

CHO-THERM® HV SERIES

Thermally Conductive Pads with Enhanced Electrical Insulation

Parker Chomerics CHO-THERM® HV Series is a family of thermally conductive and electrically insulating pads, with thermal conductivities ranging from 1.1 to 3.3 W/m-K, providing breakdown voltages of up to 20 kV under DC load.

Engineered to provide effective heat transfer from heat generating components (CPUs, GPUs, high power busbars, etc.) to heat dissipating components (cold plates, heat sinks, cooling pipes, vapor chambers, etc.) within electronic devices and systems.

The CHO-THERM® HV series offers the ideal combination of high thermal and low outgassing performance while requiring ultra low compression forces during installation and use. With Shore 00 hardnesses ranging from 30 to 35, the HV Series allows for exceptional conformability between uneven mating surfaces with rough surface textures in order to eliminate air gaps.

For enhanced electrical insulation and electrical breakdown resistance, the HV Series features high-performance dielectric layers to provide electrical isolation between high power components utilized in the most demanding automotive and industrial systems.

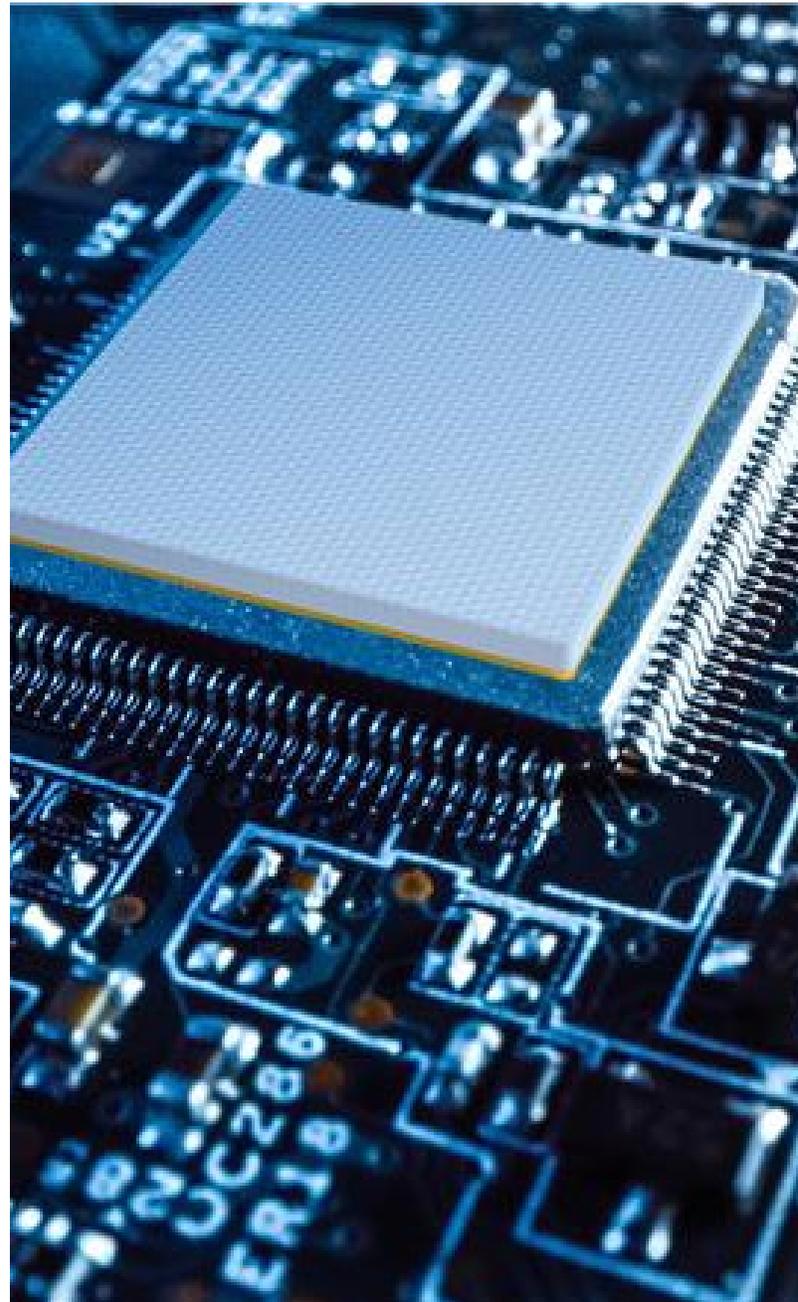
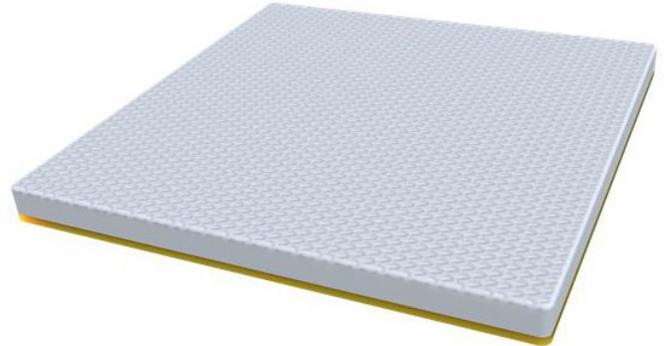
Available in custom diecut geometries for complex surface areas or large format sheets for high volume conversion, the CHO-THERM® HV Series can be provided in the configuration most suited to the demanded assembly process.

