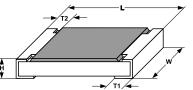
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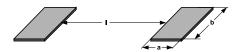
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| PART NUMBER AND PRODUCT DESCRIPTION   |  |   |  |                                       |   |  |  |
|---|--|---|--|---------------------------------------|---|--|--|
| C       R       C       W       0       6       0       3       5       6       2       R       F       K       E       C       C |  |   |  |                                       |   |  |  |
| MODEL/SIZE<br>CRCW0402<br>CRCW0603<br>CRCW0805<br>CRCW1206  | VALUE<br><b>R</b> = decimal<br><b>K</b> = thousand<br><b>M</b> = million | TOLERANCE $F = \pm 1.0 \%$ $J = \pm 5.0 \%$ $Z = jumper$  | TCR<br><b>K</b> = ± 100 ppm/K<br><b>N</b> = ± 200 ppm/K<br><b>0</b> = jumper | PACKAGING<br>EA, EB,<br>EC, ED,<br>EE | SPECIAL<br>Up to 2 digits<br><b>C</b> = commodity |  |  |
|   | 0000 = jumper<br>TION: CRCW0603-C 1<br>100                               | 00 562R 1 % ET6 E   | 3  | ET6                                   | e3  |  |  |
| MODEL   | TCR  | RESISTANCE<br>VALUE   | TOLERANCE  | PACKAGING                             | LEAD (Pb)-FREE                                    |  |  |
| CRCW0402-C<br>CRCW0603-C<br>CRCW0805-C<br>CRCW1206-C  | ± 200 ppm/K<br>± 100 ppm/K   | <b>10R</b> = 10 Ω<br><b>562R</b> = 562 Ω<br><b>10K</b> = 10.0 kΩ<br><b>1M</b> = 1 MΩ<br><b>0R0</b> = jumper | ± 5 %<br>± 1 %   | ET1, ET5,<br>ET6, ET7,<br>EF4         | <b>e3</b> = pure tin<br>termination<br>finish     |  |  |

| PACKAGING   |          |          |  |       |                      |                         |  |  |
|-------------|----------|----------|--|-------|----------------------|-------------------------|--|--|
| TYPE / SIZE | CODE     | QUANTITY | PACKAGING STYLE                            | WIDTH | PITCH                | PACKAGING<br>DIMENSIONS |  |  |
| CRCW0402C   | ED = ET7 | 10 000   |  |       | 2 mm                 | Ø 180 mm/7"             |  |  |
| ChCW0402C   | EE = EF4 | 50 000   |  |       | 2 11111              | Ø 330 mm/13"            |  |  |
|             | EA = ET1 | 5000     | Paper tape acc. to<br>IEC 60286-3, Type 1a | 8 mm  | 4 mm<br>4 mm<br>4 mm | Ø 180 mm/7"             |  |  |
| CRCW0603C   | EB = ET5 | 10 000   |  |       |                      | Ø 254 mm/10"            |  |  |
|             | EC = ET6 | 20 000   |  |       |                      | Ø 330 mm/13"            |  |  |
|             | EA = ET1 | 5000     |  |       |                      | Ø 180 mm/7"             |  |  |
| CRCW0805C   | EB = ET5 | 10 000   |  |       |                      | Ø 254 mm/10"            |  |  |
|             | EC = ET6 | 20 000   |  |       |                      | Ø 330 mm/13"            |  |  |
| CRCW1206C   | EA = ET1 | 5000     |  |       |                      | Ø 180 mm/7"             |  |  |
|             | EB = ET5 | 10 000   |  |       |                      | Ø 254 mm/10"            |  |  |
|             | EC = ET6 | 20 000   |  |       |                      | Ø 330 mm/13"            |  |  |

#### DIMENSIONS





|      | SIZE DIMENSIONS (in millimeters) |                |                 |                       | SOLDER PAD DIMENSIONS <sup>(1)</sup> (in millimeters) |                |     |     |       |     |     |     |
|------|----------------------------------|----------------|-----------------|-----------------------|---|----------------|-----|-----|-------|-----|-----|-----|
|      | SIZE DIMENSIONS (in millimeters) |                |                 |                       | REFLOW SOLDERING WAVE SOLDERING                       |                |     |     | ERING |     |     |     |
| INCH | METRIC                           | L              | w               | н                     | T1  | T2             | а   | b   | I     | а   | b   | I   |
| 0402 | 1005                             | $1.0 \pm 0.10$ | $0.5 \pm 0.05$  | $0.30 \pm 0.05$       | $0.25\pm0.10$   | 0.2 ± 0.1      | 0.4 | 0.6 | 0.5   |     |     |     |
| 0603 | 1608                             | 1.60 ± 0.10    | $0.80 \pm 0.10$ | $0.45 \pm 0.10$       | $0.3 \pm 0.2$   | $0.3 \pm 0.2$  | 0.5 | 0.9 | 1.0   | 0.9 | 0.9 | 1.0 |
| 0805 | 2012                             | $2.0 \pm 0.10$ | $1.25 \pm 0.15$ | $0.50 \pm 0.10$       | $0.35\pm0.15$   | $0.35 \pm 0.2$ | 0.7 | 1.3 | 1.2   | 0.9 | 1.3 | 1.3 |
| 1206 | 3216                             | 3.05 ± 0.10    | 1.55 ± 0.10     | 0.55 + 0.10<br>- 0.05 | 0.35 ± 0.15   | 0.45 ± 0.2     | 0.9 | 1.7 | 2.0   | 1.1 | 1.7 | 2.3 |

