

# DATA SHEET

## GENERAL PURPOSE CHIP RESISTORS

RC\_L series

$\pm 0.1\%$ ,  $\pm 0.5\%$ ,  $\pm 1\%$ ,  $\pm 5\%$

Sizes 0075/0100/0201/0402/0603/0805/  
1206/1210/1218/2010/2512

RoHS compliant & Halogen free



## SCOPE

This specification describes RC series chip resistors with lead free terminations made by thick film process.

## APPLICATIONS

- All general purpose application

## FEATURES

- Halogen Free Epoxy
- RoHS compliant
  - Products with lead free terminations meet RoHS requirements
  - Pb-glass contained in electrodes, resistors element and glass are exempted by RoHS
- Reducing environmentally hazardous wastes
- High component and equipment reliability
- Saving of PCB space
- None forbidden-materials used in products/production
- MSL class: MSL I

## ORDERING INFORMATION - GLOBAL PART NUMBER

Global part numbers are identified by the series, size, tolerance, packing type, temperature coefficient, taping reel and resistance value.

### GLOBAL PART NUMBER

**RC XXXX X X X XX XXXX L**  
 (1) (2) (3) (4) (5) (6) (7)

#### (1) SIZE

0075/0100/0201/0402/0603/0805/1206/1210/1218/2010/2512

#### (2) TOLERANCE

B =  $\pm 0.1\%$

D =  $\pm 0.5\%$

F =  $\pm 1.0\%$

J =  $\pm 5.0\%$  (for jumper ordering, use code of J)

#### (3) PACKAGING TYPE

R = Paper taping reel

K = Embossed taping reel

S = ESD safe reel (0075/0100 only)

#### (4) TEMPERATURE COEFFICIENT OF RESISTANCE

— = Based on spec.

#### (5) TAPING REEL & POWER

07 = 7 inch dia. Reel & Standard power

10 = 10 inch dia. Reel

13 = 13 inch dia. Reel

7W = 7 inch dia. Reel & 2 x standard power

7N = 7 inch dia. Reel, ESD safe reel (0075/0100 only)

3W = 13 inch dia. Reel & 2 x standard power

#### (6) RESISTANCE VALUE

There are 2~4 digits indicated the resistance value.

Letter R/K/M is decimal point

Example:

97R6 = 97.6 $\Omega$

9K76 = 9760 $\Omega$

1M = 1,000,000 $\Omega$

#### (7) DEFAULT CODE

Letter L is the system default code for ordering only.<sup>(Note)</sup>

## ORDERING EXAMPLE

The ordering code for a RC0402 0.0625W chip resistor value 100K $\Omega$  with  $\pm 5\%$  tolerance, supplied in 7-inch tape reel of 10,000 units per reel is: RC0402JR-07100KL.

### NOTE

- All our RSMD products meet RoHS compliant and Halogen Free. "LFP" of the internal 2D reel label mentions "Lead Free Process".
- On customized label, "LFP" or specific symbol can be printed.

**MARKING**

**RC0075 / RC0100 / RC0201 / RC0402**



No Marking

Fig. 1

**RC0603**



1%, 0.5%, E24 exception values 10/11/13/15/20/75 of E24 series

Fig. 2  $240 = 24 \times 10^0 = 24$



1%, 0.5%, E96 refer to EIA-96 marking method, including values 10/11/13/15/20/75 of E24 series

Fig. 3  $88A = 806 \times 10^0 = 806 \Omega$



5%, E24 series : 3 digits  
First two digits for significant figure and 3rd digit for number of zeros

Fig. 4 Value = 10 K $\Omega$

**RC0805 / RC1206 / RC1210 / RC2010 / RC2512**



1%, 0.5%, E24/E96 series : 4 digits  
First three digits for significant figure and 4th digit for number of zeros

Fig. 5 Value = 10 K $\Omega$



5%, E24 series : 3 digits  
First two digits for significant figure and 3rd digit for number of zeros

Fig. 6 Value = 10 K $\Omega$

**RC1218**



E-24 series: 3 digits,  $\pm 5\%$   
First two digits for significant figure and 3rd digit for number of zeros

Fig. 7 Value = 10 K $\Omega$



Both E-24 and E-96 series: 4 digits,  $\pm 1\%$  &  $\pm 0.5\%$   
First three digits for significant figure and 4th digit for number of zeros

