



BERGQUIST TCLAD TIC_TIP MP 06503

Known as BERGQUIST THERMAL CLAD MP-06503
March 2019

PRODUCT DESCRIPTION

High Reliable IMS available in panel or circuit configurations.

Technology	Epoxy
Appearance	White
Thickness	0.003 inch (76 μm)
Application	Thermal management, Tclad

FEATURES AND BENEFITS

- Thermal resistance of 0.58°C-cm² /W
- Thermal Conductivity: 2.4 W/m-K
- Multi-Purpose applications
- Lead-free solder compatible
- Eutectic AuSn compatible
- RoHS compliant and environmentally green
- Available on all aluminum and copper metal substrates

Thermal Clad Metal Core PCB's (MCPCB's) minimize thermal impedance and conduct heat more effectively than standard printed wiring boards (PWB's). These substrates are more mechanically robust than thick-film ceramic and direct bond copper construction.

Thermal Clad is a cost-effective solution which can eliminate components, allow for simplified designs, smaller devices and an overall less complicated production process. Additional benefits of Thermal Clad include lower operating temperatures, resulting in longer component life and increased durability.

The technology of Thermal Clad resides in the dielectric. This datasheet highlights the performance characteristics of BERGQUIST TCLAD TIC_TIP MP 06503 (High Temperature) a dielectric resistant to degradation from high temperature exposure and features even higher dielectric breakdown characteristics than BERGQUIST TCLAD TIC_TIP HT 04503.

The technology of Thermal Clad resides in the dielectric. This datasheet highlights the performance characteristics of BERGQUIST TCLAD TIC_TIP MP 06503 (Multi-Purpose).

TYPICAL APPLICATIONS

- High watt-density applications where achieving low thermal resistance is required
- Power conversion
- Heat-rails
- Solid state relays
- Motor drives
- High reliability LED applications

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Peel Strength@ 25°C, ASTM D2861, N/mm	1.6
Glass Transition, ASTM E1356, °C	90
Coefficient of Thermal Expansion, ASTM D3386:	
XYZ Axis Below Tg, μm/-m°C	40
XYZ Axis Above Tg, μm/-m°C	110
Storage Modulus, ASTM D4065, GPa:	
@ 25°C	12
@ 150°C	0.3

Electrical Properties

Dielectric Constant, ASTM D150	6
Dissipation Factor, ASTM D150:	
1 KHz	0.003
1 MHz	0.017
Capacitance, ASTM D150, pF/cm ²	65
Volume Resistivity, ASTM D257, ohm-meter	1×10 ¹⁵
Surface Resistivity, ASTM D257, ohm/sq	1×10 ¹⁴
Breakdown voltage, ASTM D149, kVAC	8.5

Thermal Properties

Product Thermal Conductivity, MET 5.4-01-40000, W/(m-K)	2.4
Dielectric Thermal Conductivity, ASTM D5470, W/(m-K)	1.3
Thermal Resistance, ASTM D5470, °C-cm ² /W	0.58
Thermal Impedance MET 5.4-01-40000, °C/W	0.65

Chemical Properties

Water Vapor Retention, ASTM E595, wt %	0.21
Out-Gassing Total Mass Loss, ASTM E595, wt %	0.29
Collect Volatile Condensable Material, ASTM E595, wt %	0.01

Agency Ratings

Maximum Operating Temperature, UL 746B, °C	130
Flammability, UL 94	V-0
Comparative Tracking Index (CTI):	
ASTM D3638	0
IEC60112	500
Solder Limit Rating, UL 796, 60 seconds, °C	300



GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet, (SDS).

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

CONFIGURATIONS AVAILABLE

BERGQUIST TCLAD TIC_TIP MP 06503 is available in the following configurations:

- Panels
- Circuits

(See Thermal Clad Selection Guide for configurations)

STORAGE

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 5 to 25°C for a 12 months shelf life. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb/F}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{psi} \times 145 = \text{N/mm}^2$
 $\text{MPa} = \text{N/mm}^2$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

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