3M™ Thermally Conductive Interface Silicone Pad 5515S

Developmental Status Notice

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Product Description

Note: The data presented in this preliminary data sheet are 3M's best estimates for the current product construction being evaluated. While this product is being developed for general commercialization, this product is still considered developmental at this time and changes in product construction or process conditions may occur that can cause subsequent changes in product characteristics or performance. User should consult with 3M before making any business plans in reliance upon the future availability or the current properties of this product.

3M™ Thermally Conductive Interface Silicone Pad 5515S consists of a thin polyimide film laminated on existing silicone pad product - #5515 to enhance the electrical insulation performance, anti-abrasion and ease of handling and die cutting. The main function of this product is to provide a preferential heat transfer path between heat generating components and heat sinks, heat spreaders or other cooling devices. Pad 5515S consists of a 13 μm thick Polyimide film that has good dielectric strength and mechanical durability and a conformable and slightly tacky silicone elastomeric sheet filled with thermally conductive ceramic particles which provide good thermal heat transfer and electrical insulation performance.

Product Uses

This product can be used for heat management of electronic devices and joining/stacking parts in electronic components.

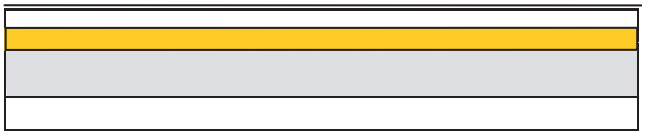
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Key Features

- Thin for lower thermal impedance, 0.20mm and 0.25mm thick products available
- High thermal conductivity
- Excellent electrical insulation properties
- Good dimensional stability for easy and convenient converting
- Anti-abrasion
- Good conformability performance
- High pressure relaxation
- Inherent surface tack allows pre-assembly

Product Construction

3M™ Thermally Conductive Interface Silicone Pad 5515S-20 (25)



Removable Film liner
13 µm PI Film carrier
Thermally conductive silicone elastomer
Removable Film liner

Standard thickness (Silicone layer + PI film): 0.2 (0.25) mm

Application Ideas

- IC Packaging Heat Conduction
- Insulation TIM between Power TR and HS
- Assembly of Metal/Ceramic Heat Sink Device
- Spacer for Battery Module/Pack
- COF Chip Heat Conduction
- LED Module/ Board TIM
- HD TV Address IC Chip and Scan Module
- Thin Gap Filling between board, module and chassis

Mechanical fastening such as clamp, bracket, screw and additional tapes and adhesives bonding can be used in parallel with this pad.

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data is based upon limited 3M testing conditions and should not be used for specification purposes.

Property	3M™ Thermally Conductive Interface Silicone Pad 5515S-20 / 5515S-25 Method	Value		
Thickness (mm)		0.2 / 0.25 (±0.025mm)		
Thermal Conductivity (W/mK)*	QTM-500	2.7		
Flammability*	UL 94	V-0 (Passed 3M Internal FR Test)		
Density (g/cm^3, @ 25°C)*	TS-TM-441	2.8 (±0.25)		
Hardness (Shore 00)*	ASTM D2240	90 (±10)		
Volume Resistivity (Ω-cm)*	ASTM D257	8.6 x 10^{14}		
Dielectric Strength (kV/mm)*	ASTM D149	17.7		
Dielectric Constant*	ASTM D150	100 Hz	1 Khz	1 Mhz
		18.4	18.2	18.3

***3M™ Thermally Conductive Interface Silicone Pad 5515S-25 tested.**

Heat resistance of 3M™ Thermally Conductive Interface Silicone Pad 5515S-25

Duration	Initial	100	500	1000
Thermal Conductivity (W/mK)	2.7	2.7	2.7	2.7
Hardness (Shore 00)	93	94	94	94
Appearance		No effect	No effect	No effect

Aged at 130°C in high temperature chamber.

Application Techniques

- Positioning and adhesion strength is dependent upon the total amount of surface contact developed. Firm application pressure helps develop better wetting and improve adhesion.
- To obtain optimum thermal conductivity, the wetting surfaces must be maximized. For better contact, clean, dry and well unified surface condition is recommended. Typical surface cleaning solvents are isopropyl alcohol and water (rubbing alcohol) or heptane. **Note:** Be sure to follow manufacturer's safety precautions and directions for use when using solvents.
- Ideal application temperature range is from 0°C to 40°C. Initial application to surfaces at temperatures below 0°C is not recommended because the pad becomes too firm to be wetted readily. However, once properly applied, low temperature holding is generally satisfactory.

Certification/Recognition

MSDS: 3M has not prepared a MSDS for this product which is not 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, the product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements.

RoHs Complaint/REACH Compliant: This product complies 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, contact your local 3M Technical Service. In the U.S., address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 209-1C-30, St. Paul, MN 55144-1000.

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