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Tgard™ 500
Thermally Conductive Insulators

THICKER THERMAL INSULATOR PAD PREVENTS ELECTRICAL SHORTS IN AUTOMOTIVE ELECTRONICS APPLICATIONS

Tgard™ 500 is a medium thermal performance insulator pad consisting of a ceramic filled high temperature silcone rubber coated on electrical grade fiberglass.

Tgard 500 is designed for applications that require additional thickenss to prevent electrical shorts form stamped aluminum heatsinks used in switching mode power supplies (SMPS) and debris from aluminum castings used in automotive motor controls.

FEATURES AND BENEFITS

- High breakdown voltage of > 6,000 volts AC
- Thermal resistance of 0.48º C-in2/watt at 50 psi
- Thermal resistance of 0.28º C-in2/watt at 400 psi
- Thick enough to encapsulate burrs of stamped heatskinks

APPLICATIONS

- Automotive motor controls
- Switching mode power supplies - stamped aluminum heatsinks

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PROPERTIES	TEST METHOD	METRIC VALUES	IMPERIAL VALUES
ELECTRICAL PROPERTIES			
Dielectric with standard voltage 50mm probe for 30 sec	ASTM D149	4,500 volts AC	4,500 volts AC
Dielectric breakdown voltage 50mm probe	ASTM D149	Avg >6,000 volts AC	Avg >6,000 volts AC
Volume resistivity	ASTN D257	10^{12} ohm-cm	10^{12} ohm-in
Dielectric constant @1Mhz	ASTN D257	3.3	3.3
Electrical RTI temperature rating	UL746D	150ºC	302ºF
MECHANICAL PROPERTIES			
Thickness		0.23 mm	0.009 in
Hardness	ASTM D2240	80 Shore A	80 Shore A
Tensile strength	ASTM D412	11.7 Mpa	1.7 Kpsi
Elongation @ 45º to warp/fill	ASTM D412	20%	20%
Elongation along width or length	ASTM D412	5%	5%
Operating temperature range		-60º to 180ºC	-76º to 356ºF
Color		Brown	Brown
UL flammability rating	UL 94	V-0	V-0

PRESSURE	UNITS	10 (69)	25 (172)	50 (345)	100 (689)	200 (1379)	400 (2758)
TOTAL THERMAL RESISTANCE							
Modified ASTM D5470	ºC-in²/watt	0.81	0.70	0.48	0.33	0.30	0.28
Modified ASTM D5470	ºC-cm²/watt	5.16	4.52	3.21	2.13	1.94	1.80
T0-220	ºC/watt	1.29	1.01	0.95	0.79	0.77	0.76

Standard thickness: 9 mils (0.229 mm)

Configurations available:
- Sheet form, roll form and die-cut parts
- Single-side, pressure-sensitive adhesive on request

Standard options:
- Without adhesive (A0): 12 x 18” sheets, 12” x 65M, 12” x 30M roll or custom configuration
- With adhesive (A1): 11.75 x 18” sheets, 11.75” x 30M roll or custom configuration

Data for design engineer guidance only. Observed performance varies in application. Engineers are reminded to test the material in application.

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