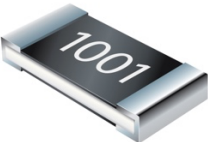


MATERIAL DECLARATION SHEET



| | | | | |
|-----------------|--|-----|-----|---|
| Material Number | CRS2010-Q ($> 1\Omega$) | | |  |
| Product Line | Thick film Automotive High power & anti-surge chip resistors | | | |
| Compliance Date | 08/03/2021 | | | |
| RoHS Compliant | Yes (Lead Exemption) | MSL | N/A | |

| No. | Construction Element(subpart) | Homogeneous Material | Material weight [mg] | Homogeneous Material\ Substances | CASRN if applicable | Materials Mass % | Material Mass % of total unit wt. | Subpart mass of total wt. (%) |
|-----|-------------------------------|----------------------|----------------------|----------------------------------|---------------------|------------------|-----------------------------------|-------------------------------|
| 1 | Ceramic | Substrate | 21.4686 | Aluminum oxide | 1344-28-1 | 96 | 83.688 | 87.174 |
| | | | | Silicon dioxide | 14808-60-7 | 2 | 1.743 | |
| | | | | Magnesium oxide | 1309-48-4 | 2 | 1.743 | |
| 2 | Top conductor | Silver | 0.3805 | Silver | 7440-22-4 | 100 | 1.545 | 1.545 |
| 3 | Bottom conductor | Silver | 0.1948 | Silver | 7440-22-4 | 100 | 0.791 | 0.791 |
| 4 | Resistor | Ruthenium Oxide | 0.2361 | Silver | 7440-22-4 | 40 | 0.383 | 0.959 |
| | | | | Ruthenium dioxide | 12036-10-1 | 20 | 0.192 | |
| | | | | Palladium | 7440-05-3 | 15 | 0.144 | |
| | | | | Glass | 65997-18-4 | 14.9 | 0.143 | |
| | | | | Lead-containing glass | 7439-92-1 | 10.1 | 0.097 | |

MATERIAL DECLARATION SHEET



| | | | | | | | | |
|----|---------------------|--------|--------------|------------------|------------|-----|-------|-------|
| 5 | First encapsulating | Glass | 0.2277 | Glass | 65997-18-4 | 74 | 0.685 | 0.925 |
| | | | | Silicon dioxide | 14808-60-7 | 12 | 0.111 | |
| | | | | Aluminum oxide | 1344-28-1 | 6 | 0.055 | |
| | | | | Chromium oxide | 1308-38-9 | 8 | 0.074 | |
| 6 | Overcoat | Resin | 0.5224 | Resin | 25036-25-3 | 100 | 2.121 | 2.121 |
| 7 | Side conductor | Silver | 0.5031 | Silver | 7440-22-4 | 85 | 1.737 | 2.043 |
| | | | | Resin | 9003-36-5 | 15 | 0.306 | |
| 8 | Plating (Middle) | Nickel | 0.4246 | Nickel | 7440-02-0 | 100 | 1.724 | 1.724 |
| 9 | Plating (Outer) | Tin | 0.6370 | Tin | 7440-31-5 | 100 | 2.586 | 2.586 |
| 10 | Marking | Resin | 0.0324 | Resin | 29690-82-2 | 70 | 0.092 | 0.132 |
| | | | | Titanium dioxide | 1317-80-2 | 30 | 0.040 | |
| | | | Total weight | 24.6272 | | | | |

This Document was updated on: 08/03/2021

Important remarks:

1. It is the responsibility of the user to verify they are accessing the latest version.
2. RoHS exemption: 7(c)-1 Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.