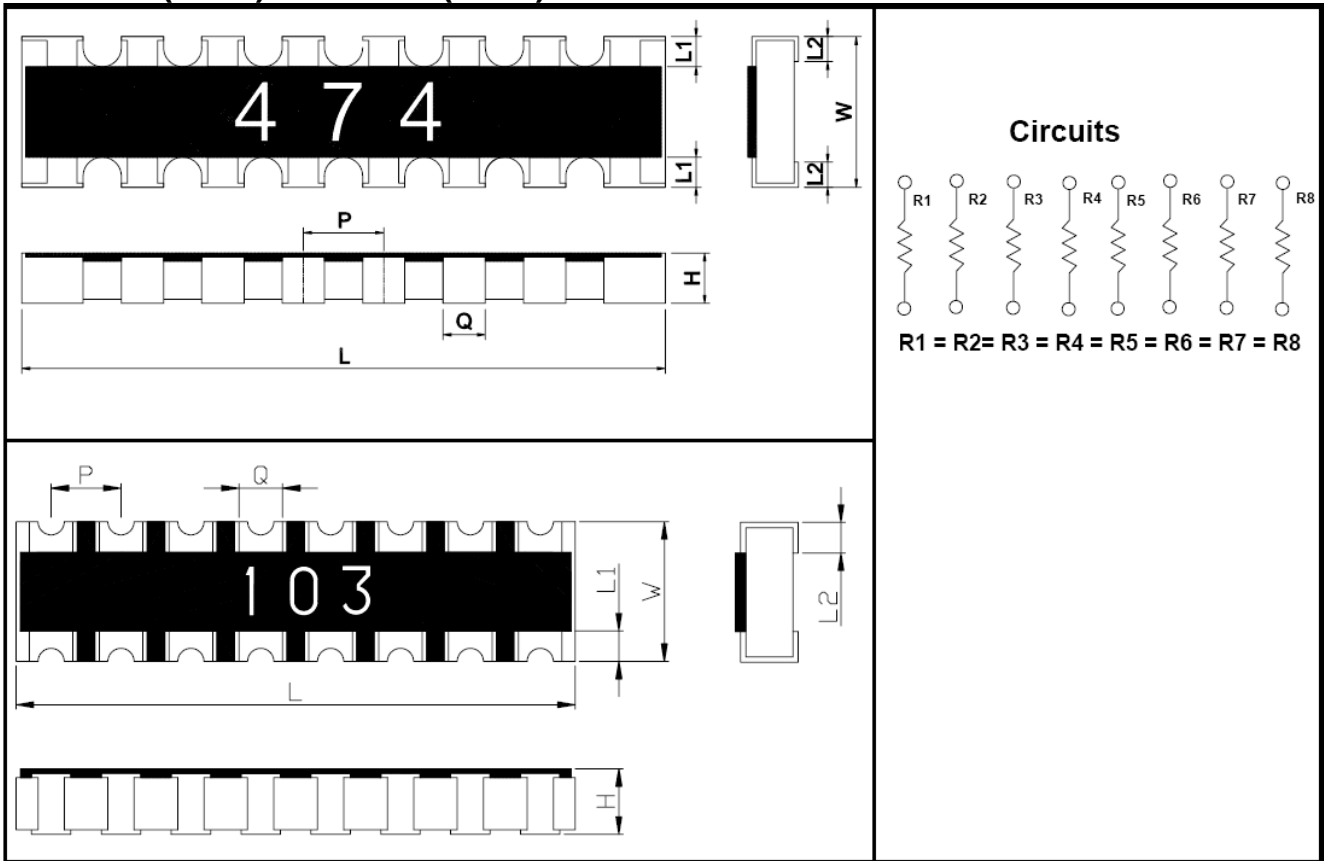
040024D (0402) 040034D (0603)



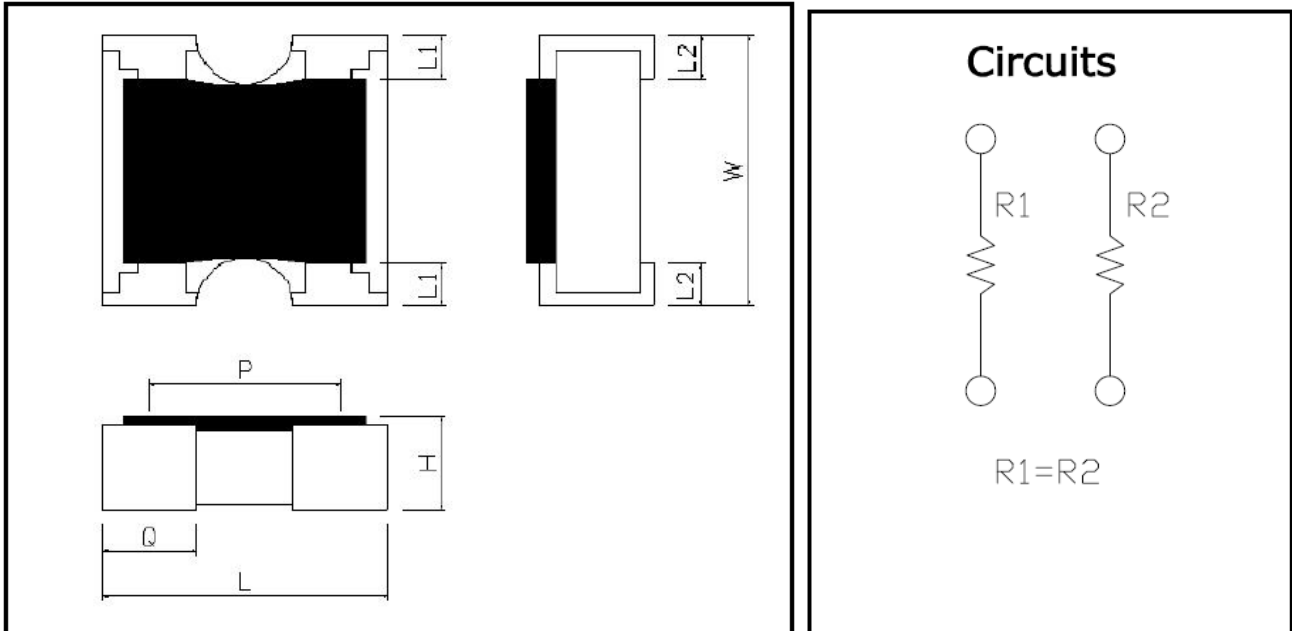
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Chip Resistors Array

