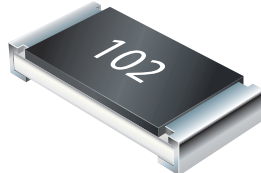


MATERIAL DECLARATION SHEET



| | | | | |
|-----------------|--|-----|---|---|
| Material Number | CR0402-PF Series (100ohm above) | | |  |
| Product Line | Thick Film Resistors (Ultra-low lead content) | | | |
| Compliance Date | 2017.12.06 | | | |
| RoHS Compliant | Yes | MSL | 1 | |

| 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 | CR**** | 0.42805 | Aluminum oxide | 1344-28-1 | 96% | 80.02% | 83.35% |
| | | | | Silicon dioxide | 14808-60-7 | 4% | 3.33% | |
| 2 | Conductor Layer | 5*** | 0.01078 | Silver | 7440-22-4 | 95% | 2.10% | 2.10% |
| 3 | Resistive Element | R-U | 0.00842 | Ruthenium oxide | 12036-10-1 | 30% | 0.49% | 1.64% |
| | | | | Silver | 7440-22-4 | 45% | 0.74% | |
| | | | | Glass (non-lead) | 65997-17-3 | 25% | 0.41% | |
| 4 | Over Coating | 1*** | 0.01043 | Epoxy | 25068-38-6 | 100% | 2.03% | 2.03% |
| 5 | End Terminal | NI-CR | 0.00185 | Nickel | 7440-02-0 | 80% | 0.29% | 0.36% |
| | | | | Chromium | 7440-47-3 | 20% | 0.07% | |
| 6 | Ni Plating | Ni | 0.02855 | Nickel | 7440-02-0 | 100% | 5.56% | 5.56% |
| 7 | Sn Plating | Sn | 0.02547 | Tin | 7440-31-5 | 100% | 4.96% | 4.96% |
| | | | Total weight | 0.51355 | | | | |

This Document was updated on: 2017/12/6