

3M™ Thermally Conductive Interface Silicone Pad 5514

Developmental Status Notice

3M™ Thermally Conductive Interface Silicone Pad 5514 is a 3M developmental product. It is currently available on a limited basis and is only provided for market and technical evaluation. The future availability, formulation, performance properties, and pricing for the material are not guaranteed and are subject to change. To discuss your evaluation, please contact your local 3M Technical Service.

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 5514 has good softness for good gap filling performance and reliable dimensional stability that is useful for complicated pattern making through the die cutting process. The Pad 5514 product was originally designed to provide a preferential heat transfer path between heat generating components and heat sinks, heat spreaders or other cooling devices. The Pad 5514 product is a thermally conductive silicone interface pad product and it consists of a highly conformable and 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.



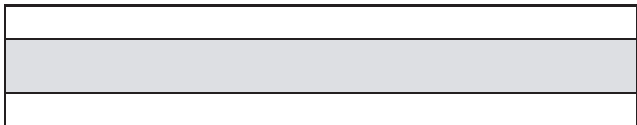
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Key Features

- Thin for lower thermal impedance, 0.20mm and 0.25mm thick products available
- Excellent softness and conformability even to non-flat surfaces
- Good dimensional stability to improve the converting process and ease to make complex die cut patterns
- Good thermal conductivity
- Excellent electrical insulation properties
- High pressure relaxation capability
- Surface tack allows pre-assembly

Product Construction

3M™ Thermally Conductive Interface Silicone Pad 5514-20 (25)



Removable Film liner
Thermally conductive silicone elastomer
Removable Film liner

Standard thickness (excluding liner): 0.2 (0.25) mm

Application Ideas

- IC Packaging Heat Conduction
- Printed Circuit Board
- Spacer for Battery Module/Pack
- Heat Sink by Aluminum, other metal and ceramic
- COF Chip Heat Conduction
- LED 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.

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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.

3M™ Thermally Conductive Interface Silicone Pad 5514-20 / 5514-25				
Property	Method	Value		
Thickness (mm)		0.2 / 0.25 (±0.025mm)		
Thermal Conductivity (W/mK)*	QTM-500	1.6		
Flammability*	UL 94	V-0 (Passed 3M Internal FR Test)		
Density (g/cm ³ , @ 25°C)*	TS-TM-441	2.4 (±0.25)		
Hardness (Shore 00)*	ASTM D2240	55 (±10)		
Volume Resistivity (Ω-cm)*	ASTM D257	8.6 x 10 ¹³		
Dielectric Strength (kV/mm)*	ASTM D149	14.1		
Dielectric Constant*	ASTM D150	100 Hz	1 KHz	1 Mhz
		15.7	15.7	15.6

*3M™ Thermally Conductive Interface Silicone Pad 5514-25 tested.

Heat resistance of 3M™ Thermally Conductive Interface Silicone Pad 5514-25

Duration	Initial	100	500	1000
Thermal Conductivity (W/mK)	1.6	1.6	1.6	1.6
Hardness (Shore 00)	56	56	56	56
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.

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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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