



PRODUCTS

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IT-170GRABS/IT-170GRATC

High Tg Multifunctional Epoxy Resin and Laminate & Prepreg

IT-170GRA is a high Tg (175 °C by DSC) multifunctional epoxy with high thermal reliability, low CTE and CAF resistance. It's suitable for industrial PCB and handheld applications that need. It can pass 260 °C Lead free assembly.

Key Features =====

Advanced Resin Technology

Industrial standard material with high Tg (175 °C by DSC), low CTE multifunctional epoxy resin and excellent thermal reliability.

Excellent Thermal and CAF Resistance

Advanced resin system provides high Tg, low CTE and high thermal reliability. Excellent thermal reliability and CAF resistance providing long-term reliability for industrial boards and automobile application.

Lead-Free Assembly Compatible

RoHS compliant and low CTE, that's suitable for high thermal reliability needs, and Lead free assemblies with a maximum reflow temperature of 260 °C.

Friendly Processing

Friendly to PCB process, that users can easily handle the process by current equipment and chemical like high Tg FR4.

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

Servers and Networking

Telecommunications

Data Storage

Automobile

Heavy Copper Application

Smart Phone and Cell Phone

HDI and Multilayer PCB

Industrial Approval

UL 94 V-0

IPC-4101C Spec / 130

RoHS Compliant

ITEQ Laminate/ Prepreg : IT-170GRATC/IT-170GRABS

IPC-4101C

LAMINATE (IT-170GRATC)

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	0.87 (5.0)	0.70 (4.00)	0.87 (5.0)	0.70 (4.0)	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	10 ¹⁰ -- 10 ¹⁰	10 ⁶ -- 10 ³	-- 10 ¹⁰ 10 ¹⁰	-- 10 ⁴ 10 ³	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	10 ¹⁰ -- 10 ¹⁰	10 ⁴ -- 10 ³	-- 10 ¹⁰ 10 ¹⁰	-- 10 ⁴ 10 ³	MΩ	2.5.17.1
Moisture Absorption, maximum	--	--	0.10	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	4.1 4.0 4.0 3.9 3.9	5.4	4.1 4.0 4.0 3.9 3.9	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	0.007 0.008 0.008 0.009 0.009	0.035	0.007 0.008 0.008 0.008 0.009	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) 400-430 (62,350-66,700)	415 (60,190) 345 (50,140)	N/mm ² (lb/in ²)	2.4.4
Arc Resistance, minimum	--	60	100	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)	48	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)	180	170 minimum	180	170 minimum	°C	2.4.25
Decomposition Temperature	--	--	380	340 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	-- -- --	-- -- --	48 240 2.6	60 maximum 300 maximum 3.0 maximum	ppm/°C ppm/°C %	2.4.24
Thermal Resistance A. T260 B. T288	-- --	-- --	>60 >60	30 minimum 15 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.