

TMP Thermal Pad Accessory

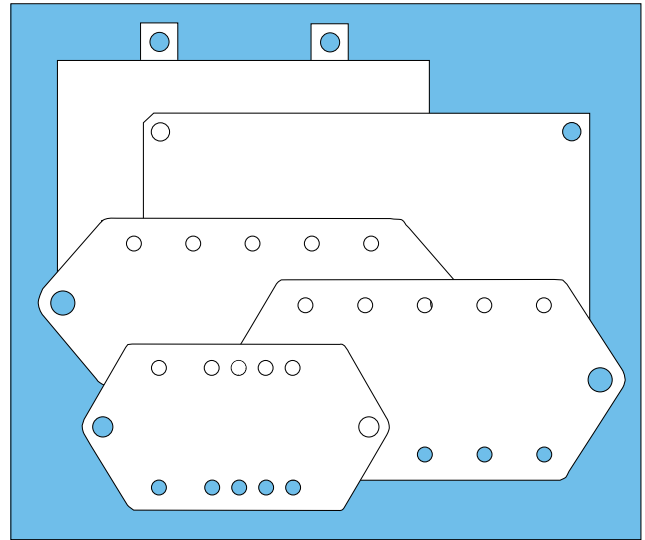
FEATURES

TMP 1XX

- Provides thermal transfer for Interpoint® converters
- 0.010 inch (0.254 mm) thickness
- All holes for leads are 0.100 ±0.005 inches

From Henkel/Bergquist information for Sil-Pad® 2000

- Temperature rating of -60°C to +200°C
- 0.33°C in²/W (213 °C mm²/W) at 50 PSI (345 kPa)
- 0.20°C in²/W (129 °C mm²/W) at 200 PSI (1379 kPa)
- 4000 Vac typical dielectric breakdown voltage
- Outgassing % typical ¹
TML 0.26, CVCM 0.11, WVR 0.02
- See pages 3 and 4 for detailed information on the Sil-Pad® from Henkel/Bergquist.



For details, refer to the dc-dc converter datasheets.
All holes for leads are 0.100 ±0.005 (2.54 ±0.13 mm).

DESCRIPTION

Our accessory Thermal Mounting Pads (TMP) provide a simple and effective method of ensuring a low thermal impedance path between a dc-dc converter and its mounting plane. When placed between the converter and circuit board or heat sink, it will provide electrical isolation and fill small surface irregularities,

The TMP 1XX provides a thermal impedance of 0.33°C in²/W (213 °C mm²/W) at 50 PSI (345 kPa) or 0.20°C in²/W (129 °C mm²/W) at 200 PSI (1379 kPa).

MATERIAL

The Thermal Mounting Pads, made of silicon rubber and fiberglass, are thermally stable and non-flammable. They are non-toxic, do not require grease and do not exhibit the cracking problems of ceramic materials. The pads may temporarily react to some cleaning agents (notably chlorinated hydrocarbons) by swelling, but are not damaged after the solvent is removed. They will tolerate soldering process temperatures.

MOUNTING

All holes for leads are 0.100 ±0.005 (2.54 ±0.13 mm).

For maximum thermal conduction from the converter through the thermal pad to the thermal plane, a mounting pressure of 50 PSI or 345 kPa is recommended. The mounting pressure is achieved by applying appropriate torque values to the mounting screws. The screw torque values should be based on the type of the screws, materials, lubrications, and the locking methods.

For questions please contact Applications Engineering at +1 425-882-3100 option 6, email powerapps@crane-eg.com or fill out a Technical Inquiry Form at www.interpoint.com/contact/technical_support.

Note 1. Total mass loss in vacuum (TML), collected volatile condensable material (CVCM), water vapor regain (WVR)

TMP Thermal Pad Accessory

TMP NUMBER CROSS REFERENCE TO DC-DC CONVERTERS

APPLICATION	DC-DC CONVERTER FAMILY (BASE MODEL) ¹	CASE STYLE	TMP 1XX ²	TMP 0XX ² CROSS REFERENCE ³
High Reliability	MFK Series™ Dual (includes 28S)	G6	114	NA
High Reliability	MFK Series™ Single (except 28S)	G5	108	NA
High Reliability	MFL Series™	U	101	001
Space	MFP Series™ Downlead Flanged	C5	111	NA
High Reliability	MFX Series™	J7	109	NA
High Reliability	MHF+ Series™ Single and Dual	G1	105	005
High Reliability	MHF+ Series™ Triple	G2	105	005
High Reliability	MHP270 Series™	U	101	001
High Reliability	MHV Series™ Single and Dual	K3	103	003
High Reliability	MHV Series™ Triple	J1	102	002
High Reliability	MOR Series™	U2	101	001
High Reliability	MOR Series™	W, Y, Z	107	007
High Reliability	MTR Series™ Single and Dual	K5	103	003
High Reliability	MTR Series™ Triple	J1	102	002
High Reliability	MWR Series™	J1	102	002
Space	SMFL Series™	U	101	NA
Space	SMFLHP Series™	U	101	NA
Space	SMHF Series™	G1	105	NA
Space	SMRT Series™	S	110	NA
Space	SMTR	H2	103	NA

