

DATA SHEET

GENERAL PURPOSE CHIP RESISTORS

RC_L series

±0.1%, ±0.5%, ±1%, ±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

<u>ORDERING INFORMATION - GLOBAL PART NUMBER</u>

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) (7)

(I) SIZE

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

(5)

(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 & $2 \times$ standard power

7D = 7 inch dia. Reel & 2 x Standard Quantity (0201/0402 only)

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:

 $97R6 = 97.6\Omega$

 $9K76 = 9760\Omega$

 $IM = 1,000,000\Omega$

(7) DEFAULT CODE

Letter L is the system default code for ordering only. (Note)

ORDERING EXAMPLE

The ordering code for a RC0402 0.0625W chip resistor value $100 \mathrm{K}\Omega$ 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".
- 2. On customized label, "LFP" or specific symbol can be printed.





Chip Resistor Surface Mount

RC_L

SERIES

0075 to 2512

MARKING

RC0075 / RC0100 / RC0201 / RC0402



No Marking

.

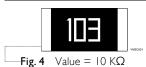
RC0603



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



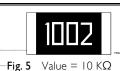
1%, 0.5%, E96 refer to EIA-96 marking method, including values 10/11/13/15/20/75 of E24 series



5%, E24 series: 3 digits

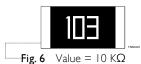
First two digits for significant figure and 3rd digit for number of zeros

RC0805 / RC1206 / RC1210 / RC2010 / RC2512



1%, 0.5%, E24/E96 series: 4 digits

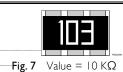
First three digits for significant figure and 4th digit for number of zeros



5%, E24 series: 3 digits

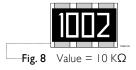
First two digits for significant figure and 3rd digit for number of zeros

RC1218



E-24 series: 3 digits, ±5%

First two digits for significant figure and 3rd digit for number of zeros



Both E-24 and E-96 series: 4 digits, ±1% & ±0.5%

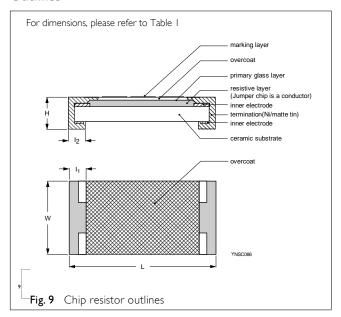
First three digits for significant figure and 4th digit for number of zeros

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 I

| TYPE | L (mm) | W (mm) | H (mm) | I _I (mm) | l ₂ (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

| CHARAC- TERISTICS | POWER | OPERATING TEMPERATURE RANGE | MAXIMUM WORKING VOLTAGE | MAXIMUM OVERLOAD VOLTAGE | DIELECTRIC WITHSTANDING VOLTAGE | resistance range | TEMPERATURE COEFFICIENT | JUMPEF CRITERIA |
|----------------------|--------|-----------------------------------|-------------------------------|--------------------------------|---------------------------------------|---|---|---|
| RC0075 | 1/50 W | -55°C to 25°C | 10V | 25V | 25V | $\begin{array}{c} 5\% \text{ (E24)} \\ 10\Omega \leqq R \leqq \text{ IM}\Omega \\ \text{ I% (E24/E96)} \\ 10\Omega \leqq R \leqq \text{ IM}\Omega \\ \text{Jumper} < 50\text{m}\Omega \end{array}$ | $\begin{array}{c} \text{IO}\Omega \leqq \text{R} < \text{IO}\Omega \\ \text{-200} \sim +600 \text{ppm}^{\circ}\text{C} \\ \text{IO}\Omega \leqq \text{R} \leqq \text{IM}\Omega \\ \text{\pm200ppm}^{\circ}\text{C} \end{array}$ | Rated Current 0,5A Maximum Current 1,0A |
| RC0100 | 1/32 W | -55°C to l25°C | 15V | 30V | 30V | $\begin{array}{c} 5\% \text{ (E24)} \\ \text{I } \Omega \leq \text{R} \leq 22\text{M}\Omega \\ \text{I } \% \text{ (E24/E96)} \\ \text{I } \Omega \leq \text{R} \leq 10\text{M}\Omega \\ \text{0.5\% (E24/E96)} \\ \text{33} \Omega \leq \text{R} \leq 470\text{K}\Omega \\ \text{Jumper} < 50\text{m}\Omega \end{array}$ | $\begin{split} & \Gamma\Omega \leqq R < 10\Omega \\ -200 \sim +600 ppm^{\circ}C \\ & \Gamma0\Omega \leqq R < 100\Omega; \\ & \pm 300 ppm/^{\circ}C \\ & \Gamma00\Omega \leqq R \le 10M\Omega; \\ & \pm 200 ppm/^{\circ}C \\ & \Gamma0M\Omega \leqslant R \le 22M\Omega; \\ & \pm 250 ppm/^{\circ}C \end{split}$ | 0.5A Maximum Current 1.0A |



