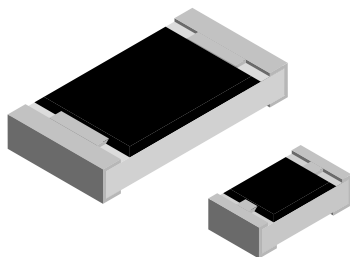


# Pulse Proof, High Power Thick Film Chip Resistors



## FEATURES

- Excellent pulse load capability
- Enhanced power rating
- Double side printed resistor element
- Protective overglaze
- Pure tin solder contacts on Ni barrier layer provides compatibility with lead (Pb)-free and lead containing soldering processes
- AEC-Q200 qualified, rev. C compliant
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## STANDARD ELECTRICAL SPECIFICATIONS

| MODEL          | CASE SIZE INCH | CASE SIZE METRIC | POWER RATING<br>$P_{70}$<br>W | LIMITING ELEMENT VOLTAGE<br>$U_{\max.}$ AC/DC | TEMPERATURE COEFFICIENT<br>ppm/K                                | TOLERANCE<br>%   | RESISTANCE RANGE<br>$\Omega$ | SERIES          |
|----------------|----------------|------------------|-------------------------------|---|---|------------------|------------------------------|-----------------|
| CRCW0402-HP e3 | 0402           | RR1005           | 0.125 <sup>(1)</sup>          | 50  | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.010 \Omega, I_{\max.} = 3 A$  |                  |                              |                 |
| CRCW0603-HP e3 | 0603           | RR1608           | 0.25                          | 75  | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.008 \Omega, I_{\max.} = 5 A$  |                  |                              |                 |
| CRCW0805-HP e3 | 0805           | RR2012           | 0.33                          | 150   | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.005 \Omega, I_{\max.} = 6 A$  |                  |                              |                 |
| CRCW1206-HP e3 | 1206           | RR3216           | 0.5                           | 200   | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.005 \Omega, I_{\max.} = 10 A$ |                  |                              |                 |
| CRCW1210-HP e3 | 1210           | RR3225           | 0.75                          | 200   | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.004 \Omega, I_{\max.} = 12 A$ |                  |                              |                 |
| CRCW1218-HP e3 | 1218           | RR3246           | 1.5                           | 200   | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.004 \Omega, I_{\max.} = 20 A$ |                  |                              |                 |
| CRCW2010-HP e3 | 2010           | RR5025           | 1.0                           | 400   | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.005 \Omega, I_{\max.} = 12 A$ |                  |                              |                 |
| CRCW2512-HP e3 | 2512           | RR6332           | 1.5                           | 500   | $\pm 100$   | $\pm 0.5, \pm 1$ | 1 to 1M                      | E24; E96<br>E24 |
|                |                |                  |                               |   | $\pm 200$   | $\pm 5$          |                              |                 |
|                |                |                  |                               |   | Zero-Ohm-Resistor: $R_{\max.} = 0.005 \Omega, I_{\max.} = 16 A$ |                  |                              |                 |

## Notes

- These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.
  - Marking: See document "Surface Mount Resistor Marking" (document number 20020).
  - Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material.
- <sup>(1)</sup> CRCW0402-HP resistors feature a single side printed resistive layer only.

## TECHNICAL SPECIFICATIONS

| PARAMETER                                 | UNIT        | CRCW 0402-HP  | CRCW 0603-HP | CRCW 0805-HP | CRCW 1206-HP | CRCW 1210-HP | CRCW 1218-HP | CRCW 2010-HP | CRCW 2512-HP |
|---|-------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Rated dissipation $P_{70}$ <sup>(2)</sup> | W           | 0.125         | 0.25         | 0.33         | 0.5          | 0.75         | 1.5          | 1.0          | 1.5          |
| Limiting element voltage $U_{max. AC/DC}$ | V           | 50            | 75           | 150          | 200          | 200          | 200          | 400          | 500          |
| Insulation voltage $U_{ins. (1 min)}$     | V           | > 75          | > 100        | > 200        | > 300        | > 300        | > 300        | > 300        | > 300        |
| Insulation resistance                     | $\Omega$    | > $10^9$      |              |              |              |              |              |              |              |
| Category temperature range                | $^{\circ}C$ | - 55 to + 155 |              |              |              |              |              |              |              |
| Weight                                    | mg          | 0.65          | 2            | 5.5          | 10           | 18           | 31           | 25.5         | 42           |

## Note

- <sup>(2)</sup> The power dissipation on the resistors generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature of 155  $^{\circ}C$  is not exceeded.