Notes

1. The Series trademarks listed above are the property of Crane Electronics, Inc.
2. All holes for leads are 0.100 ±0.005 (2.54 ±0.13 mm).
3. The cross reference matches the new TMP 1XX (made from Sil-Pad 2000) to the previous TMP 0XX (made from Sil-Pad 1500). TMP 0XX is not recommended for new design.

TMP Thermal Pad Accessory

TMP IS MANUFACTURED FROM HENKEL'S SIL-PAD 2000

BERGQUIST

Technical Data Sheet

Sil-Pad® 2000

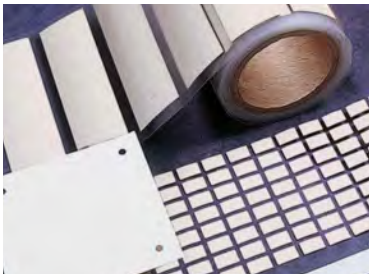
April 2015

PRODUCT DESCRIPTION

Higher Performance,
High Reliability Insulator

FEATURES AND BENEFITS

- Thermal impedance: 0.33°C-in²/W (@50 psi)
- Optimal heat transfer
- High thermal conductivity: 3.5 W/m-K



Sil-Pad® 2000 is a high performance, thermally conductive insulator designed for demanding aerospace and commercial applications.

Sil-Pad® 2000 is a silicone elastomer formulated to maximize the thermal and dielectric performance of the filler/binder matrix. The result is a grease-free, conformable material capable of meeting or exceeding the thermal and electrical requirements of high-reliability electronic packaging applications.

Note: To build a part number, visit our website at www.bergquistcompany.com.

TYPICAL PROPERTIES OF SIL-PAD 2000

PROPERTY	IMPERIAL VALUE	METRIC VALUE	TEST METHOD			
Color	White	White	Visual			
Reinforcement Carrier	Fiberglass	Fiberglass	—			
Thickness (inch) / (mm)	0.010 to 0.020	0.254 to 0.508	ASTM D374			
Hardness (Shore A)	90	90	ASTM D2240			
Continuous Use Temp (°F) / (°C)	-76 to 392	-60 to 200	—			
ELECTRICAL						
Dielectric Breakdown Voltage (Vac)	4000	4000	ASTM D149			
Dielectric Constant (1000 Hz)	4.0	4.0	ASTM D150			
Volume Resistivity (Ohm-meter)	10 ¹¹	10 ¹¹	ASTM D257			
Flame Rating	V-O	V-O	UL94			
THERMAL						
Thermal Conductivity (W/m-K)	3.5	3.5	ASTM D5470			
THERMAL PERFORMANCE vs PRESSURE						
	Pressure (psi)	10	25	50	100	200
TO-220 Thermal Performance (°C/W) 0.010"		2.61	2.32	2.02	1.65	1.37
Thermal Impedance (°C-in ² /W) 0.010" (1)		0.57	0.43	0.33	0.25	0.20
1) The ASTM D5470 test fixture was used. The recorded value includes interfacial thermal resistance. These values are provided for reference only. Actual application performance is directly related to the surface roughness, flatness and pressure applied.						

TYPICAL APPLICATIONS INCLUDE

- Power supplies
 - Motor controls
 - Power semiconductors
 - Aerospace
 - Avionics
- ### CONFIGURATIONS AVAILABLE
- Sheet form, die-cut parts
 - With or without pressure sensitive adhesive

PDS_SP_2000_0415



TMP Thermal Pad Accessory

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Product Management Memorandum
Typical Outgassing Data ¹, Bergquist Thermal Products

Date: January 19, 2016, REV: 1-19-16
Tests Performed In Accordance with: ASTM E-595, NASA SP-R-0022A

TML = total mass loss in vacuum
CVCM = collected volatile condensable material
WVR = water vapor regain

Material	Post Cure	TML %	CVCM %	WVR %
SP 2000	----	0.26	0.11	0.02
SP 2000	24hr/175°C/Air	0.07	0.03	0.01

1. Information provided by Henkel.