Chip Resistor Surface Mount RC_L SERIES 0075 to 2512

Table 2

| Table 2 | | | | | | | | |
|----------------------|--------|-----------------------------------|-------------------------------|--------------------------------|---------------------------------------|--|--|---|
| CHARAC- TERISTICS | 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 l25°C | 25V | 50V | 50V | $5\% \text{ (E24)}$ $1\Omega \leq R \leq 10M\Omega$ $1\% \text{ (E24/E96)}$ $1\Omega \leq R \leq 10M\Omega$ $0.5\% \text{ (E24/E96)}$ $1\Omega \leq R \leq 1M\Omega$ $0.1\% \text{ (E24/E96)}$ $10\Omega \leq R \leq 1M\Omega$ $\text{Jumper} \leq 50m\Omega$ | $\begin{split} & I\Omega\!\leqq\!R\!\leqq\!I0\Omega\\ & -I00\!\sim\!+350ppm^\circC\\ & I0\Omega\!<\!R\!\leqq\!I0M\Omega\\ & \pm200ppm^\circC \end{split}$ | Rated Current 0.5A Maximum Current 1.0A |
| RC0402 | 1/16 W | -55°C to 155°C | 50V | 100V | 100V | 5% (E24) $1\Omega \le R \le 22M\Omega$ 1% (E24/E96) $1\Omega \le R \le 10M\Omega$ 0.5% (E24/E96) $1\Omega \le R \le 1M\Omega$ 0.1% (E24/E96) $10\Omega \le R \le 1M\Omega$ Jumper<50mΩ | $\begin{split} & I\Omega\!\leqq\!R\!\leqq\!I0\Omega\\ & \pm 200ppm^\circC\\ & I0Q\!<\!R\!\leqq\!I0M\Omega\\ & \pm I00ppm^\circC\\ & I0MQ\!<\!R\!\leqq\!22M\Omega\\ & \pm 200ppm^\circC \end{split}$ | Rated Current I.0A Maximum Current 2.0A |
| | 1/8W | -55℃ to I55℃ | 50V | 100V | 100V | $\begin{array}{c} 5\% \text{ (E24)} \\ \text{I } \Omega \leqq \text{R} \leqq \text{I M} \Omega \\ \text{I \% (E24/E96)} \\ \text{I } \Omega \leqq \text{R} \leqq \text{I M} \Omega \end{array}$ | IΩ≦R≦IMΩ ±200ppm°C | |
| RC0603 | 1/10 W | -55°C to 155°C | 75∨ | 150V | 150V | 5% (E24) $I\Omega \le R \le 22M\Omega$ $I\%$ (E24/E96) $I\Omega \le R \le 10M\Omega$ 0.5% (E24/E96) $I\Omega \le R \le IM\Omega$ 0.1% (E24/E96) $I\Omega \subseteq R \le IM\Omega$ Jumper<50mΩ | $\begin{split} & \hspace{0.1cm} I\hspace{0.1cm} \Omega \! \leq \! R \! \leq \! I\hspace{0.1cm} 