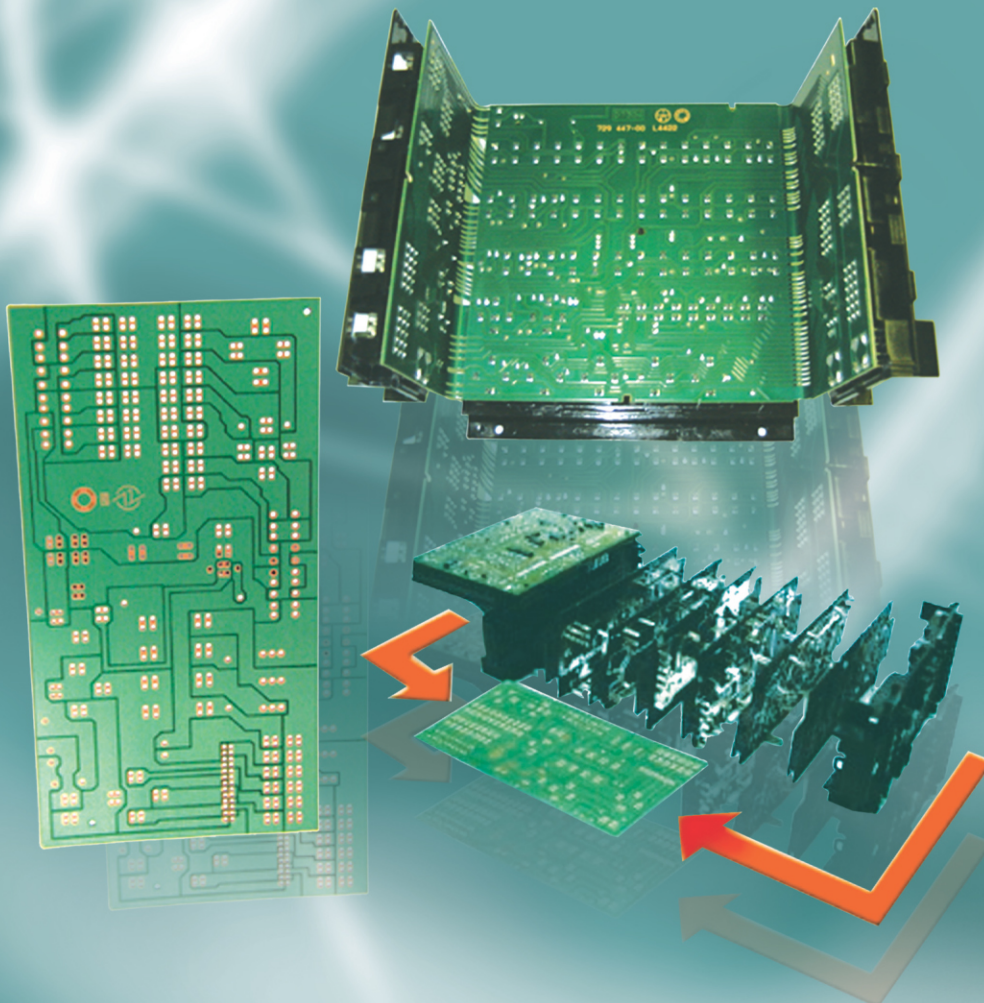


Composite Materials for Gap-Filling Paste



To meet the Market Needs



Special formulated Composite Materials for various fields

Gap-Filling paste / TGFR(Track Gap Filled Resin) For High copper traces

- A gap-filling paste reliably fills spaces between high copper tracks on outer layers before soldermask application

We provide on extensive lineup of products to customers in various industries.



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Gap-Filling paste / TGFR(Track Gap Filled Resin) For High copper traces

TGFR(Track Gap Filled Resin)

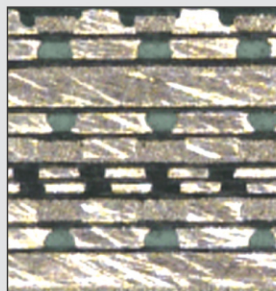
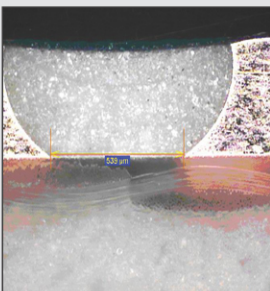
Model No: TG-5000/6000

TGFR stands for Track Gap Filled Resin. TGFR is the technique and process for filling the conductor spaces, which copper thickness is over 4oz, with special resin. Thick copper PCBs are used for power related applications like DC/DC converters, planar transformer, and automobile parts. These kinds of thick copper PCBs are required for high current and high voltage, and cannot be manufactured with standard solder mask process due to insufficient edge coverage of thick patterns.

