

Technical data

Material

Standard

UL Approval

Original Bungard presensitized base material FR4

FR4 - 86 V0 with UV blocker

DIN IEC 249, MIL-S-13949 H, CSA, ISO 9002, ISO 14001

E 98983 / E 213990

| Property | Pre-treatment | Specification | Unit | Typ. measured |
|--|--------------------------|-------------------|-------------------|---|
| Flexural strength lengthwise | A | > 415 | N/mm ² | 485 - 550 |
| Flexural strenght crosswise | A | > 350 | N/mm ² | 400 - 450 |
| Dimension stability X/Y | E-2/150 | < 0.05 | % | < 0.03 |
| Moisture absorbtion | D-24/23 | < 0.35 | % | < 0.10 |
| Copper peeling strength (35 µm Cu) | A after 10s at 288 °C | 1.4 | N/mm | > 1.80 |
| Thermal expansion coeff. in Z before Tg | TMA | - | mm/mm/°C | 5 x 10 ⁻⁵ |
| in Z after Tg | TMA | - | mm/mm/°C | 20 x 10 ⁻⁵ |
| Dielectric breakdown | D 48/50 | > 40 | kV | > 60 |
| Dielectric constant ϵ_r | 1 MHz C-24/23/50 | < 5.4 | - | 4.2 - 4.8 |
| Dissipation factor tan δ | 1 MHz C-24/23/50 | < 0.035 | - | 0.01 - 0.016 |
| Surface Resistivity | C-96/35/90 | > 10 ⁴ | M Ω | 5 x 10 ⁶ - 5 x 10 ⁷ |
| Volume Resistivity | C-96/35/90 | > 10 ⁶ | M Ω / cm | 5 x 10 ⁸ - 5 x 10 ⁹ |
| Arc resistance | D-48/50+D-0.5/23 | > 60 | sec | > 120 |
| Flammability rating (UL 94) | A | 94 V-0 | - | 94 V-0 |
| Glas transition temp. TG | DSC | - | °C | 140 ± 5 |
| Boiling test 30 min | 288 °C dipped | - | sec | 230 |
| Lotbadfestigkeit | 288 °C dipped | > 10 | sec | > 200 |
| Thickness tolerance dielectric | MIL Class II | | | 1.55 +/- 0.08 mm |
| Thickness tolerance copper | | | | 35 µm +/- 5 µm |
| Deformation | rel. to diagonal length | < 3 | % | < 3 |

BUNGARD
BEZ