0\hspace{0.1cm} \Omega \\ & \hspace{0.1cm} \pm 200 ppm^{\circ}\hspace{0.1cm} C \\ & \hspace{0.1cm} I\hspace{0.1cm} 0\hspace{0.1cm} Q\hspace{0.1cm} R \! \leq \! I\hspace{0.1cm} 0\hspace{0.1cm} M\hspace{0.1cm} \Omega \\ & \hspace{0.1cm} \pm I\hspace{0.1cm} 0\hspace{0.1cm} P\hspace{0.1cm} Q\hspace{0.1cm} R \! \leq \! 2\hspace{0.1cm} 2\hspace{0.1cm} M\hspace{0.1cm} \Omega \\ & \hspace{0.1cm} \pm 200 ppm^{\circ}\hspace{0.1cm} C \end{split}$ | Rated Current I.0A Maximum Current 2.0A |
| | 1/5 W | -55℃ to I55℃ | 75V | 150V | 150V | 5% (E24) $I\Omega \leq R \leq IM\Omega$ I% (E24/E96) $I\Omega \leq R \leq IM\Omega$ | IΩ≦R≦IMΩ ±200ppm°C | |
| RC0805 | 1/8 W | -55°C to 155°C | 150V | 300V | 300∨ | $\begin{array}{c} 5\% \ (\text{E24}) \\ \text{I} \ \Omega \leqq R \leqq \ \ 100\text{M}\Omega \\ \text{I} \ \% \ (\text{E24}/\text{E96}) \\ \text{I} \ \Omega \leqq R \leqq \ \ 10\text{M}\Omega \\ \text{0.5} \% \ (\text{E24}/\text{E96}) \\ \text{I} \ \Omega \leqq R \leqq \ \ 1\text{M}\Omega \\ \text{0.1} \% \ (\text{E24}/\text{E96}) \\ \text{I} \ \Omega \Omega \leqq R \leqq \ \ 1\text{M}\Omega \\ \text{I} \ 0\%, 20\% \ (\text{E24}) \\ \text{24M} \ \Omega \leqq R \leqq \ \ 100\text{M}\Omega \\ \text{Jumper} < 50\text{m}\Omega \end{array}$ | $\begin{split} & \hspace{0.1cm} I\hspace{0.1cm} \Omega \! \leq \! R \! \leq \! I\hspace{0.1cm} O\hspace{0.1cm} \Omega \\ & \hspace{0.1cm} \pm 200ppm^{\circ}\hspace{0.1cm} C \\ & \hspace{0.1cm} I\hspace{0.1cm} O\hspace{0.1cm} Q\hspace{0.1cm} R \! \leq \! I\hspace{0.1cm} O\hspace{0.1cm} M\hspace{0.1cm} \Omega \\ & \hspace{0.1cm} \pm 100ppm^{\circ}\hspace{0.1cm} C \\ & \hspace{0.1cm} \pm 200ppm^{\circ}\hspace{0.1cm} C \\ & \hspace{0.1cm} \pm 300ppm^{\circ}\hspace{0.1cm} C \end{split}$ | Rated Current 2.0A Maximum Current 5.0A |
| | 1/4 W | -55°C to I55°C | 150V | 300V | 300V | 5% (E24) $1\Omega \le R \le 1M\Omega$ 1% (E24/E96) $1\Omega \le R \le 1M\Omega$ | IΩ≦R≦IMΩ ±200ppm°C | |