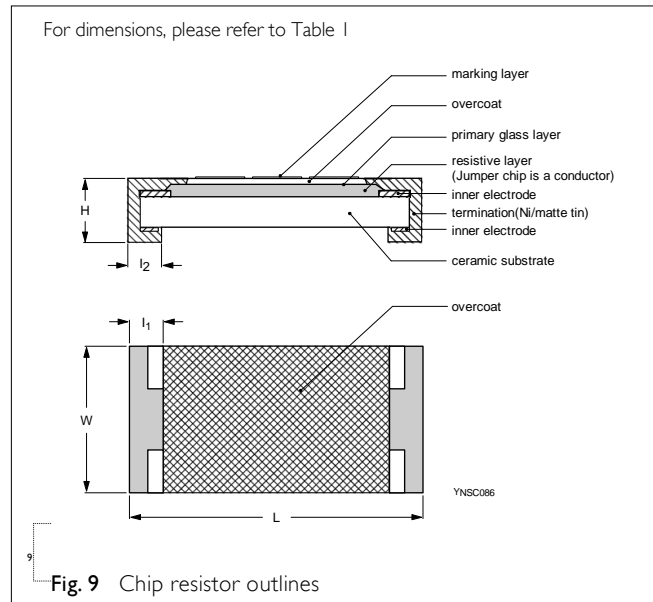
Fig. 8 Value = 10 K $\Omega$

For further marking information, please see special data sheet "Chip resistors marking".

**CONSTRUCTION**

The resistor is constructed on top of a high-grade ceramic body. Internal metal electrodes are added on each end to make the contacts to the thick film resistive element. The composition of the resistive element is a noble metal imbedded into a glass and covered by a second glass to prevent environmental influences. The resistor is laser trimmed to the rated resistance value. The resistor is covered with a protective epoxy coat, finally the two external terminations (matte tin on Ni-barrier) are added, as shown in Fig.9.

**Outlines**



**DIMENSION**

Table 1

| TYPE   | L (mm)    | W (mm)    | H (mm)    | l <sub>1</sub> (mm) | l <sub>2</sub> (mm) |
|--------|-----------|-----------|-----------|---------------------|---------------------|
| RC0075 | 0.30±0.01 | 0.15±0.01 | 0.13±0.01 | 0.08±0.03           | 0.08±0.03           |
| RC0100 | 0.40±0.02 | 0.20±0.02 | 0.13±0.02 | 0.10±0.03           | 0.10±0.03           |
| RC0201 | 0.60±0.03 | 0.30±0.03 | 0.23±0.03 | 0.10±0.05           | 0.15±0.05           |
| RC0402 | 1.00±0.05 | 0.50±0.05 | 0.35±0.05 | 0.20±0.10           | 0.25±0.10           |
| RC0603 | 1.60±0.10 | 0.80±0.10 | 0.45±0.10 | 0.25±0.15           | 0.25±0.15           |
| RC0805 | 2.00±0.10 | 1.25±0.10 | 0.50±0.10 | 0.35±0.20           | 0.35±0.20           |
| RC1206 | 3.10±0.10 | 1.60±0.10 | 0.55±0.10 | 0.45±0.20           | 0.45±0.20           |
| RC1210 | 3.10±0.10 | 2.60±0.15 | 0.55±0.10 | 0.45±0.15           | 0.50±0.20           |
| RC1218 | 3.10±0.10 | 4.60±0.10 | 0.55±0.10 | 0.45±0.20           | 0.40±0.20           |
| RC2010 | 5.00±0.10 | 2.50±0.15 | 0.55±0.10 | 0.60±0.20           | 0.55±0.20           |
| RC2512 | 6.35±0.10 | 3.10±0.15 | 0.55±0.10 | 0.60±0.20           | 0.60±0.20           |

