

## Features & Benefits

- SPP-15 (Solvent Free Prepreg) provides the advantage of high thermal conductivity and reliability. This Sem-finished material is good for single and multilayer thermal conductive printed circuit board applications.
- SPP-15 is a sandwich structure, which includes layers of upper release film, prepreg, and lower release film
- SPP-15 has no fiberglass which allows for improved thermal performance in layers where fiberglass reinforcement is not required.
- Excellent thermal conductivity
- High Electrical Strength
- Lead-free solder compatible
- RoHS compliant and environmentally green
- Available in rolls
- TCLAD TCP minimizes thermal impedance and conducts heat more efficiently than standard printed wiring boards (PWB's).
- The differentiating technology of Thermal Clad resides in the dielectric. This datasheet highlights the performance characteristics of TCLAD SPP-15.

\*Product thermal conductivity based on 2oz cu x 100µm SPP-15 x 1.5mm Al

## Applications

- Traditional multilayer PCBs that have hot spots that need to be dissipated
- High power density applications which required low thermal resistance
- Power conversion, Inverter, DC/DC, AC/DC
- Industrial motor drives
- Solid State Relays

## Configurations

### Characteristics

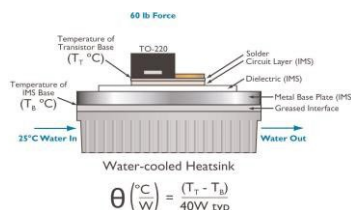
- Roll width [mm] 510,520 etc.
- Prepreg Thickness [µm] 50,80,100,150 etc.
- Release Film Thickness [µm] 50

### SPP-15



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



**TCLAD**

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Rev 2025 D94-001

Item	Thickness	Unit	Value (Typ.)	Method
<b>Thermal Properties</b>				
Product Thermal Conductivity		W/m-K	15 *	TO-220
Dielectric Thermal Conductivity		W/m-K	10	ASTM D5470
Thermal Resistance	100µm (4mil)	°C-cm²/W (°C-in²/W)	0.096 (0.015)	ASTM D5470
<b>Electrical Properties</b>				
Dielectric Constant		-	4.5	IPC-TM-650 2.5.5.9
Dissipation Factor	100µm (4mil)	1MHz	0.007	IPC-TM-650 2.5.5.9
Capacitance	100µm (4mil)	pF	41	IPC-TM-650 2.5.5.9
Volume Resistivity		Ω-cm	10 <sup>13</sup>	IPC-TM-650 2.5.17.1
Surface Resistivity		Ω/sq	10 <sup>13</sup>	IPC-TM-650 2.5.17.1
Breakdown Voltage		KVAC	>30	ASTM D149
<b>Mechanical Properties</b>				
Color		-	Light-Brown	Visual
Peel Strength @ 25°C		Kg/cm (lbf/in)	1.0 (5.6)	IPC TM-650 2.4.8
Glass Transition (T <sub>g</sub> )		°C	270	IPC TM-650 2.4.25
CTE in X,Y/Z Axis <T <sub>g</sub>		µm/m°C	11.7	IPC TM-650 2.4.25
CTE in X,Y/Z Axis >T <sub>g</sub>		µm/m°C	24.3	IPC TM-650 2.4.25
Youngs Modulus		GPa	30	ASTM D638
Decomposition Temperature (2% loss)		°C	390	IPC TM-650 2.4.24.6
Decomposition Temperature (5% loss)		°C	460	IPC TM-650 2.4.24.6
<b>Chemical Properties</b>				
Water Vapor Retention		%	< 0.5	ASTM E595
Out-Gassing Total Mass Loss		%	< 0.1	ASTM E595
Collect Volatile Condensable Material		%	< 0.1	ASTM E595
<b>Agency Ratings &amp; Durability- UL: E121882</b>				
UL Flammability		-	V-0	UL 94