

**FEATURES & BENEFITS**

- Thermal resistance 3mil, 0.09°C-in<sup>2</sup>/W (0.58°C-cm<sup>2</sup>/W)
- Product Thermal conductivity of 2.4 W/m-K
- High voltage strength
- Lead-free solder compatible
- RoHS compliant and environmentally green
- Available with aluminum and copper base
  - Other substrates materials may be available

Thermal Clad Metal Core PCB's (MCPCB's) minimize 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 Thermal Clad MP dielectric.

**Applications**

- High power density applications where achieving low thermal resistance is required
- Power conversion
- Heat Rails
- Solid state relays
- Motor drives
- LED Lighting

**Base Metals                      Thicknesses mil (mm)**

- 5052 Aluminum    32(0.8), 40(1.0)\*, 59(1.5)\*, 80(2.0), 125(3.2)
- 6061 Aluminum    32(0.8), 40(1.0)\*, 59(1.5)\*, 80(2.0), 125(3.2)
- Copper C1100    20(0.5), 32(0.8), 40(1.0)\*, 60(1.5)\*, 125(3.2)

**Copper Foil**

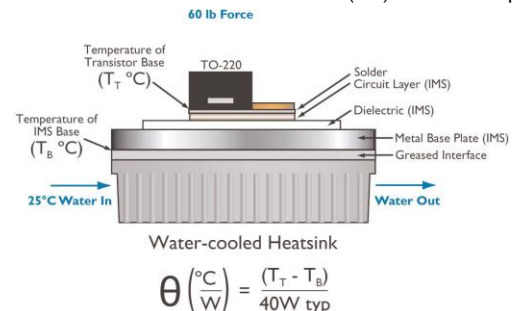
- ED copper 1oz, 2oz, 3oz, 4oz, 6oz
- RA 8oz, 10oz

**General Model\*\***

MP 06503 (3mil)

	THICKNESS	UNIT	VALUE	TEST METHOD
<b>THERMAL PROPERTIES</b>				
Product Thermal Conductivity		W/m-K	2.4	MET 5.4-01-40000
Dielectric Thermal Conductivity		W/m-K	1.3	ASTM D5470
Thermal Resistance	3mil (76µm)	°C-in <sup>2</sup> /W (°C-cm <sup>2</sup> /W)	0.58(0.09)	ASTM D5470
Thermal Impedance	3mil (76µm)	°C/W	0.65	MET 5.4-01-40000
<b>ELECTRICAL PROPERTIES</b>				
Dielectric Constant		-	6	ASTM D150
Dissipation Factor		1KHz/1MHz	0.003/0.017	ASTM D150
Capacitance	3mil (76µm)	pF/in <sup>2</sup> (pF/cm <sup>2</sup> )	410 (65)	ASTM D150
Volume Resistivity		Ω-m	10 <sup>15</sup>	ASTM D257
Surface Resistivity		Ω/sq	10 <sup>14</sup>	ASTM D257
Breakdown Voltage	3mil (76µm)	kVAC	8.5	ASTM D149
<b>MECHANICAL PROPERTIES</b>				
Color		-	White	Visual
Peel Strength@25°C		lb/ in (N/mm)	9 (1.6)	ASTM D2861
Glass Transition (Tg)		°C	90	ASTM E1356
CTE in XY/Z Axis <Tg		µm /m°C	40	ASTM D3386
CTE in XY/Z Axis >Tg		µm /m°C	110	ASTM D3386
Storage Modulus(@25°C/150°C)		GPa	12 / 0.3	ASTM 4065
<b>CHEMICAL PROPERTIES</b>				
Water Vapor Retention		% Wt.	0.21	ASTM E595
Out-Gassing Total Mass Loss		% Wt.	0.29	ASTM E595
Collect Volatile Condensable Material		% Wt.	0.01	ASTM E595
<b>AGENCY RATINGS &amp; DURABILITY</b>				
UL Maximum Operating Temperature (MOT)		°C	130	UL 746
UL Flammability		-	V-0	UL 94
UL Comparative Tracking Index		(CTI)	0/ 500	ASTM D3638/ IEC 60112
Solder Limit Rating		300°C/60 sec	pass	UL 746

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



\* most common thicknesses

\*\* If there is any specific inquiry other than standard specification, please contact us.