3M™ Thermally Conductive Acrylic Interface Pads 5589H and 5590H

Product Description

3M™ Thermally Conductive Acrylic Interface Pads 5589H and 5590H are soft and acrylic based pads. Because of their softness, Interface Pads 5589H and 5590H can decrease the load to integrated circuit chips during compression, and have good tack to many surfaces. These properties lead to a high performance non-silicone based thermal pad. Interface Pad 5590H is a higher thermal conductivity and somewhat firmer acrylic thermal pad, versus Interface Pad 5589H.

- Good softness and conformability to non-flat surfaces.
- Excellent compressive stress relaxation.
- High thermal conductivity.
- UL94 V-O certified (File No. E176845).
- Good surface tack leads to low thermal resistance at surface.
- Non-silicone acrylic elastomer.
- Good dielectric performance.
- Excellent durability for long term thermal conductivity and electric insulation stability.

Product Construction

	Thermally conductive firm acrylic elastomer (very low tack) surface
	Thermally conductive soft acrylic elastomer (low tack) core
	Film liner (Roll type: Film on firm layer)

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Property	Method	Value 3M™ Thermally Conductive Acrylic Interface Pads 5589H	5590H
Color	—	Light grey / White	Light grey
Thickness (mm)	5 mm dia. dial gauge	1.0 / 1.5	0.5 / 1.0 / 1.5
Thermal Conductivity (W/m-K)	3M method	2.0	3.0
Flammability	UL94	V-0	V-0
Density (g/cm^3, @ 25°C)	JIS K6249	1.9	2.1
Hardness	Asker C Shore 00*	16 (data for soft layer) 50	30 (data for conformable layer) 60
Volume Resistivity (ς-cm)	JIS K6249	3.4 x 10^{12}	2.7 x 10^{12}
Dielectric Strength (kV/mm)	JIS K6249	21	16

Note: *Shore 00 test method results are based on a 6mm thick sample. Results will vary with sample thickness. Sample tested to soft layer side of the pad.

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Heat resistance

Duration (hrs)	Initial	500	1000	2000
Thermal Conductivity (W/m-K)	2.0	2.0	2.0	2.0
Hardness (Asker C)	16	17	16	17
Appearance	—	No effect	No effect	No effect

Aged at 110°C in high temperature chamber.

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Heat resistance

Duration (hrs)	Initial	500	1000	2000
Thermal Conductivity (W/m-K)	3.0	3.0	3.0	3.0
Hardness (Asker C)	30	33	33	34
Appearance	—	No effect	No effect	No effect

Aged at 110°C in high temperature chamber.

Shelf Life

Product shelf life is 6 months from date of manufacture when stored at room temperature conditions (23-25°C & 50% RH) and in the products original packaging.

An attribute of the product that can vary with storage time is liner release force. With storage time, liner release can increase and the increase could impact the products converting or ease of end use liner removal.

Certification/Recognition

MSDS: 3M has not prepared a MSDS for these products which is are subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, these products should not present a health and safety hazard. However, use or processing of these products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards.

TSCA: These products are defined as an article under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements.

RoHs Complaint/REACH Compliant: These products comply with the European Union's "Restriction of Hazardous Substances" (RoHs) initiative and with European REACH regulations 2002/95/EC and 2005/618/EC.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-866-599-4227. Address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 651-778-4244 or 1-877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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