FOOTPRINT AND SOLDERING PROFILES

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

| Tab | le | 3 |
|-----|-----|---|
| | . – | _ |

| CHARAC- TERISTICS | 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 l55°C | 200V | 400V | 500V | $\begin{array}{c} 5\% \ (\text{E24}) \\ 1\Omega \leqq R \leqq 100M\Omega \\ 1\% \ (\text{E24/E96}) \\ 1\Omega \leqq R \leqq 10M\Omega \\ 0.5\% \ (\text{E24/E96}) \\ 1\Omega \leqq R \leqq 1M\Omega \\ 0.1\% \ (\text{E24/E96}) \\ 10\Omega \leqq R \leqq 1M\Omega \\ 10\%, 20\% \ (\text{E24}) \\ 24M\Omega \leqq R \leqq 100M\Omega \\ \\ 10\text{mper} < 50\text{m}\Omega \end{array}$ | $\begin{split} & \hspace{0.1cm} 0.1c$ | Rated Current 2.0A Maximum Current 10.0A |
| | 1/2 W | -55°C to 155°C | 200V | 400V | 500V | $\begin{array}{c} 5\% \text{ (E24)} \\ \text{I} \Omega \leqq \text{R} \leqq \text{IM}\Omega \\ \text{I} \% \text{ (E24/E96)} \\ \text{I} \Omega \leqq \text{R} \leqq \text{IM}\Omega \end{array}$ | IΩ≦R≦IMΩ ±200ppm°C | |
| RC1210 | 1/2 W | -55°C to I55°C | 200V | 500V | 500V | $\begin{array}{c} 5\% \ (\text{E24}) \\ \text{I} \ \Omega \leqq R \leqq 22M\Omega \\ \text{I} \% \ (\text{E24/E96}) \\ \text{I} \Omega \leqq R \leqq \text{I} 0M\Omega \\ \text{0.1\%, 0.5\% (E24/E96)} \\ \text{I} 0\Omega \leqq R \leqq \text{I} M\Omega \\ \text{Jumper} < 50m\Omega \end{array}$ | $\begin{split} & \hspace{-0.1cm} $ | Rated Current 2.0A Maximum Current 10.0A |
| RC1218 | ΙW | -55°C to 155°C | 200V | 500V | 500V | $5\% \ (E24)$ $I\Omega \leqq R \leqq IM\Omega$ $I\% \ (E24/E96)$ $I\Omega \leqq R \leqq IM\Omega$ $0.1\%, 0.5\% \ (E24/E96)$ $I0\Omega \leqq R \leqq IM\Omega$ $IUMper < 50m\Omega$ | $\begin{split} I\Omega &\leqq R \leqq I0\Omega \\ &\pm 200ppm^{\circ}C \\ I0\Omega < R \leqq IM\Omega \\ &\pm I00ppm^{\circ}C \end{split}$ | Rated Current 6.0A Maximum Current 10.0A |
| RC2010 | 3/4 W | -55°C to I55°C | 200V | 500V | 500V | $5\% \text{ (E24)}$ $1\Omega \leq R \leq 22M\Omega$ $1\% \text{ (E24/E96)}$ $1\Omega \leq R \leq 10M\Omega$ $0.1\%, 0.5\% \text{ (E24/E96)}$ $10\Omega \leq R \leq 1M\Omega$ $\text{Jumper} \leq 50m\Omega$ | $\begin{split} & 1\Omega \leqq R \leqq 10\Omega \\ & \pm 200 ppm^{\circ}C \\ & 10\Omega < R \leqq 10M\Omega \\ & \pm 100 ppm^{\circ}C \\ & 10M\Omega < R \leqq 22M\Omega \\ & \pm 200 ppm^{\circ}C \end{split}$ | Rated Current 2.0A Maximum Current 10.0A |
| RC2512 | ΙW | -55°C to I55°C | 200V | 500V | 500V | 5% (E24) $1\Omega \le R \le 22M\Omega$ 1% (E24/E96) $1\Omega \le R \le 10M\Omega$ 0.1%, 0.5% (E24/E96) $10\Omega \le R \le 1M\Omega$ Jumper<50mΩ | $\begin{split} & \hspace{-0.1cm} $ | Rated Current 2.0A Maximum Current 10.0A |
| | 2 W | -55℃ to I55℃ | 200V | 400V | 500V | 5% (E24) $I\Omega \le R \le IM\Omega$ I% (E24/E96) $I\Omega \le R \le IM\Omega$ | IΩ≦R≦IMΩ ±200ppm°C | |