040028D (0402) 040038C (0603)



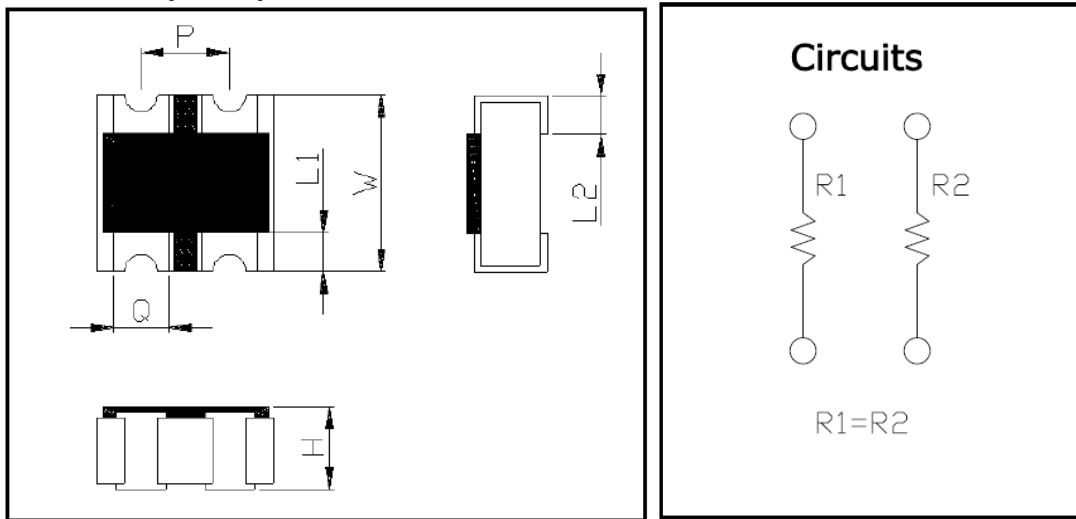
040012D (0201) 040022D (0402)



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040022C (0402)

Chip Resistors Array



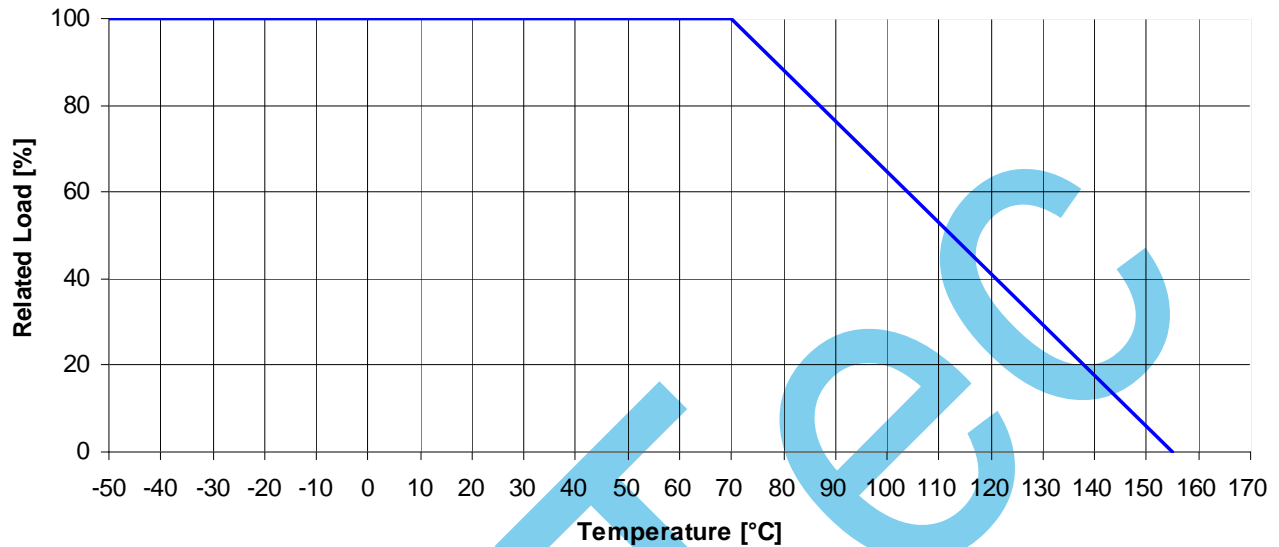
Dimensions

	L	W	H	L1	L2	P	Q
040 01 2 D 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
040 02 2 D 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
040 03 2 D 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
040 02 4 D 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
040 02 4 C 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
040 03 4 D 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
040 03 4 C 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
040 02 8 D 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
040 03 8 C 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
040 03 2 C 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
040 02 2 C 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)

