



## PRODUCTS

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## IT-180BS/IT-180TC

### High Tg Multifunctional Epoxy Resin, Phenolic-Cured, Laminate & Prepreg

*IT-180 is an advanced high Tg (175 °C by DSC) multifunctional epoxy with high thermal reliability and CAF resistance. It can pass 260 °C Lead free assembly and sequential lamination process.*

### Key Features =====

#### Advanced High Tg Resin Technology

*Industrial standard material with high Tg (175 °C by DSC) and excellent thermal reliability.*

#### Lead-Free Assembly Compatible

*RoHS compliant and suitable for high thermal reliability needs, and Lead free assemblies with a maximum reflow temperature of 260 °C.*

#### Friendly Processing and CAF Resistance

*Friendly PCB process like high Tg FR4. Users can short the learning curve when using this material.*

#### CAF Resistance

*Excellent thermal reliability and CAF resistance providing long-term reliability for industrial and automobile application.*

#### Available in Variety of Constructions

*Available in a various of constructions, copper weights and glass styles, including standard(HTE), RTF and VLP copper foil.*

### Applications

**Multilayer and High Layer PCB**

**Automobile**

**Backplanes**

**Servers and Networking**

**Telecommunications**

**Data Storage**

**Heavy Copper Application**

### Industrial Approval

**UL 94 V-0**

**IPC-4101C Spec / 24/ 124/ 129**

**RoHS Compliant**

# ITEQ Laminate/ Prepreg : IT-180TC / IT-180BS

IPC-4101C Spec / 24 / 124 / 129

## LAMINATE( IT-180TC)

Property	Thickness<0.50 mm [0.0197 in]		Thickness≥0.50 mm [0.0197 in]		Units	Test Method
	Typical Value	Spec	Typical Value	Spec	Metric (English)	IPC-TM-650 (or as noted)
Peel Strength, minimum A. Low profile copper foil and very low profile copper foil - all copper weights > 17µm [0.669 mil] B. Standard profile copper foil 1. After Thermal Stress 2. At 125°C [257 F] 3. After Process Solutions	0.88 (5.0)  1.23 (7.0) 1.05 (6.0) 0.87 (6.0)	0.70 (4.00)  0.80 (4.57) 0.70 (4.00) 0.55 (3.14)	0.88 (5.0)  1.40 (8.0) 1.23 (7.0) 1.05 (6.0)	0.70 (4.00)  1.05 (6.00) 0.70 (4.00) 0.80 (4.57)	N/mm (lb/inch)	2.4.8 2.4.8.2 2.4.8.3
Volume Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	3.0x10 <sup>10</sup> -- 5.0x10 <sup>10</sup>	10 <sup>6</sup> -- 10 <sup>3</sup>	-- 3.0x10 <sup>10</sup> 1.0x10 <sup>10</sup>	-- 10 <sup>4</sup> 10 <sup>3</sup>	MΩ-cm	2.5.17.1
Surface Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	3.0x10 <sup>10</sup> -- 4.0x10 <sup>10</sup>	10 <sup>4</sup> -- 10 <sup>3</sup>	-- 3.0x10 <sup>10</sup> 4.0x10 <sup>10</sup>	-- 10 <sup>4</sup> 10 <sup>3</sup>	MΩ	2.5.17.1
Moisture Absorption, maximum	--	--	0.12	0.8	%	2.6.2.1
Dielectric Breakdown, minimum	--	--	60	40	kV	2.5.6
Permittivity (Dk, 50% resin content) (Laminate & Laminated Prepreg) A. 1MHz B. 1GHz C. 2GHz D. 5GHz E. 10GHz	4.2 4.2 4.1 4.1 4.0	5.4 5.2  AABUS	4.2 4.2 4.2 4.1 4.0	5.4 5.2  AABUS	--	2.5.5.9 2.5.5.13
Loss Tangent (Df, 50% resin content) (Laminate & Laminated Prepreg) A. 1MHz B. 1GHz C. 2GHz D. 5GHz E. 10GHz	0.017 0.017 0.018 0.019 0.020	0.035	0.017 0.017 0.018 0.019 0.020	0.035	--	2.5.5.9 2.5.5.13
Flexural Strength, minimum A. Length direction  B. Cross direction	-- -- -- --	-- -- -- --	480-510 (69,600-73,950) 410-440 (59,450-63,800)	415 (60,190) 345 (50,140)	N/mm <sup>2</sup> (lb/in <sup>2</sup> )	2.4.4
Arc Resistance, minimum	125	60	125	60	s	2.5.1
Thermal Stress 10 s at 288°C [550.4F], minimum A. Unetched B. Etched	Pass Pass	Pass Visual Pass Visual	Pass Pass	Pass Visual Pass Visual	Rating	2.4.13.1
Electric Strength, minimum (Laminate & Laminated Prepreg)	45	30	--	--	kV/mm	2.5.6.2
Flammability, (Laminate & Laminated Prepreg)	V-0	V-0	V-0	V-0	Rating	UL94
Glass Transition Temperature(DSC)	175	170 minimum	175	170 minimum	°C	2.4.25
Decomposition Temperature	--	--	350	340 minimum	°C	2.4.24.6 (5% wt loss)
X/Y Axis CTE (40°C to 125°C)	--	--	12-14	--	ppm/°C	2.4.24
Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 Degrees C	-- -- --	-- -- --	50 250 3.0	60 maximum 300 maximum 3.5 maximum	ppm/°C ppm/°C %	2.4.24
Thermal Resistance A. T260 B. T288	-- --	-- --	>60 >30	30 minimum 15 minimum	Minutes Minutes	2.4.24.1 2.4.24.2
CAF Resistance	--	--	Pass	AABUS	Pass/Fail	2.4.25

The above data and fabrication guide provide designers and PCB shop for their reference. We believe that these information are accurate, however, the data may vary depend on the test methods and specification used. The actual sales of the product should be according to specification in the agreement between ITEQ and its customer. ITEQ reserves the right to revise its data at any time without notice and maintain the best information available to users.