By filling conductor space with the specially manufactured resin, thick copper PCBs are manufactured in flat surface and perfect condition for solder mask process. It also provides excellent reliability to prevent the possible electrical spark because of solder mask skip or insufficient coverage on the edge of the conductors. When thermally conductive resin for filling the space, PCBs can obtain the maximum thermal effect. As TGFR makes surface flat, manufacturing thinner MLB is possible regardless of the thick copper. Interleaving 1 ply of 1080 prepreg will be enough for constructing MLB.

Benefit of TGFR

- Prevent delamination by improving adhesive power of layer to layer
- Excellent withstanding voltage and insulation between tracks
- Increase thermal effects for bare boards & surface mounted components
- Secure reliability in insulation at operating condition like high temperature and humidity
- Eliminate solder flow during assembling process
- Reduce bow & twist of PCB and defect rate in assembling process by filling conductor space
- Reduce thickness of dielectric layers for multi-layer thick copper PCB



Application

Application	DC/DC Power Converter
Description	2 Layers, Thickness 0.07" Thickness of Dielectric Layer : 4~6 mil Base Copper Thickness : Top 4oz & Bottom 4oz Profiling : Press Punching
Application	Transformer
Description	12 Layers, Thickness 0.102" Thickness of Each Dielectric Layer : 3 mil Base Copper Thickness of Each Layer : 4oz & 70oz Buried Via Holes
Application	Microphone(Multi-Level Copper)
Description	2 Laves, Diameter 0.21", Thickness 7.8 mil Base Copper Thickness : Top 1oz, Bottom 6oz 2 different thickness of copper manufactured by chemical milling
Application	Microphone(Multi-Level Copper)
Description	Base Copper Thickness : 12 oz Flat surface of heavy copper PCB manufactured by TGFR techniques

Gap-Filling paste / TGFR(Track Gap Filled Resin) For High copper traces

Physical and mechanical properties

Model : TG-5000/6000

ITEM		UNIT	TG-5000	TG-6000	REMARK
General characteristics	Base resin	-	Epoxy resin Modified		-
	Appearance	-	Green Liquid		
	Viscosity	cps, at20°C	22,000	45,000	BH type Viscometer
	Density	at25°C	2.42	1.38	-
	Volatility	wt%	non		-
Working condition	Mixing ratio	wt%	One packed type		-
	Gel time	160°C min' sec"	60"	2' 30"	1cc Scale
	Pot life	at5°C, Day	< 90		-
	Cure condition		150°C X 2hr		Oven
	Tg	°C	68	195	DMA
Physical/ Electrical properties	Tensile strength	kg/cm ²	420	640	
	Adhesive strength	kg/cm ²	125	107	JIS-6911
	Hardness	Shore-D	81	92	JIS-6911
	Dielectric constant	50Hz	3.1	3.1	JIS-6911
	Volume resistivity	Ω cm	3.85 × 10 ¹⁵	5.3 × 10 ¹⁵	JIS-6911
	Moisture absorption(%)	20°C, 5Day	0.09	0.08	-
		80°C, 5hr	0.18	0.16	
	Coefficient of linear expansion	X 10 ⁻⁶ 1/K	21	18	TMA
UL	-	V-0	V-0	-	
Solvent resistance	Isopropanol	-	passed	passed	IPC-SM-840C, 3.6.1
	Isopropanol(75%) Water(25%)	-	passed	passed	
	m-ethanolamine	-	passed	passed	
	Deionized H ₂ O	-	passed	passed	

TG-5000 : General grade

TG-6000 : Special grade(High Tg)

Our products

VPI Varnish

Model : NSR-1000



- VPI epoxy resin of which is applied on high voltage insulation system are required the high reliability, easy impregnation, low weight loss and low cost production
- Low viscosity Gradual curing and Long Pot life

PMP Starter motor

Model : IVL-5074



- IVL-5074 is excellent heat resistance, chemical resistance, and good appearance after cured
- Long Pot-life (recycle possibility)
- Small size general motor / High voltage transformer coating Sensor molding

Sensor molding

Model : EML-7400



- This product is especially suited for use in protecting sensors used in harsh environments such as automotive applications
- EML-7400 is a component epoxy system that cures at 125~140°...

Casting Resins

Model : EML-700/750



- This products are widely used for die cast molding for heavy electricity. The reaction is very stable during its curing
- Good electrical & mechanical properties and excellent insulation & durability

Coating Compound for LED Lamps

Model : LER-420



- Excellent adhesive strength with PCB and frame
- Good workability due to low viscosity
- The casting has transparency, moisture resistance



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