Power Derating Curve

For resistors in ambient temperatures above 70°C, power rating shall be derated in accordance with the curve below. Operating temperature -55°C to +155°C

**Voltage Rating:****≥1Ω**

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= Rated voltage [V]

P= Power rating [W]

R= Nominal resistance [Ω]

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

0Ω

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

I= Rated current [A]

P= Power rating [W]

R= Nominal resistance [Ω]

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

CHIP RESISTORS ARRAY

*Rating***040 Series**

Type	Rated Power at 70°C	Max. Working Voltage	Max. Over-load Voltage	Temperature Coefficient [ppm/°C]	Resistance Range			Number of Terminals	Number of Resistors	Jumper (0Ω) Rated Current	Jumper (0Ω) Resistance Value	
					D(±0,5%) E-96	F (±1%) E24, E-96	J(± 5%) E24				F (±1%)	J (±5%)
040 01 2 D 0201	1/32W	12.5V	25V	± 500			3Ω~9,9Ω	4	2	0,5A		50mΩ Max.
				± 300			10Ω~999Ω					
				± 200			1kΩ~1MΩ					
040 02 2 D 0402	1/16W	25V	50V	± 300		1Ω~9,9Ω	1Ω~9,9Ω	4	2	1A	25mΩ Max.	50mΩ Max.
				± 200		10Ω~10MΩ	10Ω~1MΩ					
040 03 2 D 0603	1/16W	50V	100V	± 200		10Ω~10MΩ	1Ω~10MΩ	4	2	1A		50mΩ Max.
040 02 4 D 0402	1/16W	25V	50V	± 300		1Ω~9,9Ω	1Ω~9,9Ω	8	4	1A	25mΩ Max.	50mΩ Max.
				± 200		10Ω~10MΩ	10Ω~10MΩ					
040 02 4 C 0402	1/16W	25V	50V	± 400		1Ω~9,9Ω	1Ω~9,9Ω	8	4	1A		50mΩ Max.
				± 200		10Ω~1MΩ	10Ω~1MΩ					
040 03 4 D 0603	1/16W	50V	100V	± 200	22Ω ~ 470kΩ	1Ω~10MΩ	1Ω~10MΩ	8	4	1A	25mΩ Max.	50mΩ Max.
040 03 4 C 0603	1/16W	50V	100V	± 200		1Ω~1MΩ	1Ω~10MΩ	8	4	1A		50mΩ Max.
040 02 8 D 0402	1/16W	25V	50V	± 250		10Ω~10MΩ	1Ω~10MΩ	16	8	1A		50mΩ Max.
040 03 8 C 0603	1/16W	50V	100V	± 200		1Ω~1MΩ	1Ω~10MΩ	16	8	1A		50mΩ Max.
040 03 2 C 0603	1/16W	50V	100V	± 200		1Ω~1MΩ	1Ω~10MΩ	4	2	1A		50mΩ Max.
040 02 2 C 0402	1/16W	25V	50V	± 650		3Ω~9,9Ω	3Ω~9,9Ω	4	2	1A		50mΩ Max.
				± 250		10Ω~1MΩ	10Ω~1MΩ					

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Chip Resistors Array

SPECIFICATION

01-2B, 01-2D, 02-2D, 02-2C, 02-2R, 02-2H, 02-4C: No marking

02-4D, 03-4D, 02-4R, 02-4H, 02-8D, 03-2C, 03-2D, 03-4C, 03-8C:

4 digit marking for 1% and better, 3 digit marking for 5%

Jumper 1% "000" 5% "0"



4 digit marking, first three digits marking are significant figures; fourth digit is multiplier (10^x). Below 100 Ohm: R is the decimal point.

examples: 1542 = $154 \times 10^2 = 15.400 \text{ Ohm} = 15,4 \text{ kOhm}$

10R2 = 10,2 Ohm



3 digit marking, first two digits marking are significant figures; third digit is multiplier (10^x). Below 10 Ohm: R is the decimal point.

examples: 512 = $51 \times 10^2 = 5,1 \text{ kOhm}$

3R3 = 3,3 Ohm

3 digit Marking Table

Code	E96	Code	E96	Code	E96	Code	E96
01	100	25	178	49	316	73	562
02	102	26	182	50	324	74	576
03	105	27	187	51	332	75	590
04	107	28	191	52	340	76	604
05	110	29	196	53	348	77	619
06	113	30	200	54	357	78	634
07	115	31	205	55	365	79	649
08	118	32	210	56	374	80	665
09	121	33	215	57	383	81	681
10	124	34	221	58	392	82	698
11	127	35	226	59	402	83	715
12	130	36	232	60	412	84	732
13	133	37	237	61	422	85	750
14	137	38	243	62	432	86	768
15	140	39	249	63	442	87	787
16	143	40	255	64	453	88	806
17	147	41	261	65	464	89	825
18	150	42	267	66	475	90	845
19	154	43	274	67	487	91	866
20	158	44	280	68	499	92	887
21	162	45	287	69	511	93	909
22	165	46	294	70	523	94	931
23	169	47	301	71	536	95	953
24	174	48	309	72	549	96	976