**PART NUMBER AND PRODUCT DESCRIPTION**Part Number: CRCW0603562RFKEAHP <sup>(1)</sup>

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | R | C | W | 0 | 6 | 0 | 3 | 5 | 6 | 2 | R | F | K | E | A | H | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

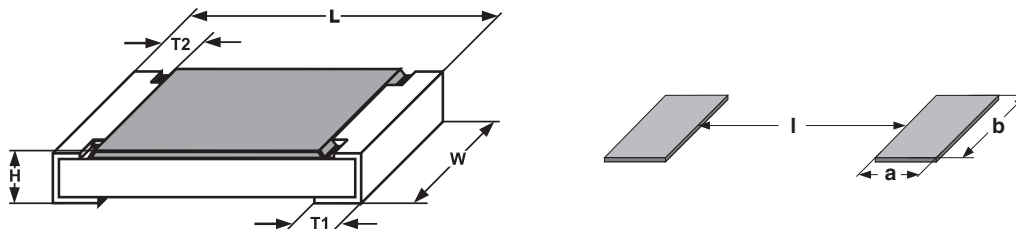
| MODEL/SIZE   | VALUE   | TOLERANCE   | TCR   | PACKAGING   | SPECIAL  |
|--|---|---|---|---|--|
| <b>CRCW0402</b><br><b>CRCW0603</b><br><b>CRCW0805</b><br><b>CRCW1206</b><br><b>CRCW1210</b><br><b>CRCW1218</b><br><b>CRCW2010</b><br><b>CRCW2512</b> | <b>R</b> = Decimal<br><b>K</b> = Thousand<br><b>M</b> = Million<br><b>0000</b> = Jumper | <b>D</b> = $\pm 0.5\%$<br><b>F</b> = $\pm 1\%$<br><b>J</b> = $\pm 5\%$<br><b>Z</b> = Jumper | <b>K</b> = $\pm 100$ ppm/K<br><b>N</b> = $\pm 200$ ppm/K<br><b>0</b> = Jumper | <b>EA</b><br><b>EB</b><br><b>EC</b><br><b>ED</b><br><b>EE</b><br><b>EF</b><br><b>EG</b><br><b>EH</b><br><b>EK</b> | Up to 2 digits<br><b>HP</b> = Pulse proof,<br>high power |