PACKING STYLE AND PACKAGING QUANTITY

Table 4 Packing style and packaging quantity

ESD SAFE REEL (S) (4MM WIDTH, IMM PITCH PLASTIC

| PACKING STYLE PAPER TAPING REEL (R) | | | | EMBOSSED) | EMBOSSED | TAPING REEL |
|-------------------------------------|-------------|-------------|--------------|-------------|-------------|--------------|
| REEL DIMENSION | 7" (178 mm) | 10" (254mm) | 13" (330 mm) | 7" (178 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 | |

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:

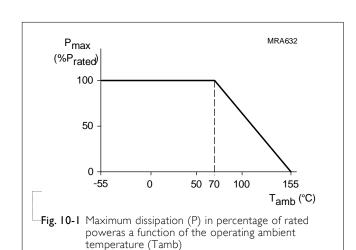
$$V = \sqrt{(PxR)}$$

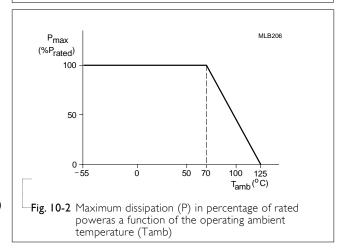
or max. working voltage whichever is less

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

P = Rated power (W)

 $R = Resistance value (\Omega)$







RC_L

SERIES 0075 to 2512

TESTS AND REQUIREMENTS

Table 5 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 Formula: T.C.R= $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (ppm/°C)}$ Where t_1 =+25°C or specified room temperature t_2 =-55°C or +125°C test temperature R_1 =resistance at reference temperature in ohms R_2 =resistance at test temperature in ohms | Refer to table 2 |
| Life/ Endurance | MIL-STD-202 Method 108 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 | $0075: \pm (5\% + 100 \text{m}\Omega)$ $< 100 \text{m}\Omega \text{ for jumper}$ $01005: \pm (3\% + 50 \text{m}\Omega)$ $< 100 \text{m}\Omega \text{ for jumper}$ $Others:$ $\pm (1\% + 50 \text{m}\Omega) \text{ for B/D/F tol}$ $\pm (3\% + 50 \text{m}\Omega) \text{ for J tol}$ $< 100 \text{mR for jumper}$ |
| High Temperature Exposure | MIL-STD-202 Method 108 | I,000 hours at maximum operating temperature depending on specification, unpowered. | $0075: \pm (5\% + 100 \text{m}\Omega)$ $< 100 \text{m}\Omega \text{ for jumper}$ $01005: \pm (1\% + 50 \text{m}\Omega)$ $< 50 \text{m}\Omega \text{ for jumper}$ $Others:$ $\pm (1\% + 50 \text{m}\Omega) \text{ for B/D/F tol}$ $\pm (2\% + 50 \text{m}\Omega) \text{ for J tol}$ $< 50 \text{mR for jumper}$ |
| 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 Parts mounted on test-boards, without condensation on parts | $0075: \pm (2\% + 100 \text{m}\Omega)$ $< 100 \text{m}\Omega \text{ for jumper}$ $01005: \pm (2\% + 50 \text{m}\Omega)$ $< 100 \text{m}\Omega \text{ for jumper}$ $Others:$ $\pm (0.5\% + 50 \text{m}\Omega) \text{ for B/ D/F tol}$ $\pm (2\% + 50 \text{m}\Omega) \text{ for J tol}$ $< 100 \text{mR for jumper}$ |
| 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 | $\begin{array}{c} 0075: \pm (5\% + 100 \text{m}\Omega) \\ 01005: \pm (3\% + 50 \text{m}\Omega) \\ < 100 \text{m}\Omega \text{ for jumper} \\ \text{Others:} \\ \pm (1\% + 50 \text{m}\Omega) \text{ for B/D/F tol} \\ \pm (2\% + 50 \text{m}\Omega) \text{ for J tol} \\ < 100 \text{mR for jumper} \\ \end{array}$ |



