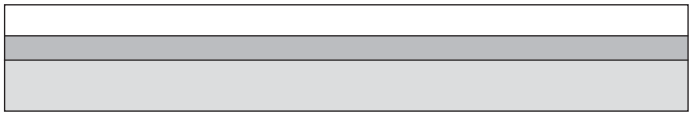
3M™ Thermally Conductive Acrylic Interface Pad 5589H

Product Description

3M™ Thermally Conductive Acrylic Interface Pad 5589H is a soft acrylic based pad designed to provide a preferential heat transfer path away from heat generating components. Because of its softness, 3M Interface Pad 5589H can decrease the load to integrated circuit chips during compression, and provides good tack to many surfaces. These properties lead to a high performance non-silicone based thermal pad.

- 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



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

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 Pad 5589H
Color	—	Light grey / White
Thickness (mm)**	5 mm dia. dial gauge	1.0 / 1.5
Thermal Conductivity (W/m-K)	3M method	2.0
Flammability	UL94	V-0
Density (g/cm^3, @ 25°C)	JIS K6249	1.9
Hardness	Asker C Shore 00*	16 (data for soft layer) 50
Volume Resistivity (ς-cm)	JIS K6249	3.4 x 10^{12}
Dielectric Strength (kV/mm)	JIS K6249	21

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.
**Tolerances of 1 mm and 1.5 mm = +/-10%, 0.5 mm +/- 0.1 mm.

3M™ Thermally Conductive Acrylic Interface Pad 5589H
Heat Stability

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.

3M™ Thermally Conductive Acrylic Interface Pad 5589H	
UL Rating	**In Service Temperature Resistance**
UL94V0	Short Term (Hours-Days) 110-130°C
	Long Term (Weeks-Months) 90-100°C

Shelf Life

3M™ Thermally Conductive Acrylic Interface Pad 5589H shelf life is 12 months from date of manufacture when stored at room temperature conditions (20-25°C & 50%RH) and in the products original packaging.

An attribute of the product that can vary with storage is the cosmetic appearance of the material. Slight yellowing may occur and is considered normal for these type of products. Within the shelf life period, liner release can gradually change and should be considered to ensure robust end use and processing. Gradual liner release changes that are within the liner release specification for the shelf life period noted are typical for these products.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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