Product Description: CRCW0603-HP 100 562R 1 % ET1 e3

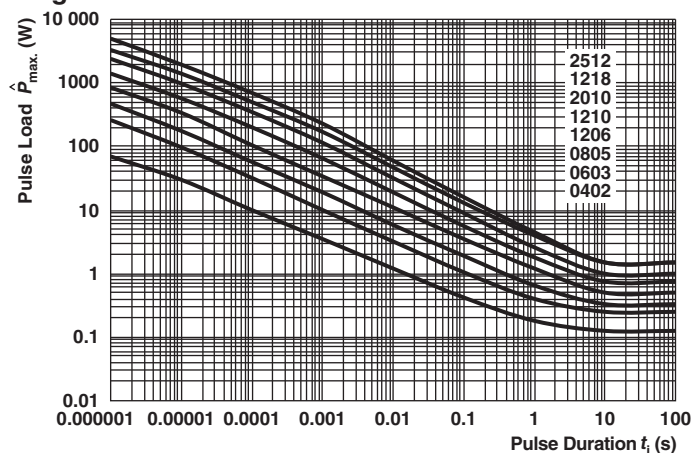
| CRCW0603-HP  | 100                                | 562R  | 1 %                                   | ET1  | e3  |
|--|------------------------------------|---|---------------------------------------|--|---|
| MODEL  | TCR                                | RESISTANCE VALUE  | TOLERANCE                             | PACKAGING  | LEAD (Pb)-FREE                                |
| <b>CRCW0402-HP</b><br><b>CRCW0603-HP</b><br><b>CRCW0805-HP</b><br><b>CRCW1206-HP</b><br><b>CRCW1210-HP</b><br><b>CRCW1218-HP</b><br><b>CRCW2010-HP</b><br><b>CRCW2512-HP</b> | $\pm 100$ ppm/K<br>$\pm 200$ ppm/K | <b>10R</b> = 10 $\Omega$<br><b>562R</b> = 562 $\Omega$<br><b>10K</b> = 10 k $\Omega$<br><b>1M</b> = 1 M $\Omega$<br><b>0R0</b> = Jumper | $\pm 0.5\%$<br>$\pm 1\%$<br>$\pm 5\%$ | <b>ET1</b><br><b>ET5</b><br><b>ET6</b><br><b>ET7</b><br><b>EF4</b><br><b>EG1</b><br><b>E02</b><br><b>E67</b><br><b>E82</b><br><b>ET9</b> | <b>e3</b> = Pure tin<br>termination<br>finish |

**Note**<sup>(1)</sup> Preferred way for ordering products is by use of the PART NUMBER.**PACKAGING**

| MODEL       | UNIT          | PAPER TAPE ON REEL<br>ACC. TO IEC 60286-3, TYPE I |             |               | BLISTER TAPE ON REEL<br>ACC. TO IEC 60286-3, TYPE II |             |               |
|-------------|---------------|---|-------------|---------------|--|-------------|---------------|
|             |               | QUANTITY  | PART NUMBER | PRODUCT DESC. | QUANTITY   | PART NUMBER | PRODUCT DESC. |
| CRCW0402-HP | 180 mm/7"     | 10 000  | ED          | ET7           |  |             |               |
|             | 330 mm/13"    | 50 000  | EE          | EF4           |  |             |               |
| CRCW0603-HP | 180 mm/7"     | 5000  | EA          | ET1           |  |             |               |
|             | 285 mm/11.25" | 10 000  | EB          | ET5           |  |             |               |
|             | 330 mm/13"    | 20 000  | EC          | ET6           |  |             |               |
| CRCW0805-HP | 180 mm/7"     | 5000  | EA          | ET1           |  |             |               |
|             | 285 mm/11.25" | 10 000  | EB          | ET5           |  |             |               |
|             | 330 mm/13"    | 20 000  | EC          | ET6           |  |             |               |
| CRCW1206-HP | 180 mm/7"     | 5000  | EA          | ET1           |  |             |               |
|             | 285 mm/11.25" | 10 000  | EB          | ET5           |  |             |               |
|             | 330 mm/13"    | 20 000  | EC          | ET6           |  |             |               |
| CRCW1210-HP | 180 mm/7"     | 5000  | EA          | ET1           |  |             |               |
|             | 285 mm/11.25" | 10 000  | EB          | ET5           |  |             |               |
|             | 330 mm/13"    | 20 000  | EC          | ET6           |  |             |               |
| CRCW1218-HP | 180 mm/7"     |   |             |               | 4000   | EK          | ET9           |
| CRCW2010-HP | 180 mm/7"     |   |             |               | 4000   | EF          | E02           |
| CRCW2512-HP | 180 mm/7"     |   |             |               | 2000   | EG          | E67           |
|             |               |   |             |               | 4000   | EH          | E82           |