**ELECTRICAL CHARACTERISTICS**

Table 2

| CHARACTERISTICS | POWER  | OPERATING TEMPERATURE RANGE | MAXIMUM WORKING VOLTAGE | MAXIMUM OVERLOAD VOLTAGE | DIELECTRIC WITHSTANDING VOLTAGE | RESISTANCE RANGE   | TEMPERATURE COEFFICIENT  | JUMPER CRITERIA                                  |
|-----------------|--------|-----------------------------|-------------------------|--------------------------|---------------------------------|--|--|--|
| RC0075          | 1/50 W | -55°C to 125°C              | 10V                     | 25V                      | 25V                             | 5% (E24)<br>10Ω ≤ R ≤ 1MΩ<br>1% (E24/E96)<br>10Ω ≤ R ≤ 1MΩ<br>Jumper < 50mΩ                                      | 10Ω ≤ R < 100Ω<br>-200~+600ppm/°C<br>100Ω ≤ R ≤ 1MΩ<br>±200ppm/°C  | Rated Current<br>0.5A<br>Maximum Current<br>1.0A |
| RC0100          | 1/32 W | -55°C to 125°C              | 15V                     | 30V                      | 30V                             | 5% (E24)<br>1Ω ≤ R ≤ 22MΩ<br>1% (E24/E96)<br>1Ω ≤ R ≤ 10MΩ<br>0.5% (E24/E96)<br>33Ω ≤ R ≤ 470KΩ<br>Jumper < 50mΩ | 1Ω ≤ R < 10Ω<br>-200~+600ppm/°C<br>10Ω ≤ R < 100Ω:<br>±300ppm/°C<br>100Ω ≤ R ≤ 10MΩ<br>Ω: ±200ppm/°C<br>10MΩ < R ≤ 22MΩ<br>Ω: ±250ppm/°C | Rated Current<br>0.5A<br>Maximum Current<br>1.0A |

Table 2

| CHARACTERISTICS | POWER  | OPERATING TEMPERATURE RANGE | MAXIMUM WORKING VOLTAGE | MAXIMUM OVERLOAD VOLTAGE | DIELECTRIC WITHSTANDING VOLTAGE | RESISTANCE RANGE                   | TEMPERATURE COEFFICIENT         | JUMPER CRITERIA                                  |
|-----------------|--------|-----------------------------|-------------------------|--------------------------|---------------------------------|------------------------------------|---------------------------------|--|
| RC0201          | 1/20 W | -55°C to 125°C              | 25V                     | 50V                      | 50V                             | 5% (E24)<br>1Ω ≤ R ≤ 10MΩ          | 1Ω ≤ R ≤ 10Ω<br>-100~+350ppm°C  | Rated Current<br>0.5A<br>Maximum Current<br>1.0A |
|                 |        |                             |                         |                          |                                 | 1% (E24/E96)<br>1Ω ≤ R ≤ 10MΩ      | 10Ω < R ≤ 10MΩ<br>±200ppm°C     |  |
| RC0402          | 1/16 W | -55°C to 155°C              | 50V                     | 100V                     | 100V                            | 5% (E24)<br>1Ω ≤ R ≤ 22MΩ          | 1Ω ≤ R ≤ 10Ω<br>±200ppm°C       | Rated Current<br>1.0A<br>Maximum Current<br>2.0A |
|                 |        |                             |                         |                          |                                 | 1% (E24/E96)<br>1Ω ≤ R ≤ 10MΩ      | 10Ω < R ≤ 10MΩ<br>±100ppm°C     |  |
|                 |        |                             |                         |                          |                                 | 0.5% (E24/E96)<br>1Ω ≤ R ≤ 1MΩ     | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |  |
| RC0603          | 1/10 W | -55°C to 155°C              | 75V                     | 150V                     | 150V                            | 5% (E24)<br>1Ω ≤ R ≤ 1MΩ           | 1Ω ≤ R ≤ 10Ω<br>±200ppm°C       | Rated Current<br>1.0A<br>Maximum Current<br>2.0A |
|                 |        |                             |                         |                          |                                 | 1% (E24/E96)<br>1Ω ≤ R ≤ 1MΩ       | 10Ω < R ≤ 10MΩ<br>±100ppm°C     |  |
| RC0805          | 1/8 W  | -55°C to 155°C              | 150V                    | 300V                     | 300V                            | 5% (E24)<br>1Ω ≤ R ≤ 100MΩ         | 1Ω ≤ R ≤ 10Ω<br>±200ppm°C       | Rated Current<br>2.0A<br>Maximum Current<br>5.0A |
|                 |        |                             |                         |                          |                                 | 1% (E24/E96)<br>1Ω ≤ R ≤ 10MΩ      | 10Ω < R ≤ 10MΩ<br>±100ppm°C     |  |
|                 |        |                             |                         |                          |                                 | 0.5% (E24/E96)<br>1Ω ≤ R ≤ 1MΩ     | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |  |
| RC0805          | 1/4 W  | -55°C to 155°C              | 150V                    | 300V                     | 300V                            | 0.1% (E24/E96)<br>10Ω ≤ R ≤ 1MΩ    | 24MΩ < R ≤ 100MΩ<br>Ω ±300ppm°C |  |
|                 |        |                             |                         |                          |                                 | 10%, 20% (E24)<br>24MΩ ≤ R ≤ 100MΩ | Ω ±300ppm°C                     |  |
| RC0805          | 1/4 W  | -55°C to 155°C              | 150V                    | 300V                     | 300V                            | 5% (E24)<br>1Ω ≤ R ≤ 1MΩ           | 1Ω ≤ R ≤ 1MΩ<br>±200ppm°C       |  |
|                 |        |                             |                         |                          |                                 | 1% (E24/E96)<br>1Ω ≤ R ≤ 1MΩ       |                                 |  |