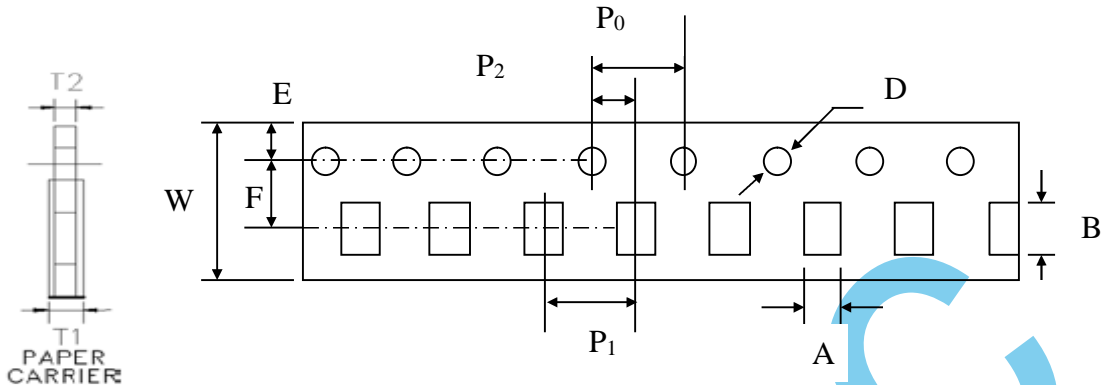
Code	A	B	C	D	E	F	G	H	X	Y	Z
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^{-1}	10^{-2}	10^{-3}

E24	10	11	12	13	15	16	18	20	22	24	27	30	33	36	39	43	47	51	56	62	68	75	82	91
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SPECIFICATION

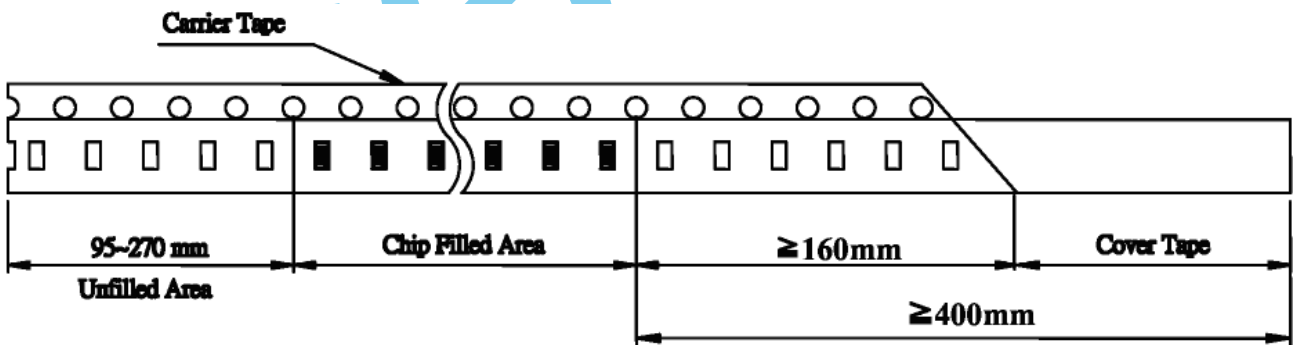
Tape And Reel Package



P₀: Accumulated dimensional tolerance 40±0,2mm

Packing	Size	A	B	W	F	E	P ₁	P ₂	10xP ₀	D	T ₁	T ₂
Paper Tape	040 01 2 D	0,90±0,10	0,70±0,10	8,00±0,20	3,50±0,05	1,75±0,10	2,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,40+0,2/-0	0,40±0,10
	040 02 2 D 040 02 2 C	1,20±0,10	1,20±0,10	8,00±0,20	3,50±0,05	1,75±0,10	2,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,40+0,2/-0	0,40±0,10
	040 02 4 D 040 02 4 C	2,20±0,10	1,20±0,10	8,00±0,20	3,50±0,05	1,75±0,10	2,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,60+0,2/-0	0,60±0,10
	040 02 8 D	4,30±0,20	1,90±0,20	12,00 ±0,20	5,50±0,05	1,75±0,10	4,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,60+0,2/-0	0,60±0,10
	040 03 2 C	1,90±0,10	1,90±0,10	8,00±0,20	3,50±0,05	1,75±0,10	4,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,75+0,2/-0	0,75±0,10
	040 03 2 D	1,90±0,10	1,90±0,10	8,00±0,20	3,50±0,05	1,75±0,10	4,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,60+0,2/-0	0,60±0,10
	040 03 4 D 040 03 4 C	3,45±0,20	1,90±0,10	8,00±0,20	3,50±0,05	1,75±0,10	4,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,75+0,2/-0	0,75±0,10
	040 03 8 C	6,90±0,20	2,00±0,20	12,00 ±0,20	5,50±0,05	1,75±0,10	4,00±0,10	2,00±0,05	40,00 ±0,20	1,5+0,10/-0	0,75+0,2/-0	0,75±0,10

