



PRODUCTS

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IT-180ABS/IT-180ATC

High Tg, Low CTE, Multifunctional Epoxy Resin and Laminate & Prepreg

IT-180A is an advanced high Tg (175 °C by DSC) multifunctional epoxy with low CTE, high thermal reliability and CAF resistance. It's design for high layer PCB and 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) multifunctional 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 PCB process like high Tg FR4. Users can short the learning curve when using this material.

CAF Resistance

Low thermal expansion coefficient (CTE) helps to 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

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 / 99/ 101/ 126

RoHS Compliant

ITEQ Laminate/ Prepreg : IT-180ATC / IT-180ABS

IPC-4101C Spec / 99 / 101 / 126

LAMINATE(IT-180ATC)

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]	0.88 (5.0)	0.70 (4.00)	0.88 (5.0)	0.70 (4.00)	N/mm (lb/inch)	2.4.8 2.4.8.2 2.4.8.3
B. Standard profile copper foil						
1. After Thermal Stress	1.23 (7.0)	0.80 (4.57)	1.40 (8.0)	1.05 (6.00)		
2. At 125°C [257 F]	1.05 (6.0)	0.70 (4.00)	1.23 (7.0)	0.70 (4.00)		
3. After Process Solutions	1.05 (6.0)	0.55 (3.14)	1.23 (7.0)	0.80 (4.57)		
Volume Resistivity, minimum						
A. C-96/35/90	3.0x10 ¹⁰	10 ⁶	--	--	MΩ-cm	2.5.17.1
B. After moisture resistance	--	--	3.0x10 ¹⁰	10 ⁴		
C. At elevated temperature E-24/125	5.0x10 ¹⁰	10 ³	1.0x10 ¹⁰	10 ³		
Surface Resistivity, minimum						
A. C-96/35/90	3.0x10 ¹⁰	10 ⁴	--	--	MΩ	2.5.17.1
B. After moisture resistance	--	--	3.0x10 ¹⁰	10 ⁴		
C. At elevated temperature E-24/125	4.0x10 ¹⁰	10 ³	4.0x10 ¹⁰	10 ³		
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	4.4		4.4		--	2.5.5.9
B. 1GHz	4.4	5.4	4.4	5.4		
C. 2GHz	4.2		4.3			
D. 5GHz	4.1		4.1			
E. 10GHz	4.0		4.1			
Loss Tangent (Df, 50% resin content) (Laminate & Laminated Prepreg)						
A. 1MHz	0.015		0.014		--	2.5.5.9
B. 1GHz	0.015	0.035	0.015	0.035		
C. 2GHz	0.015		0.015			
D. 5GHz	0.016		0.016			
E. 10GHz	0.017		0.016			
Flexural Strength, minimum						
A. Length direction	--	--	500-530 (72,500-76,850)	415 (60,190)	N/mm ² (lb/in ²)	2.4.4
B. Cross direction	--	--	410-440	345		
	--	--	(59,450-63,800)	(50,140)		
	--	--				
Arc Resistance, minimum	125	60	125	60	s	2.5.1
Thermal Stress 10 s at 288°C [550.4F], minimum						
A. Unetched	Pass	Pass Visual	Pass	Pass Visual	Rating	2.4.13.1
B. Etched	Pass	Pass Visual	Pass	Pass Visual		
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	--	--	345	340 minimum	°C	2.4.24.6 (5% wt loss)
X/Y Axis CTE (40°C to 125°C)	--	--	10-13	--	PPM/°C	2.4.24
Z-Axis CTE						
A. Alpha 1	--	--	45	60 maximum	PPM/°C	2.4.24
B. Alpha 2	--	--	210	300 maximum	PPM/°C	
C. 50 to 260 Degrees C	--	--	2.7	3.0 maximum	%	
Thermal Resistance						
A. T260	--	--	>60	30 minimum	Minutes	2.4.24.1
B. T288	--	--	>30	15 minimum	Minutes	
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.