



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



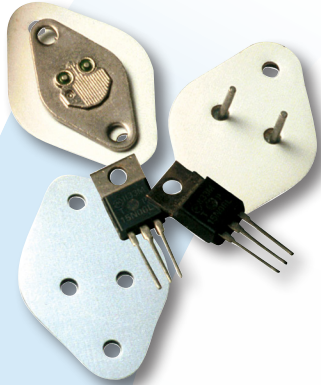
## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





## HIGH PERFORMANCE THERMAL INTERFACE PRODUCTS

The Tgard™ 200 is a high performance interface pad. Consisting of a silicone/boron nitride composite, these fiberglass-reinforced pads are used when the lowest thermal resistance and highest dielectric strength are required

A high-tear, cut-through and puncture-resistant product, the Tgard™ 200 is tough and strong. Burrs cause no problems for the material and the pad will not dry out, crack or fail when pressured between mating parts.

The Tgard™ 200 is available in the following sizes:

- 0.010" (0.25 mm) die cut shapes only
- 0.020" (0.51 mm) sheets and die cut shapes
- 0.030" (0.75 mm) sheets and die cut shapes

## FEATURES AND BENEFITS

- High thermal Conductivity of 5.0 W/mK
- High breakdown voltage of > 6,000 volts
- Resistant to tears and punctures
- UL® 94 V0 rated

## APPLICATIONS

- Audio and video components
- Automotive control units
- General high pressure interfaces
- Motor controllers
- Power conversion equipment
- Power semiconductors
  - TO packages, MOSFETs and IGBTs

Americas: +1.800.843.4556  
Europe: +49.8031.2460.0  
Asia: +86.755.2714.1166

CLV-customerservice@lairdtech.com  
[www.lairdtech.com/thermal](http://www.lairdtech.com/thermal)

	TGARD <sup>™</sup> 210	TGARD <sup>™</sup> 220	TGARD <sup>™</sup> 230	TEST METHOD
Construction & Composition	Reinforced boron nitride filled silicone elastomer	Reinforced boron nitride filled silicone elastomer	Reinforced boron nitride filled silicone elastomer	
Color	White	Blue	Green	Visual
Thickness	0.010" (0.25mm)	0.020" (0.51mm)	0.030" (0.76mm)	
Thickness tolerance	±0.002" (±0.05mm)	±0.002" (±0.05mm)	±0.003" (±0.075mm)	
Specific Gravity (Density)	1.52 g/cc	1.45 g/cc	1.47 g/cc	Helium Pycnometer
Hardness	85 Shore A	80 Shore A	80 Shore A	ASTM D2240
Tensile Strength	N/A	N/A	N/A	ASTM D412
% Elongation	N/A	N/A	N/A	ASTM D412
Outgassing TML (Post Cured)	0.06%	0.06%	0.06%	ASTM E595
Outgassing CVCM (Post Cured )	0.05%	0.05%	0.05%	ASTM E595
UL Flammability Rating	94 V0	94 V1	Not Rated	E180840
Temperature Range	-60°C to 200°C	-60°C to 200°C	-60°C to 200°C	
Thermal Conductivity	5 W/mK	5 W/mK	5 W/mK	ASTM D5470 (modified)
Thermal Impedance @ 100 psi @ 689 KPa	0.18°C-in <sup>2</sup> /W 1.17°C-cm <sup>2</sup> /W	0.35°C-in <sup>2</sup> /W 2.26°C-cm <sup>2</sup> /W	0.40°C-in <sup>2</sup> /W 2.28°C-cm <sup>2</sup> /W	ASTM D5470 (modified)
Breakdown Voltage	6,000 VAC	10,000 VAC	20,000 VAC	ASTM D149
Volume Resistivity	5x10 <sup>13</sup> ohm-cm	5x10 <sup>13</sup> ohm-cm	5x10 <sup>13</sup> ohm-cm	ASTM D257
Dielectric Constant @ 1 MHz	3.32	3.32	3.32	ASTM D150

Standard thicknesses: 0.010" (0.25 mm) die cut shapes only, 0.020" (0.51 mm), 0.030" (0.76 mm)  
 Standard sheet sizes: 0.020" and 0.030": 16" x 16" (406 mm x 406 mm) Individual die-cut shapes can be supplied.  
 Pressure sensitive adhesive: Request no adhesive with "AO" suffix. Request adhesive on one side with "A1" suffix. Double-sided adhesive is not available.  
 Reinforcement: Tgard<sup>™</sup> 200 sheets are fiberglass reinforced.

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

#### THR-DS-Tgard-200 0313

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