Lead Dimensions:

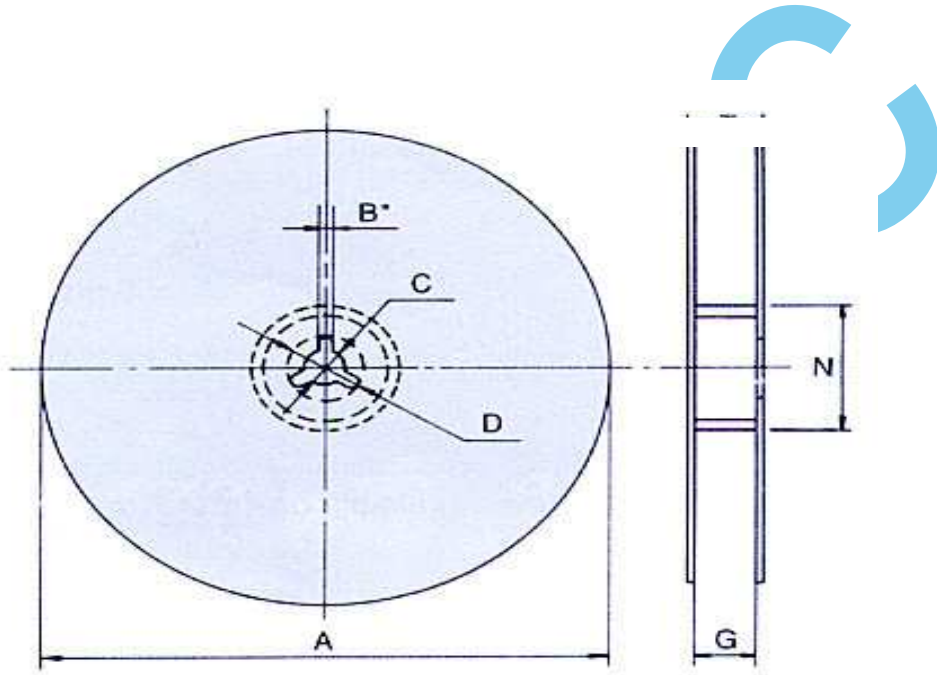
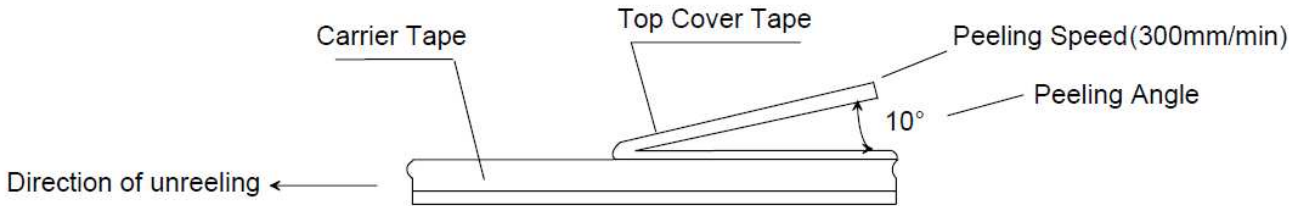


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Chip Resistors Array

Cover Tape Peel off Strength

Specifications: 0201, 0402: 0,07~0,5N (7,1~51gf)
 0603: 0,07~0,7N (7,1~71,4gf)



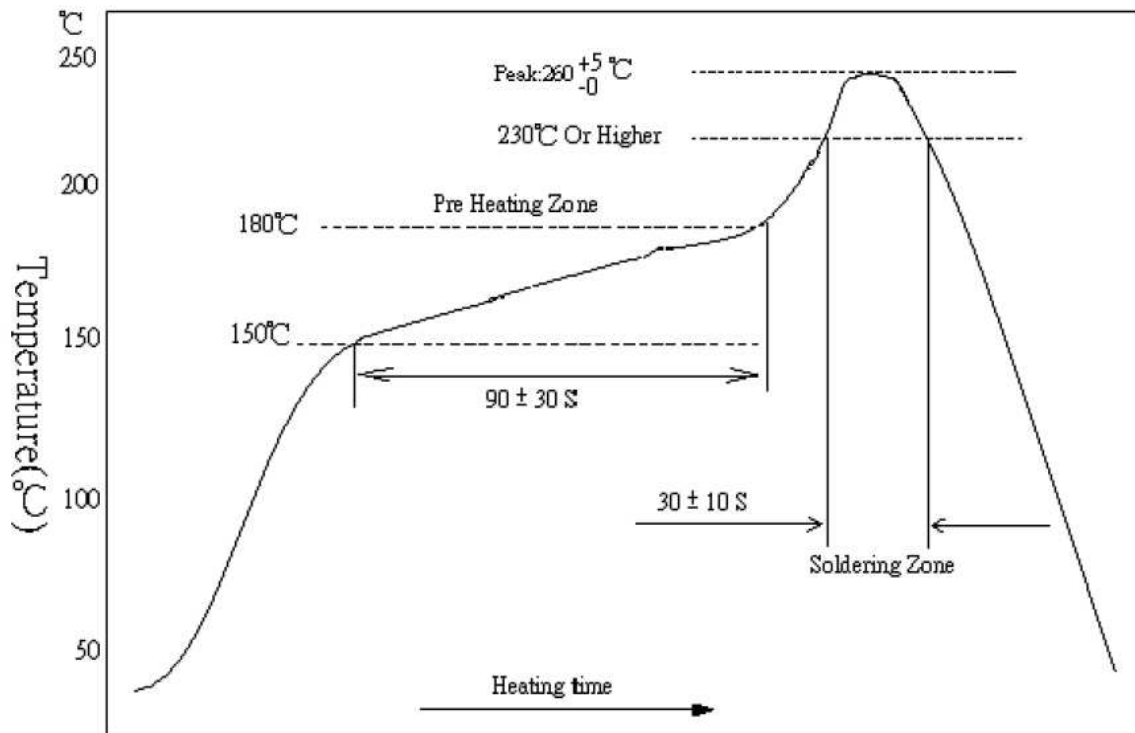
Symbol	Reel Type / Tape	A	N	C	D	B	G
Dimension	7" reel for 8 mm Tape	178±2,0	60,0±1,0	13,5±0,5	21,0±0,5	2,0±0,5	9,0±0,5
	7" reel for 12 mm Tape	178±2,0	80,0±1,0				13,8±0,5
	10" reel for 8 mm Tape	254±2,0	100,0±1,0				10,0±0,5
	13" reel for 8 mm Tape	330±2,0	100,0±1,0				10,0±0,5

