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# IT-180

**CCL** : IT-180TC
**Prepreg**: IT-180BS

*High Tg / Lead Free / High Reliability Laminate & Prepreg*

- ANSI Type : **FR-4.0**
- Applicable IPC-4101 /21/24/26/121/124/129；IPC-4103 /250/550
- Excellent CAF resistance / Good through-hole reliability / High thermal reliability
- For automotive, Telecommunications, high layer PCB and heavy copper applications

## Laminate properties

| Items | IPC TM-650 | Typical Value | Unit |
|---|---|---|---|
| Peel Strength, minimum<br>A. Low profile copper foil(35um)<br>B. Standard profile copper foil(35um) | 2.4.8 | <br>5<br>8 | lb/inch |
| Volume Resistivity | 2.5.17.1 | $1x10^9$ | MΩ-cm |
| Surface Resistivity | 2.5.17.1 | $1x10^8$ | MΩ |
| Moisture Absorption, maximum | 2.6.2.1 | 0.12 | % |
| Permittivity (Dk, 50% resin content)<br>A. 1GHz<br>B. 2GHz<br>C. 5GHz<br>D. 10GHz | <br>2.5.5.9<br>2.5.5.13<br>2.5.5.13<br>2.5.5.13 | <br>4.2<br>4.2<br>4.1<br>4.0 | -- |
| Loss Tangent (Df, 50% resin content)<br>A. 1GHz<br>B. 2GHz<br>C. 5GHz<br>D. 10GHz | <br>2.5.5.9<br>2.5.5.13<br>2.5.5.13<br>2.5.5.13 | <br>0.017<br>0.018<br>0.019<br>0.020 | -- |
| Flexural Strength, minimum<br>A. Length direction<br>B. Cross direction | 2.4.4 | <br>480-510<br>410-440 | $N/mm^2$ |
| Young's Modulus<br>A. Warp direction<br>B. Fill direction | ASTM D3039 | 18<br>17 | Gpa |
| Thermal Stress 10 s at 288°C<br>A. Unetched<br>B. Etched | 2.4.13.1 | <br>Pass<br>Pass | Rating |
| Flammability | UL94 | V-0 | Rating |
| Comparative Tracking Index (CTI) | ASTM D3638 / UL 746 | CTI 3 (175-249) | Class (Volts) |
| Maximum Operating Temperature(MOT) | UL 746 | 130 | ˚C |
| Glass Transition Temperature(DSC) | 2.4.25 | 175 | ˚C |
| Decomposition Temperature(5% W.L) | 2.4.24.6 | 350 | ˚C |
| X/Y Axis CTE (40℃ to 125℃) | 2.4.41 | 11-13 / 13-15 | ppm/˚C |
| | 2.4.24.5 | 11/12 | ppm/˚C |
| Z-Axis CTE<br>A. Alpha 1<br>B. Alpha 2<br>C. 50 to 260 Degrees C | 2.4.24 | <br>50<br>250<br>3.0 | <br>ppm/˚C<br>ppm/˚C<br>% |
| Thermal Resistance<br>A. T260<br>B. T288 | 2.4.24.1 | <br>>60<br>20 | <br>Minutes<br>Minutes |