Technical Data

SFR-3E Solvent Free Resin Coated Copper

Features & Benefits

- SFR-3E (Solvent Free Resin Coated Copper) is a kind of resin coated copper which provides the advantage of high thermal conductivity and reliability. This Semi-finished material is good for single and multilayer thermal conductive printed circuit board applications.
- SFR-3E is a sandwich structure, which includes a layer of copper, prepreg, and lower release film
- Excellent thermal conductivity
- High Electrical Strength
- Lead-free solder compatible
- RoHS compliant and environmentally green
- Available in rolls
- TCLAD SFR-3E minimizes thermal impedance and conducts heat more efficiently than standard FR-4 PCB printed wiring boards (PWB's) or IMS.
- The differentiating technology of Thermal Clad resides in the dielectric. This datasheet highlights the performance characteristics of TCLAD SFR-3E.

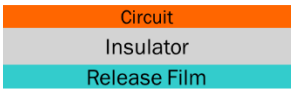
  *Product thermal conductivity is based on 2oz cu x 100µm SFR-3E x 1.5mm Al

Applications

- LED headlight & foglamps and other applications where ceramic based components are used and improved solder joint reliability is required.

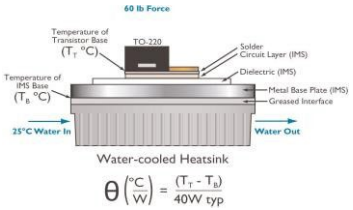
Configurations

Characteristics	SFR-3E
• Panel Size [mm]	500 x 600 etc.
• Prepreg Thickness [µm]	50,80,100,150 etc.
• Circuit [oz]	1,2,3 etc.



We provide custom solutions for your applications. For Further questions, please contact your local sales agent or directly TCLAD sales in your region.

Test Thermal Performance of Insulated Metal Substrate (IMS®) TO-220 Set-up



Item	Thickness	Unit	Value (Typ.)	Method
Thermal Properties				
Product Thermal Conductivity		W/m-K	3 *	TO-220 Method
Dielectric Thermal Conductivity		W/m-K	1.6	ASTM D5470
Thermal Resistance	100µm (4mil)	°C/W	<0.13	ASTM D5470
Thermal Impedance	100µm (4mil)	°C/W	0.33	TO-220 Method
Electrical Properties				
Dielectric Constant		-	5.6	IPC-TM-650 2.5.5.9
Dissipation Factor	100µm (4mil)	1MHz	0.021	IPC-TM-650 2.5.5.9
Capacitance	100µm (4mil)	pF	28.21	IPC-TM-650 2.5.5.9
Volume Resistivity		Ω-cm	10^{15}	IPC-TM-650 2.5.17.1
Surface Resistivity		Ω/sq	10^{13}	IPC-TM-650 2.5.17.1
Breakdown Voltage		AC KV/mm	>30	ASTM D149
Mechanical Properties				
Color		-	Off-White	Visual
Peel Strength @ 25°C		Kg/cm (lbf/in)	1.4 (7.8)	ASTM D286
Glass Transition (Tg)		°C	55	ASTM E1356
CTE in X,Y/Z Axis <Tg		µm/m°C	24	ASTM D3386
CTE in X,Y/Z Axis >Tg		µm/m°C	37	ASTM D3386
Youngs Modulus		GPa	0.5	ASTM D4065
Decomposition Temperature (2% loss)		°C	350	IPC TM-650 2.4.24.6
Decomposition Temperature (5% loss) °C		°C	390	IPC TM-650 2.4.24.6
Chemical Properties				
Water Vapor Retention		%	< 0.5	ASTM E595
Out-Gassing Total Mass Loss		%	< 0.1	ASTM E595
Collect Volatile Condensable Material		%	< 0.1	ASTM E595
Agency Ratings & Durability- UL: E121882				
UL Flammability		-	V-0	UL 94

TCLAD
US sales.us@tclad.com
APAC sales.asia@tclad.com
Europe sales.eu@tclad.com
www.tclad.com

RoHS compliant

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