SHENGYI TECHNOLOGY

SYNAMIC 6

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ULTRA HIGH SPEED & ULTRA LOW LOSS LAMINATES AND PREPREGS

Synamic 6 is a proprietary high performance 210°C (DSC) glass transition temperature (Tg) PPE system for multilayer Printed Wiring Board(PWB) engineered for high speed digital (HSD) applications that require superior electrical performance (25 Gbs+/channel). It also provides superior thermal and reliability performance.

Synamic 6 has a Dielectric Constant (Dk) and Dissipation Factor (Df) of 3.50 and 0.0046 at 10 GHz using the IPC 2.5.5.5 test method. The system also exhibits a stable Dk & Df over a wide range of frequencies (1 GHz to 20 GHz) and temperatures (-40 °C to +125 °C). It is also compatible with high layer count applications that require multiple 2 oz. copper layers and that have 0.8mm pitch It also has demonstrated excellent CAF resistance down to 0.8mm pitch when tested using industry standard CAF TVs across multiple OEMs.

The Synamic 6 system is available in spread and standard E-Glass. The same resin system is available using low Dk glass under the name Synamic 6N. Both are supplied with a 2um Rz roughness VLP copper as the default offering.

APPLICATIONS

- High Speed Servers (25 Gbs+/channel)
- High Speed SANs (25 Gbs+/channel)
- Switches & Routers (25 GBs+/channel)
- High Layer Count Backplanes
- High Layer Count Line Cards
- Multiple 2 oz. Copper Layers
- 0.8mm Pitch
- Burn-in Boards
- HDI Builds
- Hybrid Builds
- Military & Aerospace

FEATURES

- Excellent Electrical Performance
- 3.5 Dk & 0.0046 Df @ 10 GHz (IPC 2.5.5.5)
- Stable Dk/Df over Frequency and Temperature
- Excellent Thermal Performance
- High Tg: 210°C (DSC)
- Low CTE @ 45/180 ppm/°C
- High Td: 405°C (TGA @ 5% wt loss)
- Superior CAF Performance
- Excellent Performance in Hybrid and HDI Designs
- UL 94 V-0 Flame Rating
- Standard FR-4 PCB processes

PRODUCT CONTACTS

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GENERAL PROPERTIES

	PROPERTY	TYPICAL VALUE	UNIT	CONDITION	TEST METHOD
Thermal	Glass Transition Temperature, Tg	210	°C	A	DMA IPC-TM-650 2.4.24.2
		210	°C	A	DSC IPC-TM-650 2.4.25
	Thermal Expansion, Z CTE	45	ppm/°C	A	Before Tg, IPC-TM-650 2.4.24
		180	ppm/°C	A	After Tg, IPC-TM-650 2.4.24
	Decomposition Temperature, Td	405	°C	A	TMA IPC-TM650 2.4.24.6
	Delamination Time, T288	>120	minutes	A	TMA IPC-TM650 2.4.24
	Delamination Time, T300	>60	minutes	A	TMA IPC-TM650 2.4.24
	Humidity Resistance	>10	cycles	85°C/85%RH/168 Hours 288°C/10sec Dipping	-
Electrical	Dielectric Constant (Dk)	3.64	-	1 GHz	IPC-TM-650 2.5.5.9
		3.50	-	10 GHz	IPC-TM-650 2.5.5.5
	Dissipation Factor (Df)	0.0021	-	1 GHz	IPC-TM-650 2.5.5.9
		0.0046	-	10 GHz	IPC-TM-650 2.5.5.5
	Volume Resistivity	1.17E+08	MΩ·cm	COND A	IPC-TM-650 2.5.17.1
	Surface Resistivity	1.45E+06	MΩ	COND A	IPC-TM-650 2.5.17.1
	Electrical Strength	39.7	KV/mm	0.51mm (0.020")	IPC-TM-650 2.5.6.2
Physical	Thermal Conductivity	0.65	W/m·K	100°C	ASTM D5470
	Water Absorption	0.09	%	D-24/23	IPC-TM-650 2.6.2.1
	Copper Peel Strength	0.90 (5.1)	N/mm (lb/in.)	after solder float 1 oz. EDC Foil	IPC-TM-650 2.4.8
	Flammability	94V-0	-	A	UL

PRODUCT SPECIFICATION

STANDARD OFFERINGS	STANDARD PANEL SIZES
Thickness - 0.002"(0.05mm)to 0.060" (1.5mm) Copper - VLP with 2um Rz E-Glass - Spread & Standard	18" x 24" & 21"x24" Additional sizes may be available upon request For most application the standard EDC foil should be used. When PIM and insertion loss is critic the RTF low profile copper foil should be considered.

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[1] Typical values are a representation of an average value for the population of the property. For specification values contact SYTECH Corporation. The information in this data sheet is intended to assist you in designing with SYTECH's circuit materials. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose or that any results shown in this data sheet will be achieved by a user for a particular purpose. The user is responsible for determining the suitability of SYTECH's circuit materials for each application.