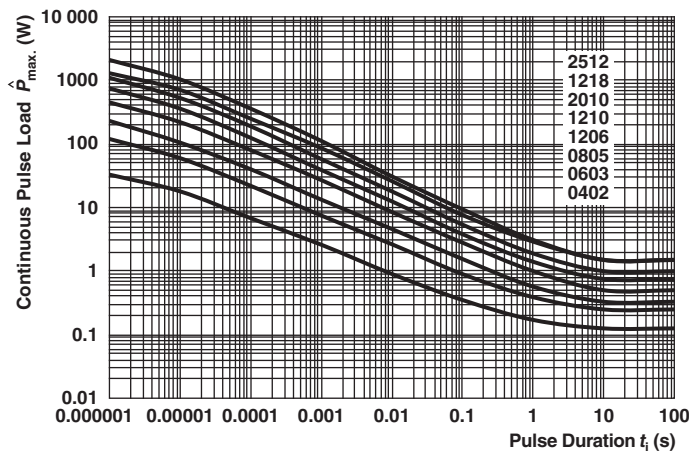
**DIMENSIONS** in millimeters


| SIZE |        | DIMENSIONS |             |             |            |            | SOLDER PAD DIMENSIONS |     |     |                |     |     |
|------|--------|------------|-------------|-------------|------------|------------|-----------------------|-----|-----|----------------|-----|-----|
|      |        |            |             |             |            |            | REFLOW SOLDERING      |     |     | WAVE SOLDERING |     |     |
| INCH | METRIC | L          | W           | H           | T1         | T2         | a                     | b   | l   | a              | b   | l   |
| 0402 | 1005   | 1.0 ± 0.05 | 0.5 ± 0.05  | 0.3 ± 0.1   | 0.25 ± 0.1 | 0.2 ± 0.1  | 0.4                   | 0.6 | 0.5 |                |     |     |
| 0603 | 1608   | 1.6 ± 0.1  | 0.85 ± 0.1  | 0.45 ± 0.1  | 0.3 ± 0.2  | 0.3 ± 0.2  | 0.5                   | 0.9 | 1.0 | 0.9            | 0.9 | 1.0 |
| 0805 | 2012   | 2.0 ± 0.15 | 1.25 ± 0.15 | 0.50 ± 0.1  | 0.4 ± 0.2  | 0.35 ± 0.2 | 0.7                   | 1.3 | 1.2 | 0.9            | 1.3 | 1.3 |
| 1206 | 3216   | 3.1 ± 0.2  | 1.6 ± 0.15  | 0.50 ± 0.15 | 0.5 ± 0.2  | 0.45 ± 0.2 | 0.9                   | 1.7 | 2.0 | 1.1            | 1.7 | 2.3 |
| 1210 | 3225   | 3.2 ± 0.2  | 2.5 ± 0.2   | 0.6 ± 0.1   | 0.45 ± 0.2 | 0.4 ± 0.2  | 0.9                   | 2.5 | 2.0 | 1.1            | 2.5 | 2.2 |
| 1218 | 3246   | 3.1 ± 0.2  | 4.6 ± 0.2   | 0.6 ± 0.1   | 0.45 ± 0.2 | 0.4 ± 0.2  | 1.05                  | 4.9 | 1.9 | 1.25           | 4.8 | 1.9 |
| 2010 | 5025   | 5.0 ± 0.15 | 2.5 ± 0.15  | 0.6 ± 0.1   | 0.6 ± 0.2  | 0.6 ± 0.2  | 1.0                   | 2.5 | 3.9 | 1.2            | 2.5 | 3.9 |
| 2512 | 6332   | 6.3 ± 0.2  | 3.15 ± 0.15 | 0.6 ± 0.1   | 0.6 ± 0.2  | 0.6 ± 0.2  | 1.0                   | 3.2 | 5.2 | 1.2            | 3.2 | 5.2 |