in mm

Stock period

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

Lead Free Reflow Soldering Profile



The peak temperature of soldering heat is $260+5/-0^{\circ}\text{C}$ for 10 s.

Soldering Iron: Temperature $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$, dwell time shall be less than 3 seconds.

Stock period

The performance of these products, including the solderability, is guaranteed for 24 month, provided that they remain packed as they were when delivered and stored at a temperature of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and a relative humidity controlled at $60 \pm 15\%$

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Chip Resistors Array

Recommended Land Pattern Design (For Reflow Soldering):

040 01 2 D, 040 02 2 D

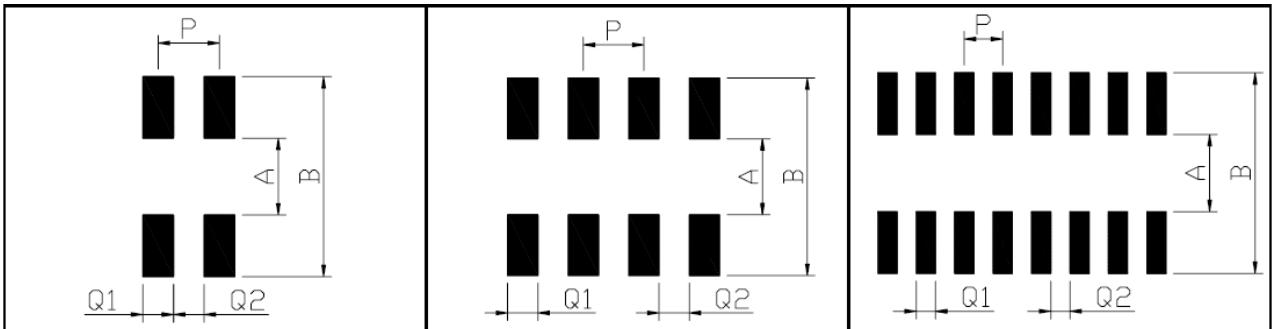
040 02 4 D, 040 02 4 C

040 02 8 D, 040 03 8 C

040 02 2 C, 040 03 2 D

040 03 4 D, 040 03 4 C

040 03 2 C



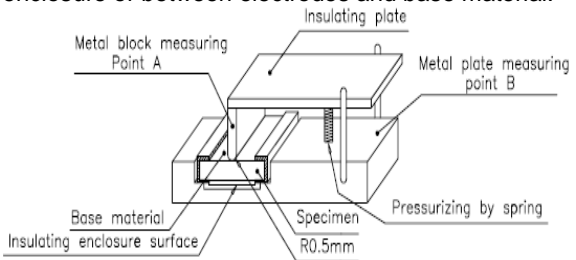
Size	A	B	P	Q1	Q2
040 01 2D	0,30	0,90	0,50	0,30	0,20
040 02 2 D	0,50	2,00	0,67	0,33	0,34
040 03 2 D	1,00	2,60	0,80	0,40	0,40
040 02 4 D	0,50	2,00	0,50	0,28	0,22
040 02 4 C					
040 03 4 D	1,00	2,60	0,80	0,40	0,40
040 03 4 C					
040 03 2 C					
040 03 8 C	1,00	2,60	0,80	0,40	0,40
040 02 8 D	1,00	2,60	0,50	0,25	0,25
040 02 2 C	0,50	2,00	0,50	0,28	0,22