**FOOTPRINT AND SOLDERING PROFILES**

For recommended footprint and soldering profiles, please refer to data sheet “Chip resistors mounting”

Table 2

| CHARACTERISTICS | POWER | OPERATING TEMPERATURE RANGE | MAXIMUM WORKING VOLTAGE | MAXIMUM OVERLOAD VOLTAGE | DIELECTRIC WITHSTANDING VOLTAGE | RESISTANCE RANGE                       | TEMPERATURE COEFFICIENT         | JUMPER CRITERIA          |
|-----------------|-------|-----------------------------|-------------------------|--------------------------|---------------------------------|--|---------------------------------|--------------------------|
| RC1206          | 1/4 W | -55°C to 155°C              | 200V                    | 400V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 100MΩ            | 1 Ω ≤ R ≤ 10 Ω<br>±200ppm°C     | Rated Current<br>2.0A    |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 10MΩ         | 10 Ω < R ≤ 10MΩ<br>±100ppm°C    | Maximum Current<br>10.0A |
| RC1206          | 1/4 W | -55°C to 155°C              | 200V                    | 400V                     | 500V                            | 0.5% (E24/E96)<br>1 Ω ≤ R ≤ 1MΩ        | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |                          |
|                 |       |                             |                         |                          |                                 | 0.1% (E24/E96)<br>10 Ω ≤ R ≤ 1MΩ       | 24MΩ ≤ R ≤ 100MΩ<br>Ω ±300ppm°C |                          |
| RC1210          | 1/2 W | -55°C to 155°C              | 200V                    | 400V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 1MΩ              | 1 Ω ≤ R ≤ 1MΩ<br>±200ppm°C      |                          |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 1MΩ          |                                 |                          |
| RC1210          | 1/2 W | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 22MΩ             | 1 Ω ≤ R ≤ 10 Ω<br>±200ppm°C     | Rated Current<br>2.0A    |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 10MΩ         | 10 Ω < R ≤ 10MΩ<br>±100ppm°C    | Maximum Current<br>10.0A |
| RC1210          | 1/2 W | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 0.1%, 0.5% (E24/E96)<br>10 Ω ≤ R ≤ 1MΩ | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |                          |
|                 |       |                             |                         |                          |                                 | Jumper < 50mΩ                          |                                 |                          |
| RC1218          | 1 W   | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 1MΩ              | 1 Ω ≤ R ≤ 10 Ω<br>±200ppm°C     | Rated Current<br>6.0A    |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 1MΩ          | 10 Ω < R ≤ 1MΩ<br>±100ppm°C     | Maximum Current<br>10.0A |
| RC1218          | 1 W   | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 0.1%, 0.5% (E24/E96)<br>10 Ω ≤ R ≤ 1MΩ | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |                          |
|                 |       |                             |                         |                          |                                 | Jumper < 50mΩ                          |                                 |                          |
| RC2010          | 3/4 W | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 22MΩ             | 1 Ω ≤ R ≤ 10 Ω<br>±200ppm°C     | Rated Current<br>2.0A    |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 10MΩ         | 10 Ω < R ≤ 10MΩ<br>±100ppm°C    | Maximum Current<br>10.0A |
| RC2010          | 3/4 W | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 0.1%, 0.5% (E24/E96)<br>10 Ω ≤ R ≤ 1MΩ | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |                          |
|                 |       |                             |                         |                          |                                 | Jumper < 50mΩ                          |                                 |                          |
| RC2512          | 1 W   | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 22MΩ             | 1 Ω ≤ R ≤ 10 Ω<br>±200ppm°C     | Rated Current<br>2.0A    |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 10MΩ         | 10 Ω < R ≤ 10MΩ<br>±100ppm°C    | Maximum Current<br>10.0A |
| RC2512          | 1 W   | -55°C to 155°C              | 200V                    | 500V                     | 500V                            | 0.1%, 0.5% (E24/E96)<br>10 Ω ≤ R ≤ 1MΩ | 10MΩ < R ≤ 22MΩ<br>±200ppm°C    |                          |
|                 |       |                             |                         |                          |                                 | Jumper < 50mΩ                          |                                 |                          |
| RC2512          | 2 W   | -55°C to 155°C              | 200V                    | 400V                     | 500V                            | 5% (E24)<br>1 Ω ≤ R ≤ 1MΩ              | 1 Ω ≤ R ≤ 1MΩ<br>±200ppm°C      |                          |
|                 |       |                             |                         |                          |                                 | 1% (E24/E96)<br>1 Ω ≤ R ≤ 1MΩ          |                                 |                          |