**FUNCTIONAL PERFORMANCE**
**Single Pulse**


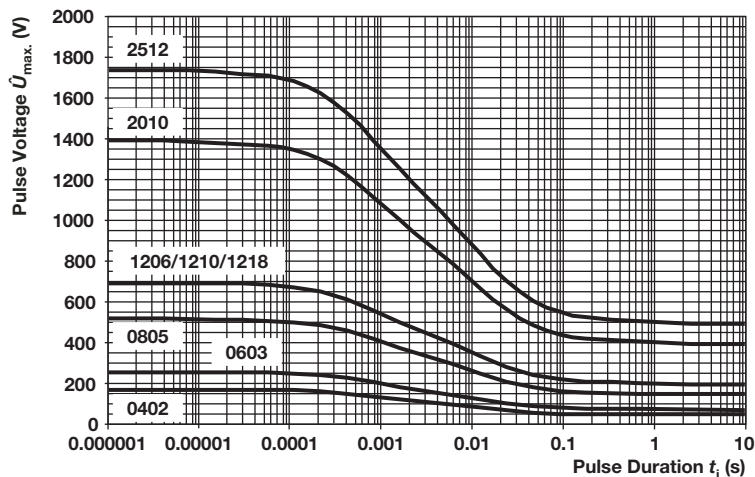
Maximum pulse load, single pulse; applicable if  $\bar{P} \rightarrow 0$  and  $n < 1000$  and  $\hat{U} \leq \hat{U}_{max}$ ;  
for permissible resistance change equivalent to 8000 h operation

### Continuous Pulse



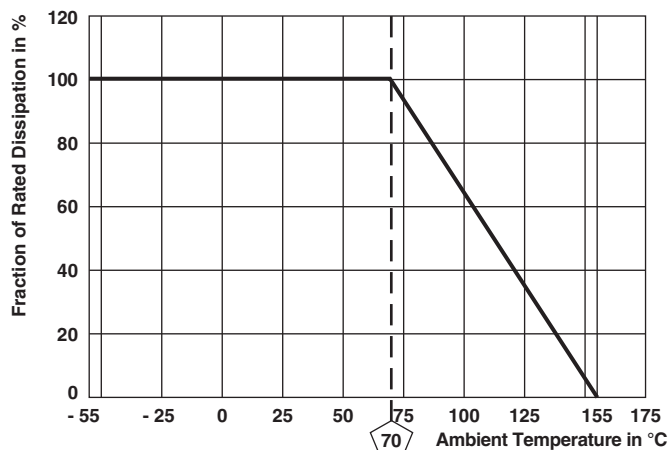
Maximum pulse load, continuous pulses; applicable if  $\bar{P} \leq P_{(9_{amb})}$  and  $\hat{U} \leq \hat{U}_{max}$ ; for permissible resistance change equivalent to 8000 h operation

### Pulse Voltage



Maximum pulse voltage, single and continuous pulses; applicable if  $\hat{P} \leq \hat{P}_{max}$ ; for permissible resistance change equivalent to 8000 h operation