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Chip Resistors Array

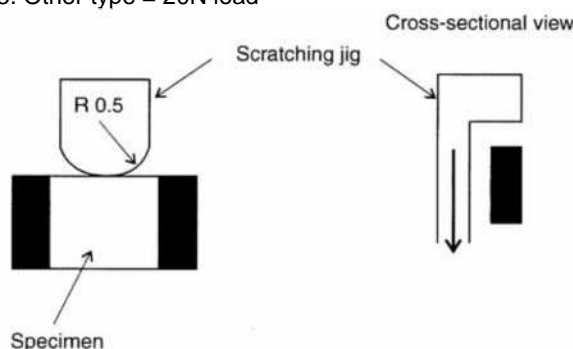
Reliability Test

Electrical Performance Test

ITEM	SPECIFICATION		TEST METHOD
	Resistor	Jump er	
Short time Overload	0,5%; 1%: $\Delta R \pm (1,0\% + 0,05\Omega)$ 5%: $\Delta R \pm (2,0\% + 0,10\Omega)$	Refer to general specification above	JIS C 5201-1 4.13 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 above item "General specifications")
	No evidence of mechanical damage. No short or burned on the appearance		
Temperature Coefficient of Resistance (TCR)	Refer to general specification above	NA	JIS C 5201-1 4.8 / IEC 115-1 4.8.4.2 R1: Resistance at room temperature R2: Resistance at -55°C or +125°C T1: Room temperature T2: Temperature -55°C or +125°C $TCR(ppm/^{\circ}C) = \frac{R2 - R1}{R1} \cdot \frac{1}{T2 - T1} \cdot 10^6$
Intermittent Overload	$\Delta R \leq \pm(5\% + 0,10\Omega)$	Refer to general specification above	JIS C 5201-1 4.13 Put the tested resistor in chamber under temperature $25 \pm 2^{\circ}C$ and load 2,5 times rated DC voltage for 1 sec on , 25 sec off, 10.000_{-0}^{+400} test cycles, then it be left at no-load for 1 hour, then measure its resistance variance rate.
	No evidence of mechanical damage. No short or burned on the appearance		
Noise Level	Resistance	Noise	JIS C 5201-1 4.12
	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	
Insulation Resistance	≥1000MΩ		JIS C 5201-1 4.6 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. 
Dielectric Withstand Voltage	No short or burned on the appearance.		JIS C 5201-1 4.7 Put the resistor in the fixture, add 300VAC in + , - terminal for 60 sec.

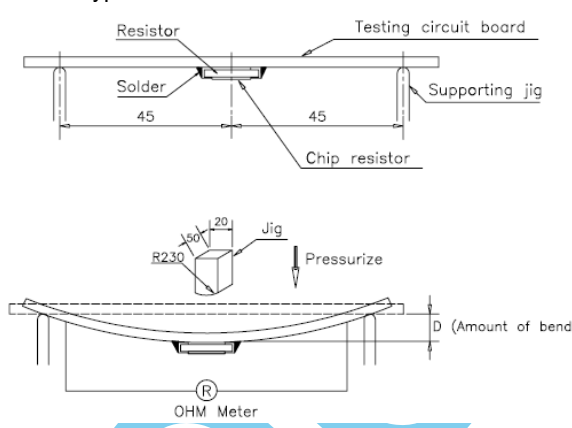
Mechanical Performance Test

ITEM	SPECIFICATION		TEST METHOD						
	Resistor	Jumper							
Resistance to solvent	<table border="1"> <tr> <td>Type</td> <td>040-01-2-D</td> <td>Other</td> </tr> <tr> <td>$\Delta R\%$</td> <td>$\pm (1,0\% + 0,05\Omega)$</td> <td>$\pm (0,5\% + 0,05\Omega)$</td> </tr> </table>	Type	040-01-2-D	Other	$\Delta R\%$	$\pm (1,0\% + 0,05\Omega)$	$\pm (0,5\% + 0,05\Omega)$	Refer to general specification above	JIS-C520-1 4.29 The tested resistor be immersed into isopropyl alcohol of 20~25°C for 5 min, then the resistor is left in the room for 48 hrs, and measured its resistance variance rate.
	Type	040-01-2-D	Other						
$\Delta R\%$	$\pm (1,0\% + 0,05\Omega)$	$\pm (0,5\% + 0,05\Omega)$							
No evidence of mechanical damage, no G2 over coating and Sn layer by leaching.									
Solder-ability	Solder coverage over 95%		JIS-C5201-1 4.17 Preconditioning Put the tested resistor in the apparatus of PCT, at a temperature of 105°C, humidity of 100% RH, and pressure of $1,22 \times 10^5$ 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°C for 2 sec, then the resistor is left as placed under microscope to observed its solder area.						
Resistance to soldering heat	$\Delta R \pm (1,0\% + 0,05\Omega)$	Refer to general specification above	JIS-C5201-1 4.18 Test method 1 (solder pot test): The tested resistor be immersed into molten solder of 260+5/-0°C for 10 s. Then the resistor is left in the room for 1 h. Test method 2 (solder pot test): The tested resistor be immersed into molten solder of 260+5/-0°C for 30 s. Then the resistor is left as placed under microscope to observe its solder area.						
	No evidence of electrode damage. No side conductive peel off.								
Joint strength of solder	Test item 1: (1) Variance rate on resistance $\Delta R \pm (1,0\% + 0,05\Omega)$ (2) No evidence of mechanical damage No terminal peel off. Test item 2: (1) Variance rate on resistance $\Delta R \pm (1,0\% + 0,05\Omega)$ (2) No evidence of mechanical damage. No terminal peel off and core body cracked.	Refer to general specification above	JIS-C5201-1 4.33 Preconditioning Put tested resistor in the apparatus of PCT, at a temperature of 105°C humidity of 100% RH, and pressure of $1,22 \times 10^5$ Pa for a duration of 4 h. Then after left the resistor in room temperature for 2 h or more. Test method: Test item 1 (Adhesion): A static load using a R 0,5 scratch tool shall be applied on the core of the component and in the direction of the arrow and held for 10 s and under load measured its resistance variance rate. 1. 040-01-2-D = 5N load 2. 040-02-2-C = 10N load 3. Other type = 20N load						