**PACKING STYLE AND PACKAGING QUANTITY**

Table 3 Packing style and packaging quantity

| PACKING STYLE | PAPER TAPING REEL (R) |             |              | ESD SAFE REEL (S)<br>(4MM WIDTH, 1MM PITCH PLASTIC EMBOSSED) | EMBOSSSED TAPING REEL |              |
|---------------|-----------------------|-------------|--------------|--|-----------------------|--------------|
|               | 7" (178 mm)           | 10" (254mm) | 13" (330 mm) |  | 7" (178 mm)           | 13" (330 mm) |
| RC0075        | ---                   | ---         | ---          | 20000  | ---                   | ---          |
| RC0100        | 20000                 | ---         | 80000        | 40000  | ---                   | ---          |
| RC0201        | 10000                 | 20000       | 50000        | ---  | ---                   | ---          |
| RC0402        | 10000                 | 20000       | 50000        | ---  | ---                   | ---          |
| RC0603        | 5000                  | 10000       | 20000        | ---  | ---                   | ---          |
| RC0805        | 5000                  | 10000       | 20000        | ---  | ---                   | ---          |
| RC1206        | 5000                  | 10000       | 20000        | ---  | ---                   | ---          |
| RC1210        | 5000                  | 10000       | 20000        | ---  | ---                   | ---          |
| RC1218        | ---                   | ---         | ---          | ---  | 4000                  | ---          |
| RC2010        | ---                   | ---         | ---          | ---  | 4000                  | 16000        |
| RC2512        | ---                   | ---         | ---          | ---  | 4000                  | ---          |

**NOTE**

For tape and reel specification/dimensions, please refer to data sheet "Chip resistors packing".

**FUNCTIONAL DESCRIPTION**

**OPERATING TEMPERATURE RANGE**

RC0402 to RC2512 Range: -55°C to +155°C (Fig. 10-1)

RC0075 to RC0201 Range: -55°C to +125°C (Fig. 10-2)

**POWER RATING**

Each type rated power at 70 ° C:

- RC0075=1/50W
- RC0100=1/32W
- RC0201=1/20W
- RC0402=1/16W, 1/8W
- RC0603=1/10W, 1/5W
- RC0805=1/8W, 1/4W
- RC1206=1/4W, 1/2W
- RC1210=1/2W
- RC1218=1W
- RC2010=3/4W
- RC2512=1W, 2W

**RATED VOLTAGE**

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$$V = \sqrt{(P \times R)}$$

or max. working voltage whichever is less

Where

V = Continuous rated DC or AC (rms) working voltage (V)

P = Rated power (W)

R = Resistance value (Ω)

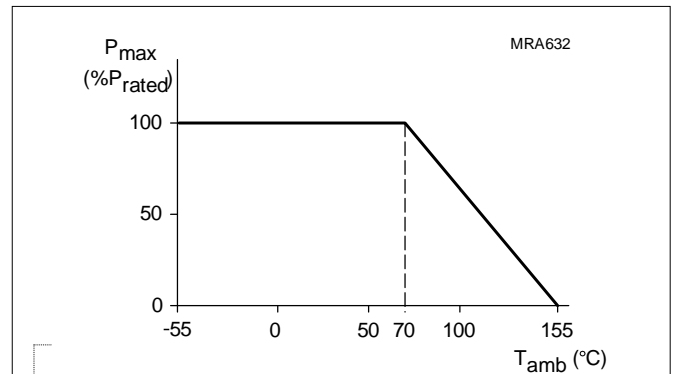


Fig. 10-1 Maximum dissipation (P) in percentage of rated power as a function of the operating ambient temperature (T<sub>amb</sub>)

