

# MATERIAL DECLARATION SHEET



|                 |                           |     |   |                                                                                     |
|-----------------|---------------------------|-----|---|-------------------------------------------------------------------------------------|
| Material Number | CR0603 Series             |     |   |  |
| Product Line    | Thick Film Chip Resistors |     |   |                                                                                     |
| Compliance Date | 2022/08/01                |     |   |                                                                                     |
| 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             | Ceramic              | 1.6618               | Aluminum oxide                   | 1344-28-1           | 96%              | 82.49%                            | 85.93%                        |
|              |                               |                      |                      | Silicon dioxide                  | 14808-60-7          | 4%               | 3.44%                             |                               |
| 2            | Conductor Layer               | Thick Film           | 0.0447               | Silver                           | 7440-22-4           | 95%              | 2.19%                             | 2.31%                         |
|              |                               |                      |                      | Glass                            | 65997-17-3          | 5%               | 0.12%                             |                               |
| 3            | Resistive Element             | Thick Film Resistor  | 0.0255               | Ruthenium(IV) oxide              | 12036-10-1          | 25%              | 0.33%                             | 1.32%                         |
|              |                               |                      |                      | Silver                           | 7440-22-4           | 40%              | 0.53%                             |                               |
|              |                               |                      |                      | Palladium                        | 7440-05-3           | 15%              | 0.20%                             |                               |
|              |                               |                      |                      | Lead-containing glass            | 7439-92-1           | 20%              | 0.26%                             |                               |
| 4            | Over Coating                  | Epoxy                | 0.0304               | Epoxy                            | 25068-38-6          | 100%             | 1.57%                             | 1.57%                         |
| 5            | Marking                       | Epoxy                | 0.0031               | Epoxy                            | 25085-99-8          | 100%             | 0.16%                             | 0.16%                         |
| 6            | End Terminal                  | NI-CR                | 0.0025               | Nickel                           | 7440-02-0           | 80%              | 0.10%                             | 0.13%                         |
|              |                               |                      |                      | Chromium                         | 7440-47-3           | 20%              | 0.03%                             |                               |
| 7            | Ni Plating                    | Nickel               | 0.0878               | Nickel                           | 7440-02-0           | 100%             | 4.54%                             | 4.54%                         |
| 8            | Sn Plating                    | Tin                  | 0.0781               | Tin                              | 7440-31-5           | 100%             | 4.04%                             | 4.04%                         |
| TOTAL WEIGHT |                               |                      | 1.9339               |                                  |                     |                  |                                   |                               |

This Document was updated on: 2022/08/01 ← the Date you completed fulfillment.

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Important remarks: It is the responsibility of the user to verify they are accessing the latest version.