### DERATING



| TEST PROCEDURES AND REQUIREMENTS |                            |  |   |   |
|----------------------------------|----------------------------|--|---|---|
| EN 60115-1<br>CLAUSE             | IEC 60068-2<br>TEST METHOD | TEST   | PROCEDURE   | REQUIREMENTS PERMISSIBLE<br>CHANGE ( $\Delta R$ )   |
|                                  |                            |  |   | STABILITY CLASS 2 OR BETTER   |
|                                  |                            |  | Stability for product types:  | 1 $\Omega$ to 1 M $\Omega$  |
|                                  |                            |  | CRCW-HP e3  |   |
| 4.5                              | -                          | Resistance   | -   | $\pm 0.5 \%$ , $\pm 1 \%$ , $\pm 5 \%$  |
| 4.7                              | -                          | Voltage proof  | $U = 1.4 \times U_{\text{Ins}}$ ; 60 s  | -   |
| 4.13                             | -                          | Short time overload  | $U = 2.5 \times \sqrt{P_{70} \times R}$<br>$\leq 2 \times U_{\text{max.}}$ ; duration: According to style                                     | $\pm (0.5 \% R + 0.05 \Omega)$  |
| 4.17.2                           | 58 (Td)                    | Solderability  | Solder bath method; Sn60Pb40;<br>non-activated flux; (235 $\pm$ 5) $^{\circ}\text{C}$ ; (2 $\pm$ 0.2) s                                       | Good tinning ( $\geq 95 \%$ covered)<br>no visible damage                                 |
|                                  |                            |  | Solder bath method; Sn96.5Ag3Cu0.5;<br>non-activated flux; (245 $\pm$ 5) $^{\circ}\text{C}$ ; (3 $\pm$ 0.3) s                                 | Good tinning ( $\geq 95 \%$ covered)<br>no visible damage                                 |
| 4.8.4.2                          | -                          | Temperature coefficient  | (20/- 55/20) $^{\circ}\text{C}$ and (20/125/20) $^{\circ}\text{C}$  | $\pm 100$ ppm/K, $\pm 200$ ppm/K  |
| 4.32                             | 21 (UU3)                   | Shear (adhesion)   | RR 1608 and smaller: 9 N<br>RR 2012 and larger: 45 N  | No visible damage   |
| 4.33                             | 21 (UU1)                   | Substrate bending  | Depth 2 mm; 3 times   | No visible damage,<br>no open circuit in bent position<br>$\pm (0.25 \% R + 0.05 \Omega)$ |
| 4.19                             | 14 (Na)                    | Rapid change of temperature  | 30 min. at - 55 $^{\circ}\text{C}$ ; 30 min at 125 $^{\circ}\text{C}$<br>5 cycles<br>1000 cycles  | $\pm (0.5 \% R + 0.05 \Omega)$<br>$\pm (1 \% R + 0.05 \Omega)$                            |
| 4.23                             | -                          | Dry heat   | -   | $\pm (2 \% R + 0.1 \Omega)$   |
| 4.23.2                           | 2 (Ba)                     | Damp heat, cyclic  | 125 $^{\circ}\text{C}$ ; 16 h   |   |
| 4.23.3                           | 30 (Db)                    | cold   | 55 $^{\circ}\text{C}$ ; $\geq 90 \%$ RH; 24 h; 1 cycle  |   |