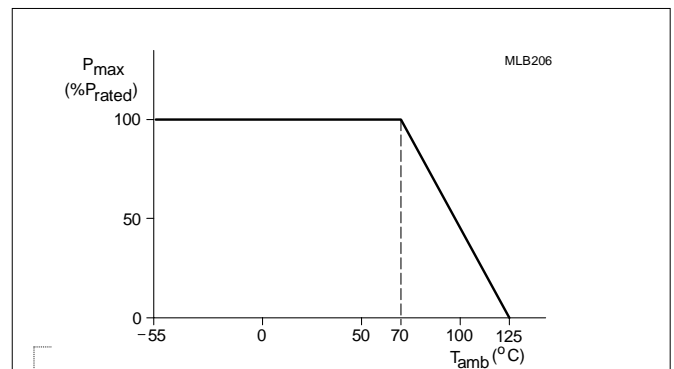


Fig. 10-2 Maximum dissipation (P) in percentage of rated power as a function of the operating ambient temperature (T<sub>amb</sub>)

**TESTS AND REQUIREMENTS**

Table 4 Test condition, procedure and requirements

| TEST   | TEST METHOD                               | PROCEDURE   | REQUIREMENTS   |
|--|---|---|--|
| Temperature Coefficient of Resistance (T.C.R.) | MIL-STD-202 Method 304                    | At +25/-55°C and +25/+125°C<br><br><b>Formula:</b><br>$T.C.R = \frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (ppm/°C)}$<br>Where<br>t <sub>1</sub> =+25 °C or specified room temperature<br>t <sub>2</sub> =-55 °C or +125 °C test temperature<br>R <sub>1</sub> =resistance at reference temperature in ohms<br>R <sub>2</sub> =resistance at test temperature in ohms | Refer to table 2   |
| Life/ Endurance                                | MIL-STD-202 Method 108<br>IEC 60115-1 7.1 | At 70±2°C for 1,000 hours; RCWV applied for 1.5 hours on and 0.5 hour off, still air required   | 0075: ± (5%+100mΩ)<br><100mΩ for jumper<br>01005: ±(3% +50mΩ)<br><100mΩ for jumper<br>Others:<br>±(1%+50mΩ) for B/D/F tol<br>±(3%+50mΩ) for J tol<br><100mR for jumper     |
| High Temperature Exposure                      | MIL-STD-202 Method 108<br>IEC 60068-2-2   | 1,000 hours at maximum operating temperature depending on specification, unpowered.   | 0075: ± (5%+100mΩ)<br><100mΩ for jumper<br>01005: ±(1% +50mΩ)<br>< 50mΩ for jumper<br>Others:<br>±(1%+50mΩ) for B/D/F tol<br>±(2%+50mΩ) for J tol<br><50mR for jumper      |
| Moisture Resistance                            | MIL-STD-202 Method 106                    | Each temperature / humidity cycle is defined at 8 hours, 3 cycles / 24 hours for 10d with 25°C / 65°C 95% R.H, without steps 7a & 7b, unpowered<br>Parts mounted on test-boards, without condensation on parts  | 0075: ± (2%+100mΩ)<br><100mΩ for jumper<br>01005: ±(2% +50mΩ)<br>< 100mΩ for jumper<br>Others:<br>±(0.5%+50mΩ) for B/ D/F tol<br>±(2%+50mΩ) for J tol<br><100mR for jumper |
| Humidity                                       | IEC 60115-1 10.4                          | Steady state for 1000 hours at 40°C / 95% R.H. RCWV applied for 1.5 hours on and 0.5 hour off   | 0075: ± (5%+100mΩ)<br>no visible damage<br>01005: ±(3% +50mΩ)<br>< 100mΩ for jumper<br>Others:<br>±(1%+50mΩ) for B/D/F tol<br>±(2%+50mΩ) for J tol<br><100mR for jumper    |



