ITEQ

INNOVATION • TEAMWORK • EXCELLENCE • QUALITY

IT-180BS/IT-180TC

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

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

Key Features ==========

Advanced High Tg Resin Technology

Industrial standard material with high Tg (175 ℃ 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 ℃.

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]	0.88 (5.0)	0.70 (4.00)	0.88 (5.0)	0.70 (4.00)	N/mm (lb/inch)	2.4.8
B. Standard profile copper foil						2.4.8.2
1. After Thermal Stress						2.4.8.3
2. At 125°C [257 F]	1.23 (7.0)	0.80 (4.57)	1.40 (8.0)	1.05 (6.00)		
3. After Process Solutions	1.05 (6.0)	0.70 (4.00)	1.23 (7.0)	0.70 (4.00)		
	0.87 (6.0)	0.55 (3.14)	1.05 (6.0)	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	4.2	5.4	4.2	5.4	--	2.5.5.9
B. 1GHz	4.2	5.2	4.2	5.2		
C. 2GHz	4.1		4.2			2.5.5.13
D. 5GHz	4.1		4.1			
E. 10GHz	4.0	AABUS	4.0	AABUS		
Loss Tangent (Df, 50% resin content) (Laminate & Laminated Prepreg)						
A. 1MHz	0.017		0.017		--	2.5.5.9
B. 1GHz	0.017	0.035	0.017	0.035		
C. 2GHz	0.018		0.018			2.5.5.13
D. 5GHz	0.019		0.019			
E. 10GHz	0.020		0.020			
Flexural Strength, minimum						
A. Length direction	--	--	480-510	415	N/mm^2 (lb/in^2)	2.4.4
	--	--	(69,600-73,950)	(60,190)		
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	--	--	350	340 minimum	˚C	2.4.24.6 (5% wt loss)
X/Y Axis CTE (40℃ to 125℃)	--	--	12-14	--	ppm/˚C	2.4.24
Z-Axis CTE						
A. Alpha 1	--	--	50	60 maximum	ppm/˚C	2.4.24
B. Alpha 2	--	--	250	300 maximum	ppm/˚C	
C. 50 to 260 Degrees C	--	--	3.0	3.5 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