

# MATERIAL DECLARATION SHEET

**BOURNS®**

|                 |                |     |   |                                                                                     |
|-----------------|----------------|-----|---|-------------------------------------------------------------------------------------|
| Material Number | PWR220T-20     |     |   |  |
| Product Line    | Fixed Resistor |     |   |                                                                                     |
| Compliance Date | 10/31/2025     |     |   |                                                                                     |
| RoHS Compliant  |                | MSL | 1 |                                                                                     |

PWR220T > 4 Ω

| No. | Construction Element (Subpart) | Homogeneous Material   | Material Weight (g) | Homogeneous Material Substance                           | CASRN      | Material Mass % | Material Mass % of total unit wt. | Subpart mass of total wt. (%) |
|-----|--------------------------------|------------------------|---------------------|----------------------------------------------------------|------------|-----------------|-----------------------------------|-------------------------------|
| 1   | Housing                        | Epoxy Molding Compound | 0.5000              | Silica, vitreous                                         | 60676-86-0 | 75.0000%        | 20.6623%                          | 27.5497%                      |
|     |                                |                        |                     | Epoxy cresol novolac resin                               | 29690-82-2 | 14.0000%        | 3.8570%                           |                               |
|     |                                |                        |                     | Phenol formaldehyde resin                                | 9003-35-4  | 7.0000%         | 1.9285%                           |                               |
|     |                                |                        |                     | 3,5,3',5'-Tetrabromobisphenol A, epichlorohydrin polymer | 40039-93-8 | 2.0000%         | 0.5510%                           |                               |
|     |                                |                        |                     | Carbon black                                             | 1333-86-4  | 1.0000%         | 0.2755%                           |                               |
|     |                                |                        |                     | Antimony trioxide                                        | 1309-64-4  | 1.0000%         | 0.2755%                           |                               |
| 2   | Back Plate                     | Copper C102            | 1.0530              | Copper                                                   | 7440-50-8  | 99.9990%        | 58.0191%                          | 58.0197%                      |
|     |                                |                        |                     | Oxygen                                                   | 7782-44-7  | 0.0010%         | 0.0006%                           |                               |
|     |                                | Plating                | 0.0030              | Nickel                                                   | 7440-02-0  | 100.0000%       | 0.1653%                           | 0.1653%                       |
| 3   | Terminals                      | Copper C102            | 0.1512              | Copper                                                   | 7440-50-8  | 99.9990%        | 8.3310%                           | 8.3310%                       |
|     |                                |                        |                     | Oxygen                                                   | 7782-44-7  | 0.0010%         | 0.0001%                           |                               |
|     |                                | Plating                | 0.0064              | Tin                                                      | 7440-31-5  | 100.0000%       | 0.3526%                           | 0.3526%                       |
| 4   | Solder Paste                   | Solder                 | 0.0200              | Tin                                                      | 7440-31-5  | 95.0000%        | 1.0469%                           | 1.1020%                       |
|     |                                |                        |                     | Silver                                                   | 7440-22-4  | 3.0000%         | 0.0331%                           |                               |
|     |                                |                        |                     | Copper                                                   | 7440-50-8  | 0.5000%         | 0.0055%                           |                               |
|     |                                |                        |                     | Misc, not to declare                                     | N/A        | 1.5000%         | 0.0165%                           |                               |
| 5   | Substrate                      | Alumina                | 0.0780              | Aluminum oxide                                           | 1344-28-1  | 96.0000%        | 4.1258%                           | 4.2978%                       |
|     |                                |                        |                     | Silicon dioxide                                          | 7631-86-9  | 2.0000%         | 0.0860%                           |                               |
|     |                                |                        |                     | Magnesium oxide                                          | 1309-48-4  | 1.0000%         | 0.0430%                           |                               |
|     |                                |                        |                     | Calcium oxide                                            | 1305-78-8  | 1.0000%         | 0.0430%                           |                               |

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|              |                       |     |        |                                     |            |          |         |         |
|--------------|-----------------------|-----|--------|-------------------------------------|------------|----------|---------|---------|
| 6            | Termination Pad       | Ink | 0.0020 | Silver                              | 7440-22-4  | 95.6000% | 0.1054% | 0.1102% |
|              |                       |     |        | Platinum                            | 7440-06-4  | 2.0000%  | 0.0022% |         |
|              |                       |     |        | Dibismuth-trioxide                  | 1304-76-3  | 1.0000%  | 0.0011% |         |
|              |                       |     |        | Lead                                | 7439-92-1  | 1.0000%  | 0.0011% |         |
|              |                       |     |        | Copper                              | 7440-50-8  | 0.4000%  | 0.0004% |         |
| 7            | Resistive Ink         | Ink | 0.0008 | Aluminum oxide                      | 1344-28-1  | 3.0000%  | 0.0013% | 0.0441% |
|              |                       |     |        | Quartz                              | 14808-60-7 | 1.0000%  | 0.0004% |         |
|              |                       |     |        | Ceramic w/o Declarable              | 66402-68-4 | 11.0000% | 0.0048% |         |
|              |                       |     |        | Titanium-dioxide                    | 13463-67-7 | 1.0000%  | 0.0004% |         |
|              |                       |     |        | Zinc oxide                          | 1314-13-2  | 0.5000%  | 0.0002% |         |
|              |                       |     |        | Silicon dioxide                     | 7631-86-9  | 14.5000% | 0.0064% |         |
|              |                       |     |        | Palladium                           | 7440-05-3  | 11.0000% | 0.0048% |         |
|              |                       |     |        | Silver                              | 7440-22-4  | 8.0000%  | 0.0035% |         |
|              |                       |     |        | Copper                              | 7440-50-8  | 1.0000%  | 0.0004% |         |
|              |                       |     |        | Glass w/o Declarable                | 65997-17-3 | 19.0000% | 0.0084% |         |
|              |                       |     |        | Lead in Glass                       | 7439-92-1  | 19.0000% | 0.0084% |         |
|              |                       |     |        | Ruthenium (IV) oxide                | 12036-10-1 | 11.0000% | 0.0048% |         |
| 8            | Encapsulant Glaze Ink | Ink | 0.0005 | Glass without declarable substances | 65997-17-3 | 98.0000% | 0.0270% | 0.0275% |
|              |                       |     |        | Pigment Green 17 (C.I.)             | 1308-38-9  | 2.0000%  | 0.0006% |         |
| Total Weight |                       |     |        | 1.8149                              |            |          |         |         |

**This Document was updated on: 11/11/2025**

**Important remarks:**

1. It is the responsibility of the user to verify they are accessing the latest version.
2. Resistive material weight will be different based on the resistance value, and some Homogeneous material might not be present.