|                                      |  |   |  |
|--------------------------------------|--|---|--|
| <b>Thermal Shock</b>                 | MIL-STD-202 Method 107                     | -55/+125°C<br>Note Number of cycles required is 300.<br>Devices mounted<br>Maximum transfer time is 20 seconds.<br>Dwell time is 15 minutes. Air - Air  | 0075/01005: $\pm(1\% + 50m\Omega)$<br>< 50m $\Omega$ for jumper<br>Others:<br>$\pm(0.5\% + 50m\Omega)$ for B/D/F tol<br>$\pm(1\% + 50m\Omega)$ for J tol<br>< 50mR for jumper  |
| <b>Short Time Overload</b>           | IEC 60115-1 8.1                            | 2.5 times RCWV or maximum overload voltage which is less for 5 seconds at room temperature  | 0075/01005: $\pm(2\% + 50m\Omega)$<br>< 50m $\Omega$ for jumper<br>Others:<br>$\pm(1\% + 50m\Omega)$ for B/D/F tol<br>$\pm(2\% + 50m\Omega)$ for J tol<br><50mR for jumper<br>No visible damage  |
| <b>Board Flex/Bending</b>            | IEC 60115-1 9.8                            | Device mounted or as described only 1 board bending required<br>bending time: 60 $\pm$ 5 seconds<br>0075/0100/0201/0402:5mm;<br>0603/0805:3mm;<br>1206 and above:2mm  | 0075/01005: $\pm(1\% + 50m\Omega)$<br>< 50m $\Omega$ for jumper<br>Others:<br>$\pm(1\% + 50m\Omega)$ for B/D/F/J tol<br><50mR for jumper<br>No visible damage  |
| <b>Solderability - Wetting</b>       | J-STD-002 test B1                          | Electrical Test not required Magnification 50X<br>SMD conditions:<br>1st step: method B1, aging 4 hours at 155°C dry heat<br>2nd step: leadfree solder bath at 245 $\pm$ 3°C<br>Dipping time: 3 $\pm$ 0.5 seconds | Well tinned<br>(>95% covered)<br>No visible damage   |
| <b>-Leaching</b>                     | J-STD-002 test D                           | Leadfree solder ,260°C, 30 seconds immersion time   | No visible damage  |
| <b>-Resistance to Soldering Heat</b> | MIL-STD-202 Method 210<br>IEC 60115-1 4.18 | Condition B, no pre-heat of samples<br>Leadfree solder, 260°C $\pm$ 5°C, 10 $\pm$ 1 seconds immersion time<br>Procedure 2 for SMD: devices fluxed and cleaned with isopropanol                                    | 0075: $\pm(3\% + 50m\Omega)$<br><50m $\Omega$ for jumper<br>01005: $\pm(1\% + 50m\Omega)$<br>< 50m $\Omega$ for jumper<br>Others:<br>$\pm(0.5\% + 50m\Omega)$ for B/D/F tol.<br>$\pm(1\% + 50m\Omega)$ for J tol.<br><50mR for jumper<br>No visible damage |

**REVISION HISTORY**

| REVISION   | DATE          | CHANGE NOTIFICATION | DESCRIPTION  |
|------------|---------------|---------------------|--|
| Version 12 | Aug. 02, 2022 | -                   | - I2 dimension updated, for size 1206, size 2010, size 2512.                   |
| Version 11 | May 15, 2020  | -                   | - Extend RC0201, RC0402, RC0603, RC0805, RC1206 D tol resistance range to 1ohm |
| Version 10 | Dec. 12, 2018 | -                   | - Updated 0075 dimensions  |
| Version 9  | Mar. 06, 2018 | -                   | - Add 0.5%/1% marking rule for RC0603 ~ RC2512 based on marking datasheet      |
| Version 8  | July 10, 2017 | -                   | - Add "3W" part number coding for 13" Reel & double power                      |
| Version 7  | Mar. 7, 2017  | -                   | - Add 10" packing  |
| Version 6  | Feb.15, 2017  | -                   | - Extend RC0805 and RC1206 resistance range to 100Mohm                         |
| Version 5  | Oct. 06, 2016 | -                   | - Description: Update Dimension of I2 of RC2512 (2W)                           |
| Version 4  | Jan. 22, 2016 | -                   | - Update resistance range  |
| Version 3  | Dec. 24, 2015 | -                   | - Updated test and requirements  |
| Version 2  | Jul. 23, 2015 | -                   | - Updated test and requirements  |
| Version 1  | Jan. 21, 2015 | -                   | - ESD Safe Reel update   |
| Version 0  | Dec. 15, 2014 | -                   | - First issue of this specification  |

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