

| Property | Typical Value | | Direction | Units | Condition | Test Method |
|---|----------------------------------|-----------------------------------|-------------|---------------------|---|--|
| | RO4003C | RO4350B | | | | |
| Dielectric Constant, ϵ_r Process | 3.38 ± 0.05 | ⁽¹⁾ 3.48 ± 0.05 | Z | - | 10 GHz/23°C | IPC-TM-650 2.5.5.5 Clamped Stripline |
| ⁽²⁾ Dielectric Constant, ϵ_r Design | 3.55 | 3.66 | Z | - | 8 to 40 GHz | Differential Phase Length Method |
| Dissipation Factor tan, d | 0.0027 0.0021 | 0.0037 0.0031 | Z | - | 10 GHz/23°C 2.5 GHz/23°C | IPC-TM-650 2.5.5.5 |
| Thermal Coefficient of ϵ_r | +40 | +50 | Z | ppm/°C | -50°C to 150°C | IPC-TM-650 2.5.5.5 |
| Volume Resistivity | 1.7 X 10 ¹⁰ | 1.2 X 10 ¹⁰ | - | MΩ-cm | COND A | IPC-TM-650 2.5.17.1 |
| Surface Resistivity | 4.2 X 10 ⁹ | 5.7 X 10 ⁹ | - | MΩ | COND A | IPC-TM-650 2.5.17.1 |
| Electrical Strength | 31.2 (780) | 31.2 (780) | Z | KV/mm (V/mil) | 0.51mm (0.020") | IPC-TM-650 2.5.6.2 |
| Tensile Modulus | 19,650 (2,850) 19,450 (2,821) | 16,767 (2,432) 14,153, (2,053) | X Y | MPa (ksi) | RT | ASTM D638 |
| Tensile Strength | 139 (20.2) 100 (14.5) | 203 (29.5) 130 (18.9) | X Y | MPa (ksi) | RT | ASTM D638 |
| Flexural Strength | 276 (40) | 255 (37) | - | MPa (kpsi) | - | IPC-TM-650 2.4.4 |
| Dimensional Stability | <0.3 | <0.5 | X,Y | mm/m (mils/inch) | after etch +E2/150°C | IPC-TM-650 2.4.39A |
| Coefficient of Thermal Expansion | 11 14 46 | 10 12 32 | X Y Z | ppm/°C | -55 to 288°C | IPC-TM-650 2.4.41 |
| Tg | >280 | >280 | - | °C TMA | A | IPC-TM-650 2.4.24.3 |
| Td | 425 | 390 | - | °C TGA | | ASTM D3850 |
| Thermal Conductivity | 0.71 | 0.69 | - | W/m/°K | 80°C | ASTM C518 |
| Moisture Absorption | 0.06 | 0.06 | - | % | 48 hrs immersion 0.060" sample Temperature 50°C | ASTM D570 |
| Density | 1.79 | 1.86 | - | g/cm ³ | 23°C | ASTM D792 |
| Copper Peel Strength | 1.05 (6.0) | 0.88 (5.0) | - | N/mm (pli) | after solder float 1 oz. EDC Foil | IPC-TM-650 2.4.8 |
| Flammability | N/A | ⁽³⁾ V-0 | - | - | - | UL 94 |
| Lead-Free Process Compatible | Yes | Yes | - | - | - | - |

| Standard Thicknesses | Standard Panel Sizes | Standard Claddings |
|---|--|---|
| RO4003C: 0.008" (0.203mm) +/- 0.0010" 0.012" (0.305mm) +/- 0.0010" 0.016" (0.406mm) +/- 0.0015" 0.020" (0.508mm) +/- 0.0015" 0.032" (0.813mm) +/- 0.0020" 0.060" (1.524mm) +/- 0.0040" RO4350B: 0.004" (0.10mm) +/- 0.0007" 0.0066" (0.17mm) +/- 0.0007" 0.010" (0.25mm) +/- 0.0010" 0.020" (0.51mm) +/- 0.0015" 0.030" (0.76mm) +/- 0.0020" 0.060" (1.52mm) +/- 0.0040" *Additional non-standard thicknesses available from 0.0066" - 0.060" in varying increments | 24" X 18" (610 X 457 mm) 24" X 21" (610 X 533 mm) 24" X 36" (610 X 915 mm) 48" X 36" (1219 X 915 mm) *Additional panel sizes available | <u>Electrodeposited Copper Foil</u> ½ oz. (18µm) HH/HH 1 oz. (35µm) H1/H1 *Additional cladding weights are available |

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