SMD

Chip Resistors Array

		<p>Test item 2 (Bending Strength): Solder tested resistor on to PC board, add force in the middle down, and under load measured its resistance variance rate. 040-01-2-D = 3mm All other type = 5mm</p> 
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FrelTec

Environmental Test

ITEM	SPECIFICATION		TEST METHOD									
	Resistor	Jumper										
Resistance to Dry Heat	0,5%; 1%: $\pm (1,0\%+0,05\Omega)$ 5%: $\pm (2,0\%+0,10\Omega)$	Refer to general specification above	JIS-C5201-1 4.25 Put tested resistor in chamber under temperature $155\pm 5^{\circ}\text{C}$ for 1000 ± 4 hours. Then leaving the tested resistor in room temperature for 60 min, and measure its resistance variance rate.									
	No evidence of mechanical damage. No short or burned on the appearance.											
Thermal Shock	$\pm (1,0\%+0,05\Omega)$	Refer to general specification above	MIL-STD 202 Method 107 Put the tested resistor in thermal shock chamber under the Thermal cycle which is shown in the following table. It shall be repeated 300 times consecutively. Then leaving the tested resistor in the room temperature for 1 h, and measure its resistance variance rate.									
	No evidence of mechanical damage.											
				<table border="1" style="width: 100%;"> <thead> <tr> <th colspan="2">Testing Condition</th> </tr> </thead> <tbody> <tr> <td>Lowest Temperature</td> <td>$-55\pm 5^{\circ}\text{C}$</td> </tr> <tr> <td>Highest Temperature</td> <td>$125\pm 5^{\circ}\text{C}$</td> </tr> <tr> <td>Temperature-retaining time</td> <td>15 minutes each</td> </tr> </tbody> </table>	Testing Condition		Lowest Temperature	$-55\pm 5^{\circ}\text{C}$	Highest Temperature	$125\pm 5^{\circ}\text{C}$	Temperature-retaining time	15 minutes each
	Testing Condition											
Lowest Temperature	$-55\pm 5^{\circ}\text{C}$											
Highest Temperature	$125\pm 5^{\circ}\text{C}$											
Temperature-retaining time	15 minutes each											
Loading Life in Moisture	0,5%; 1%: $\pm(2,0\%+0,10\Omega)$ 5%: $\pm(3,0\%+0,10\Omega)$	Refer to general specification above	JIS-C5201-1 4.24 Put the tested resistor in the chamber under temperature $40\pm 2^{\circ}\text{C}$, relative humidity 90~95% and load the rated voltage for 90 minutes on, 30 minutes off, total 1000 h Then leaving the tested resistor in room temperature for 60 min, and measure its resistance variance rate.									
	No evidence of mechanical damage. No short or burned on the appearance.											
Load Life	0,5%; 1%: $\pm (2,0\%+0,10\Omega)$ 5%: $\pm (3,0\%+0,10\Omega)$	Refer to general specification above	JIS-C5201-1 4.25 Put the tested resistor in chamber under temperature $70\pm 2^{\circ}\text{C}$ and load the rated voltage for 90 min on, 30 min off, total 1000 h Then leaving the tested resistor in room temperature for 60 min, and measure its resistance variance rate.									
	No evidence of mechanical damage. No short or burned on the appearance.											
Low Temperature Operation	0,5%; 1%: $\pm (0,5\%+0,05\Omega)$ 5%: $\pm (1,0\%+0,05\Omega)$	Refer to general specification above	MIL-R-55342D 4.7.4 Put the tested resistor in the chamber at room temperature 25°C . Decreasing the temperature to -55°C and keep the temperature at -55°C for 1 h. Then load the rated voltage for 45 min on, and 15 min off . Then leaving the tested resistor in room temperature for 8 ± 1 h, and measure its resistance variance rate.									
	No evidence of mechanical damage. No short or burned on the appearance.											
Whisker Test			JEDEC Standard No. 22A121 class 2 Test item 1 (Thermal Shock test):									
		Max 50 μm										
			<table border="1" style="width: 100%;"> <tbody> <tr> <td>Minimum storage temperature</td> <td>$-55\pm 2^{\circ}\text{C}$</td> </tr> <tr> <td>Maximum storage temperature</td> <td>$85+10/-0^{\circ}\text{C}$</td> </tr> <tr> <td>Temperature-retaining time</td> <td>10 min min.</td> </tr> <tr> <td>Number of temperature cycles</td> <td>1.500</td> </tr> </tbody> </table>	Minimum storage temperature	$-55\pm 2^{\circ}\text{C}$	Maximum storage temperature	$85+10/-0^{\circ}\text{C}$	Temperature-retaining time	10 min min.	Number of temperature cycles	1.500	
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Temperature-retaining time	10 min min.											
Number of temperature cycles	1.500											
			Inspection: Inspect for whisker formation on specimens that underwent the acceleration test specified in subclasses 4.2, with a magnifier (stereomicroscope) of about 40 or higher magnification. If judgment is hard in this method, use a scanning electron microscope (SEM) of about 1.000 or higher magnification.									

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