Product Features

- 1.1 to 3.3 W/m-K Thermal Conductivity
- Breakdown Voltages up to > 20 kV DC to Electrical Through Resistance
- Ultra-Low Compression Force
- High Tack Surface Reduces Thermal Contact Resistance
- Enhanced Electrical Isolation with Dielectric Layers
- PSA Options for High-Strength Adhesion
- V-0 Rated UL94 Flammability Performance
- RoHS Compliant

Typical Applications

- Automotive Power Electronics
- Automotive Lighting Assemblies
- Electric Vehicle Charging Stations
- High Voltage Automotive Sensors and Actuators
- Alternative Energy Power Conversion/Inversion Equipment
- Ruggedized Electronics in Heavy Duty Industrial Equipment
- Industrial Motor Controllers



CHO-THERM[®] HV SERIES PRODUCT INFORMATION

Typical Properties†		HV1110	HV1717	HV2320	HV3320	Test Method
Physical	Color	Blue	Blue	Blue	Grey	Visual
	Material	Silicone	Silicone	Silicone	Silicone	
	Reinforcement Carrier	Thermally Enhanced Polyimide	Thermally Enhanced Polyimide	Thermally Enhanced Polyimide	Thermally Enhanced Polyimide	
	Thickness*, in. (mm)	0.010 (0.25)	0.020 (0.5)	0.040 (1.0)	0.040 (1.0)	ASTM D374
	Specific Gravity	2.9	2.9	2.9	3.4	ASTM D792
	Hardness, Shore 00	30	30	30	35	ASTM D2240
Thermal	Operating Temperature Range, °F (°C)	-67 to 392 (-55 to 200)	Chomerics			
	Apparent Thermal Conductivity, W/m-K	1.1	1.7	2.3	3.3	ASTM D5470
	Thermal Impedance, °C-in ² /W (°C-cm ² /W) @ 50psi	0.373	0.448	0.662	0.293	ASTM D5470
	Heat Capacity, J/g-K	1	1	1	1	ASTM E1269
	Coefficient of Thermal Expansion, ppm/K	150	150	150	150	ASTM E831
Electrical	Breakdown Voltage, kV DC (kV AC)	10.4 (5.04)	16.6 (6.52)	20.0 (10.3)	> 20 (7.31)	ASTM D149
	Comparative Tracking Index, Material (Carrier)	Class I (Class II)	ASTM D3638			
	Volume Resistivity, ohm-cm	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴	ASTM D257
	Dielectric Constant @ 1 MHz	0.15	0.29	0.15	-0.05	ASTM D150
	Dissipation Factor @ 1 MHz	2.8	4.8	6.4	23	CHO-TM-TP13
Regulatory	Flammability Rating	V-0 (Tested by Chomerics)	V-0 (Tested by Chomerics)	V-0 (Tested by Chomerics)	V-0 (Tested by Chomerics)	Chomerics
	RoHS Compliant	Yes	Yes	Yes	Yes	Chomerics Certification
	Outgassing, % TML (% CVCm)	0.13 (0.03)	0.13 (0.03)	0.13 (0.03)	0.11 (0.09)	ASTM E595
	Shelf Life, months from date of shipment (w/PSA)	18 (12)	18 (12)	18 (12)	18 (12)	Chomerics
	Storage Conditions, °F (°C) @ 50% Relative Humidity	50 to 90 (10 to 32)	Chomerics			

† Typical properties: these are not to be construed as specifications.

* Thickness tolerance, inches (mm) is ±10% of the nominal part thickness.

CHO-THERM® HV SERIES ORDERING INFORMATION

Part Number	PSA	Sheet Size	Material Type
60-11-0909-HV1110	No PSA	9" x 9" (228.6 mm x 228.6 mm)	HV1110
60-12-0909-HV1110	PSA on One Side	9" x 9" (228.6 mm x 228.6 mm)	HV1110
60-11-0909-HV1717	No PSA	9" x 9" (228.6 mm x 228.6 mm)	HV1717
60-12-0909-HV1717	PSA on One Side	9" x 9" (228.6 mm x 228.6 mm)	HV1717
60-11-0909-HV2320	No PSA	9" x 9" (228.6 mm x 228.6 mm)	HV2320
60-12-0909-HV2320	PSA on One Side	9" x 9" (228.6 mm x 228.6 mm)	HV2320
60-11-1015-HV3320	No PSA	10" x 15" (254 mm x 381 mm)	HV3320
60-12-1015-HV3320	PSA on One Side	10" x 15" (254 mm x 381 mm)	HV3320

Ordering Information: Custom Configurations

Please contact Parker Chomerics for a pre-assigned part number, for custom widths, lengths and part sizes; etc.

Available options include custom die-cut parts on sheets or rolls, individual parts.

Handling Information

These products are defined by Parker Chomerics as "articles" according to the following generally recognized regulatory definition for articles:

An article is a manufactured item "formed to a specific shape or design during manufacturing," which has "end use functions" dependent upon its size and shape during end use and which has generally "no change of chemical composition during its end use."

In addition:

- There is no known or anticipated exposure to hazardous materials/substances during routine and anticipated use of the product.
- The product's shape, surface and design is more relevant than its chemical composition.

These materials are not deemed by Parker Chomerics to require an MSDS. For further questions, please contact Parker Chomerics at 781-935-4850.



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Parker Hannifin Corporation
Chomerics Division

77 Dragon Court
Woburn, MA 01801
Phone 781 935 4850
Fax 781 933 4318
chomailbox@parker.com
parker.com/chomerics

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