| 4.23.4                           | 1 (Aa)                     | Low air pressure   | - 55 $^{\circ}\text{C}$ ; 2 h   |   |
| 4.23.5                           | 13 (M)                     | -  | 1 kPa; (25 $\pm$ 10) $^{\circ}\text{C}$ ; 1 h   |   |
| 4.23.6                           | 30 (Db)                    | Damp heat, cyclic  | 55 $^{\circ}\text{C}$ ; $\geq 90 \%$ RH; 24 h; 5 cycle  |   |
| 4.23.7                           | -                          | D.C. load  | $U = \sqrt{P_{70} \times R}$  |   |
| 4.25.1                           | -                          | Endurance at 70 $^{\circ}\text{C}$   | $U = \sqrt{P_{70} \times R} \leq U_{\text{max.}}$<br>1.5 h on; 0.5 h off;<br>70 $^{\circ}\text{C}$ ; 1000 h<br>70 $^{\circ}\text{C}$ ; 8000 h | $\pm (2 \% R + 0.1 \Omega)$<br>$\pm (4 \% R + 0.1 \Omega)$                                |
| 4.18.2                           | 58 (Td)                    | Resistance to soldering heat   | Solder bath method; (260 $\pm$ 5) $^{\circ}\text{C}$ ; (10 $\pm$ 1) s   | $\pm (0.5 \% R + 0.05 \Omega)$  |
| 4.35                             | -                          | Flammability, needle flame test  | IEC 60695-15-5; 10 s  | No burning after 30 s   |
| 4.24                             | 78 (Cab)                   | Damp heat, steady state  | (40 $\pm$ 2) $^{\circ}\text{C}$ ; (93 $\pm$ 3) % RH; 56 days  | $\pm (1 \% R + 0.05 \Omega)$  |
| 4.25.3                           | -                          | Endurance at<br>upper category temperature                                 | 155 $^{\circ}\text{C}$ ; 1000 h   | $\pm (2 \% R + 0.1 \Omega)$   |
| 4.40                             | -                          | Electrostatic discharge<br>(human body model)                              | IEC 61340-3-1; 3 positive and 3 negative<br>discharges; ESD voltage according to size   | $\pm (1 \% R + 0.05 \Omega)$  |
| 4.29                             | 45 (XA)                    | Component solvent resistance   | Isopropyl alcohol; 50 $^{\circ}\text{C}$ ; method 2   | No visible damage   |
| 4.30                             | 45 (XA)                    | Solvent resistance of marking  | Isopropyl alcohol; 50 $^{\circ}\text{C}$ ; method 1;<br>toothbrush  | Marking legible,<br>no visible damage   |
| 4.22                             | 6 (Fc)                     | Vibration, endurance by sweeping   | f = 10 Hz to 2000 Hz; x, y, z $\leq 1.5$ mm;<br>A $\leq 200$ m/s <sup>2</sup> ; 10 sweeps per axis  | $\pm (0.5 \% R + 0.05 \Omega)$  |
| 4.37                             | -                          | Periodic electric overload   | $U = \sqrt{15 \times P_{70} \times R} \leq 2 \times U_{\text{max.}}$<br>0.1 s "ON"; 2.5 s "OFF"; 1000 cycles                                  | $\pm (1 \% R + 0.05 \Omega)$  |
| 4.27                             | -                          | Single pulse high voltage overload,<br>10 $\mu\text{s}$ /700 $\mu\text{s}$ | $\dot{U} = 10 \times \sqrt{P_{70} \times R} \leq 2 \times U_{\text{max.}}$<br>10 pulses   | $\pm (1 \% R + 0.05 \Omega)$  |

