



PRODUCTS

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INNOVATION • TEAMWORK • EXCELLENCE • QUALITY

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IT-168GBS/IT-168GTC

High Speed, Multifunctional Epoxy, Laminate & Prepreg

IT-168G is an advanced low Dk and low Df resin system with multifunctional epoxy laminate. Middle Tg (150 °C by DSC). Excellent thermal reliability, especially for 260 °C assembly and HDI process that need multiple laminations, even to 5 press cycles.

Key Features =====

Advanced Resin Technology

Industrial standard material with middle Tg (150 °C by DSC) and excellent electrical properties of dielectric constant (Dk) and loss tangent (Df) properties.

Ultra Low Dk and Low Df

Low Dk=3.9 & low Df=0.008, and keep equivalent electrical properties form 1MHz to 10GHz. It contribute to designer for easier signal simulation.

Excellent Signal Integrity

Low Dk and low Df provide high electrical performance device that need faster signal propagation and low signal loss for high frequency applications even more than 20GHz.

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.

CAF Resistance

Excellent CAF resistance even after multiple lead-free assembly. Provide long-term reliability for both RF and digital applications.

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

High Speed Servers

HDI Smart Phones

High Speed PCB

Multilayer PCB

Line Card

High Speed Storage Networks

Routing and Switching Systems

Antenna

RF and Wireless Communication

Industrial Approval

UL 94 V-0

IPC-4101C Spec / 128

RoHS Compliant



ITEQ Laminate/ Prepreg : IT-168GTC/IT-168GBS
IPC-4101C

LAMINATE (IT-168GTC)

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]	0.87 (5.0)	0.70 (4.00)	0.87 (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	1.40 (8.0)	0.80 (4.57)	1.40 (8.0)	1.05 (6.00)		2.4.8.3
2. At 125°C [257 F]	1.23 (7.0)	0.70 (4.00)	1.23 (7.0)	0.70 (4.00)		
3. After Process Solutions	1.23 (7.0)	0.55 (3.14)	1.23 (7.0)	0.80 (4.57)		
Volume Resistivity, minimum						
A. C-96/3590	10 ¹⁰	10 ⁶	--	--	MΩ-cm	2.5.17.1
B. After moisture resistance	--	--	10 ¹⁰	10 ⁴		
C. At elevated temperature E-24/125	10 ¹⁰	10 ³	10 ¹⁰	10 ³		
Surface Resistivity, minimum						
A. C-96/3590	10 ¹⁰	10 ⁴	--	--	MΩ	2.5.17.1
B. After moisture resistance	--	--	10 ¹⁰	10 ⁴		
C. At elevated temperature E-24/125	10 ¹⁰	10 ³	10 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	3.9		3.9		--	2.5.5.9
B. 1GHz	3.9	5.4	3.9	5.4		
C. 2GHz	3.9		3.9			
D. 5GHz	3.8		3.9			
E. 10GHz	3.8		3.9			
Loss Tangent (Df, 50% resin content) (Laminate & Laminated Prepreg)						
A. 1MHz	0.008		0.007		--	2.5.5.9
B. 1GHz	0.008	0.035	0.008	0.035		
C. 2GHz	0.008		0.008			
D. 5GHz	0.008		0.008			
E. 10GHz	0.009		0.008			
Flexural Strength, minimum						
A. Length direction	--	--	450-480	415	N/mm ² (lb/in ²)	2.4.4
	--	--	(65,250-69,600)	(60,190)		
B. Cross direction	--	--	390-420	345		
	--	--	(56,550-60,900)	(50,140)		
Arc Resistance, minimum	90	60	90	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)	153	150 minimum	153	150 minimum	°C	2.4.25
Decomposition Temperature	--	--	380	360 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	--	--	40	--	ppm/°C	2.4.24
B. Alpha 2	--	--	210	--	ppm/°C	
C. 50 to 260 Degrees C	--	--	3.0	--	%	
Thermal Resistance						
A. T260	--	--	>60	--	Minutes	2.4.24.1
B. T288	--	--	>60	--	Minutes	
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 condition 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.