#### Note

(1) The rated dissipation applies only if the permitted film temperature is not exceeded. Furthermore, a high level of ambient temperature or of power dissipation may raise the temperature of the solder joint, hence special solder alloys or board materials maybe required to maintain the reliability of the assembly. Specified power rating above 125 °C requires dedicated heat-sink pads, which depend on board materials. The given solder pad dimensions reflect the considerations for board design and assembly as outlined e.g. in standards IEC 61188-5-x, or in publication IPC-7351. They do not guarantee any supposed thermal properties, particularly as these are also strongly influenced by many other parameters. Still the given solder pad dimensions will be found adequate for most general applications

| Revision:   | 02-Nov-17 |  |
|-------------|-----------|--|
| 1101131011. | 02 100 17 |  |

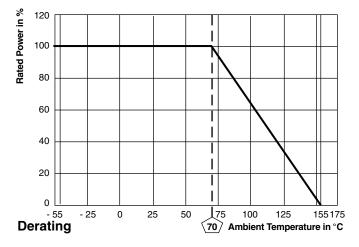
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### FUNCTIONAL PERFORMANCE



| TEST PR    | OCEDURES       | S AND REQUIP                                  | REMENTS  |   |                                   |                                   |  |
|------------|----------------|---|--|---|-----------------------------------|-----------------------------------|--|
| EN 60115-1 | IEC 60068-2    |   | PROCEDURE  |   | REQUIREMENT                       |                                   |  |
| CLAUSE     | TEST<br>METHOD | TEST  |  |   | STABILITY<br>CLASS 1<br>OR BETTER | STABILITY<br>CLASS 2<br>OR BETTER |  |
|            |                |   | Stability for proc   | luct types:   |                                   |                                   |  |
|            |                |   | CRCWC e3   |   | 1 $\Omega$ to 10 $M\Omega$        | 1 $\Omega$ to 10 $M\Omega$        |  |
| 4.5        | -              | Resistance                                    |  | -   | ±1%                               | ± 5 %                             |  |
| 4.8.4.2    | -              | Temperature<br>coefficient                    |  | 5/20) °C and<br>125/20) °C  | ± 100 ppm/K                       | ± 200 ppm/K                       |  |
| 4.13       | -              | Short time<br>overload                        | $U = 2.5 \text{ x } \sqrt{P_{70}}$   | $x R \leq 2 x U_{max.;} 5 s$  | ± (2 % R                          | + 0.1 Ω)                          |  |
| 4 17 5     | EQ (T-1)       | Coldorahility                                 | Pre-aging<br>4 h at 155 °C,  | Solder bath method;<br>Sn60Pb40<br>non activated flux;<br>(235 ± 5) °C<br>(2 ± 0.2) s       | Good tinning (≥<br>no visible     | ,                                 |  |
| 4.17.5     | 58 (Td)        | Solderability                                 | dryheat  | Solder bath method;<br>Sn96.5Ag3Cu0.5<br>non activated flux;<br>(245 ± 5) °C<br>(3 ± 0.3) s | Good tinning (≥<br>no visible     | ,                                 |  |
| 4.18.2     | 58 (Td)        | Resistance to<br>soldering heat               | Solder bath method $(260 \pm 5)$ °C; $(10 \pm 1)$ s  |   | ± (1% <i>R</i> + 0.05 Ω)          |                                   |  |
| 4.19       | 14 (Na)        | Rapid change of temperature                   | 30 min. at - 55 °C;<br>30 min. at 125 °C;<br>5 cycles  |   | ± (0.25 % <i>R</i> + 0.05 Ω)      | ± (0.5 % <i>R</i> + 0.05 Ω)       |  |
| 4.24       | 78 (Cab)       | Damp heat,<br>steady state                    | (40 ± 2) °C;<br>56 days;<br>(93 ± 3) % RH  |   | ± (1 % <i>R</i> + 0.05 Ω)         | ± (2 % <i>R</i> + 0.1 Ω)          |  |
| 4.36       | -              | Operation at low temperature                  | -55 °C, 1 h  |   | ± (1 % R                          | + 0.05 Ω)                         |  |
| 4.05.4     |                | Endurance                                     | $U = \sqrt{P_{70} \times R} \le U_{\text{max.};}$ 1.5 h on; 0.5 h off;<br>70 °C; 1000 h<br>70 °C; 8000 h |   |                                   |                                   |  |
| 4.25.1     | -              | at 70 °C                                      |  |   | $\pm$ (1 % R + 0.05 Ω)            | $\pm$ (2 % R + 0.1 Ω)             |  |
|            |                |   |  |   | ± (2 % <i>R</i> + 0.1 Ω)          | ± (4 % <i>R</i> + 0.1 Ω)          |  |
| 4.25.3     | -              | Endurance at<br>upper category<br>temperature | 155 °C, 1000 h   |   | ± (1 % <i>R</i> + 0.05 Ω)         | ± (2 % <i>R</i> + 0.1 Ω)          |  |

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# CRCW...C e3

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| APPLICABLE SPECIFICATIONS |  |  |  |  |
|---------------------------|--|--|--|--|
| • EN 60115-1              | Generic specification                    |  |  |  |
| • EN 140400               | Sectional specification                  |  |  |  |
| • EN 140401-802           | Detail specification                     |  |  |  |
| • IEC 60068-2-X           | Variety of environmental test procedures |  |  |  |
| • IEC 60286-3             | Packaging of SMD components              |  |  |  |



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