All tests are carried out in accordance with the following specifications:

- EN 60115-1, generic specification
- EN 140400, sectional specification
- EN 140401-802, detail specification
- IEC 60068-2, environmental test procedures

Packaging of components is done in paper or blister tapes according to IEC 60286-3.



## Disclaimer

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## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

|                                    |                                    |                                    |                                    |
|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| <a href="#">CRCW040251R0FKTD</a>   | <a href="#">CRCW25123K16FKTG</a>   | <a href="#">CRCW12062K00FKEAHP</a> | <a href="#">CRCW120610K0FKEAHP</a> |
| <a href="#">CRCW201010R0FKEFHP</a> | <a href="#">CRCW1206100KFKEAHP</a> | <a href="#">CRCW120615K0FKEAHP</a> | <a href="#">CRCW12061R00JNEAHP</a> |
| <a href="#">CRCW120610R0FKEAHP</a> | <a href="#">CRCW12061K00FKEAHP</a> | <a href="#">CRCW04020000Z0EDHP</a> | <a href="#">CRCW06030000Z0EAHP</a> |
| <a href="#">CRCW12060000Z0EAHP</a> | <a href="#">CRCW08050000Z0EAHP</a> | <a href="#">CRCW0603100KFKEAHP</a> | <a href="#">CRCW121012R0JNEAHP</a> |
| <a href="#">CRCW1210510RJNEAHP</a> | <a href="#">CRCW1210240RJNEAHP</a> | <a href="#">CRCW12103K30FKEAHP</a> | <a href="#">CRCW1210750RFKEAHP</a> |
| <a href="#">CRCW1210150RFKEAHP</a> | <a href="#">CRCW04021K00FKEDHP</a> | <a href="#">CRCW040210K0FKEDHP</a> | <a href="#">CRCW060310K0FKEAHP</a> |
| <a href="#">CRCW06031K00FKEAHP</a> | <a href="#">CRCW08051K00FKEAHP</a> | <a href="#">CRCW080510K0FKEAHP</a> | <a href="#">CRCW251210R0FKEGHP</a> |
| <a href="#">CRCW2512100RFKEGHP</a> | <a href="#">CRCW201010K0FKEFHP</a> | <a href="#">CRCW2010100RFKEFHP</a> | <a href="#">CRCW20101K00FKEFHP</a> |
| <a href="#">CRCW25121K00FKEGHP</a> | <a href="#">CRCW080520K0FKEAHP</a> | <a href="#">CRCW20102K21FKEFHP</a> | <a href="#">CRCW08051R00FKEAHP</a> |
| <a href="#">CRCW080515R0FKEAHP</a> | <a href="#">CRCW12061R00FKEAHP</a> | <a href="#">CRCW0402100KFKEAHP</a> | <a href="#">CRCW0402100KJNEDHP</a> |
| <a href="#">CRCW0402100RFKEAHP</a> | <a href="#">CRCW0402100RJNEDHP</a> | <a href="#">CRCW040210K0JNEDHP</a> | <a href="#">CRCW040210R0FKEDHP</a> |
| <a href="#">CRCW040210R0JNEDHP</a> | <a href="#">CRCW040215K0FKEDHP</a> | <a href="#">CRCW04021K00JNEDHP</a> | <a href="#">CRCW04021K50FKEDHP</a> |
| <a href="#">CRCW04021M00FKEDHP</a> | <a href="#">CRCW04021M00JNEDHP</a> | <a href="#">CRCW04021R00FKEDHP</a> | <a href="#">CRCW04021R00JNEDHP</a> |
| <a href="#">CRCW040220K0FKEDHP</a> | <a href="#">CRCW0402220KJNEDHP</a> | <a href="#">CRCW0402220RJNEDHP</a> | <a href="#">CRCW040222K0JNEDHP</a> |
| <a href="#">CRCW040222R0FKEDHP</a> | <a href="#">CRCW040222R0JNEDHP</a> | <a href="#">CRCW040222R1FKEDHP</a> | <a href="#">CRCW04022K00FKEDHP</a> |
| <a href="#">CRCW04022K20JNEDHP</a> | <a href="#">CRCW04022R20JNEDHP</a> | <a href="#">CRCW040233R0FKEDHP</a> | <a href="#">CRCW040233R2FKEDHP</a> |
| <a href="#">CRCW0402470KJNEDHP</a> | <a href="#">CRCW0402470RJNEDHP</a> | <a href="#">CRCW040247K0FKEDHP</a> | <a href="#">CRCW040247K0JNEDHP</a> |
| <a href="#">CRCW040247R0JNEDHP</a> | <a href="#">CRCW0402499RFKEAHP</a> | <a href="#">CRCW040249K9FKEDHP</a> | <a href="#">CRCW040249R9FKEDHP</a> |
| <a href="#">CRCW04024K70FKEDHP</a> | <a href="#">CRCW04024K70JNEDHP</a> | <a href="#">CRCW04024K75FKEDHP</a> | <a href="#">CRCW04024K99FKEDHP</a> |
| <a href="#">CRCW04024R70JNEDHP</a> | <a href="#">CRCW040275R0FKEDHP</a> | <a href="#">CRCW0603100KJNEAHP</a> | <a href="#">CRCW0603100RFKEAHP</a> |
| <a href="#">CRCW0603100RJNEAHP</a> | <a href="#">CRCW060310K0JNEAHP</a> | <a href="#">CRCW060310R0FKEAHP</a> | <a href="#">CRCW060310R0JNEAHP</a> |
| <a href="#">CRCW060315K0FKEAHP</a> | <a href="#">CRCW06031K00JNEAHP</a> | <a href="#">CRCW06031K50FKEAHP</a> | <a href="#">CRCW06031M00FKEAHP</a> |
| <a href="#">CRCW06031M00JNEAHP</a> | <a href="#">CRCW06031R00FKEAHP</a> | <a href="#">CRCW06031R00JNEAHP</a> | <a href="#">CRCW060320K0FKEAHP</a> |
| <a href="#">CRCW0603220KJNEAHP</a> | <a href="#">CRCW0603220RJNEAHP</a> | <a href="#">CRCW060322K0JNEAHP</a> | <a href="#">CRCW060322R0JNEAHP</a> |
| <a href="#">CRCW06032K00FKEAHP</a> | <a href="#">CRCW06032K20JNEAHP</a> | <a href="#">CRCW06032R20JNEAHP</a> | <a href="#">CRCW060330K9FKEAHP</a> |