



## **IT-158BS/IT-158TC**

### **Multifunctional Filled Epoxy Resin and Phenolic-Cured Lead Free Laminate & Prepreg**

*IT-158 is a medium Tg (>150 °C by DSC) multifunctional filled epoxy with high thermal reliability and CAF resistance. It's suitable for industrial PCB, automobile and can pass 260 °C Lead free assembly.*

#### **Key Features =====**

##### **Advanced Resin Technology**

*Industrial standard material with medium Tg (150 °C by DSC) multifunctional filled epoxy resin 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 to PCB process that users can easily handle the process by current equipment and chemical.*

##### **CAF Resistance**

*Excellent thermal reliability and CAF resistance providing long-term reliability for industrial boards 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**

**PC and Notebook**

**Memory Module**

**Game Player**

**Multilayer PCB**

**Automobile**

**Servers and Networking**

**Telecommunications**

**Heavy Copper Application**

#### **Industrial Approval**

**UL 94 V-0**

**IPC-4101C Spec / 99**

**RoHS Compliant**

# ITEQ Laminate/ Prepreg : IT-158TC / IT-158BS

## IPC-4101C Spec /99

### LAMINATE (IT-158TC)

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)  1.58 (9.0) 1.31 (7.5) 1.14 (6.5)	0.70 (4.00)  0.80 (4.57) 0.70 (4.00) 0.55 (3.14)	0.88 (5.0)  1.66 (9.5) 1.40 (8.0) 1.23 (7.0)	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>	-- 5.0x10 <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	1.0x10 <sup>10</sup> -- 5.0x10 <sup>10</sup>	10 <sup>4</sup> -- 10 <sup>3</sup>	-- 1.0x10 <sup>10</sup> 3.0x10 <sup>10</sup>	-- 10 <sup>4</sup> 10 <sup>3</sup>	MΩ	2.5.17.1
Moisture Absorption, maximum	--	--	0.08	0.5	%	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	4.3 4.3 4.2 4.1 4.0	5.4	4.4 4.3 4.2 4.1 4.0	5.4	--	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	0.016 0.016 0.017 0.018 0.019	0.035	0.016 0.016 0.017 0.018 0.018	0.035	--	2.5.5.9 2.5.5.13
Flexural Strength, minimum A. Length direction  B. Cross direction	-- -- -- --	-- -- -- --	450-480 (65,250-69,600) 370-400 (53,650-62,350)	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)	155	150 minimum	155	150 minimum	°C	2.4.25
Decomposition Temperature	--	--	345	325 minimum	°C	2.4.24.6 (5% wt loss)
X/Y Axis CTE (40°C to 125°C)	--	--	11-13	--	ppm/°C	2.4.24
Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 Degrees C	-- -- --	-- -- --	40 240 3.3	60 maximum 300 maximum 3.5 maximum	ppm/°C ppm/°C %	2.4.24
Thermal Resistance A. T260 B. T288	-- --	-- --	>60 >30	30 minimum 5 minimum	Minutes Minutes	2.4.24.1
CAF Resistance	--	--	Pass	AABUS	Pass/Fail	2.6.25

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.