Chip Resistor Surface Mount RC_L SERIES 0075 to 2512

| TEST | TEST METHOD | PROCEDURE | REQUIREMENTS |
|-------------------------------------|------------------------|---|---|
| Thermal Shock | MIL-STD-202 Method 107 | -55/+125°C Note Number of cycles required is 300. Devices mounted Maximum transfer time is 20 seconds. Dwell time is 15 minutes. Air - Air | 0075/01005: \pm (1% +50m Ω) < 50m Ω for jumper Others: \pm (0.5%+50m Ω) for B/D/F tol \pm (1%+50m Ω) for J tol < 50mR for jumper |
| Short Time Overload | IEC 60115-1 8.1 | 2.5 times RCWV or maximum overload voltage which is less for 5 seconds at room temperature | $0075/01005: \pm (2\% + 50 \text{m}\Omega)$ < $50 \text{m}\Omega$ for jumper Others: $ \pm (1\% + 50 \text{m}\Omega) \text{ for B/D/F tol} $ $ \pm (2\% + 50 \text{m}\Omega) \text{ for J tol} $ < $50 \text{mR for jumper} $ No visible damage |
| Board Flex/ Bending | IEC 60115-1 9.8 | Device mounted or as described only I board bending required bending time: 60±5 seconds 0075/0100/0201/0402:5mm; 0603/0805:3mm; 1206 and above:2mm | 0075/01005: \pm (1% +50m Ω) < 50m Ω for jumper Others: \pm (1%+50m Ω) for B/D/F/J tol <50mR for jumper No visible damage |
| Solderability - Wetting | J-STD-002 test BI | Electrical Test not required Magnification 50X SMD conditions: Ist step: aging 4 hours at I55°C dry heat 2nd step: method BI, leadfree solder bath at 245±3°C Dipping time: 3± 0.5 seconds | Well tinned (>95% covered) No visible damage |
| -Leaching | J-STD-002 test D | Leadfree solder ,260°C, 30 seconds immersion time | No visible damage |
| -Resistance to Soldering Heat | MIL-STD-202 Method 210 | Condition B, no pre-heat of samples Leadfree solder, $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 10 ± 1 seconds immersion time Procedure 2 for SMD: devices fluxed and cleaned with isopropanol | $0075: \pm (3\% + 50 \text{m}\Omega)$ < $50 \text{m}\Omega$ for jumper $01005: \pm (1\% + 50 \text{m}\Omega)$ < $50 \text{m}\Omega$ for jumper $01065: \pm (0.5\% + 50 \text{m}\Omega)$ for B/D/F tol. $\pm (1\% + 50 \text{m}\Omega)$ for J tol. < $50 \text{m}R$ for jumper $0.5\% + 50 \text{m}\Omega$ No visible damage |

Chip Resistor Surface Mount RC_L SERIES 0075 to 2512

REVISION HISTORY

| REVISION | DATE | CHANGE NOTIFICATION | DESCRIPTION |
|------------|---------------|---------------------|--|
| Version 12 | Aug. 02, 2022 | - | - 12 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 lohm |
| 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 I | Jan. 21, 2015 | - | - ESD Safe Reel update |
| Version 0 | Dec. 15, 2014 | - | - First issue of this specification |
| | | | |

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SERIES

0075 to 2512

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RC0402FR-07226RL RC1206FR-0757K6L RC2010JK-0775RL RC1206FR-0778R7L RC0402FR-07102RL
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0724KL RC0603FR-0713R3L RC0603FR-0716R2L RC0402FR-071R6L RC1206FR-079K76L RC0805FR-1339KL
RC0603FR-1310K7L RC0603FR-1316RL RC0603FR-132M2L RC0603FR-1322K1L RC0603FR-1375RL RC0603FR-
13820KL RC0603FR-13910KL RC1206FR-13220RL
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