Science. Applied to Life.™

Technical Data | April 2019

3M™ Thermally Conductive Acrylic Interface Pad 5570N

Product Description

3M™ Thermally Conductive Acrylic Interface Pad 5570N is designed to provide a preferential heat transfer path between heat generating components like integrated circuit chips (IC) or electric vehicle (EV) batteries and heat spreaders. 3M™ Thermally Conductive Acrylic Interface Pad 5570N consists of a highly conformable, slightly tacky acrylic elastomer sheet filled with thermally conductive ceramic particles which provide special features listed as follows.

Key Features and Benefits

- Easy handling and soft
- Highly conformability even for non-flat integrated circuit (IC) surfaces and automotive batteries
- Good thermal conductivity while being electrically insulating
- Slight tack allows pre-assembly. Good wettability for better thermal conductivity
- No siloxane gas/oil bleeding, which can cause electric connection failure

Product Construction/Material Description

PET liner
Thermally conductive conformable layer
PET liner

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

3M™ Thermally Conductive Acrylic Interface Pad 5570N	
Property	**Value**
Color	White with light gray dots
Base resin	Acrylic
Pad Thickness	0.5, 1.0, 1.5, 2.0 mm (thicker pads available upon request)
Primary Filler Type	Ceramic
Product Liner	PET Film
Roll Length	Standard: 33 M Custom size can be supplied by user requests.

Applications

- Heat transfer in consumer electronics and automotive electronics
- Decrease of compression stress to electronic parts by thermal pad softness

Examples:

  - Heat transfer between PCB and heat sink
  - Thermal management electric vehicle/hybrid battery for automotive
  - Power electronics component thermal management

3M™ Thermally Conductive Acrylic Interface Pad 5570N

- Chip on film (COF) heat conduction
- LED thermal management
- HDTV IC chip
- General gap filling in electronic device

Application Techniques

- Substrate surfaces should be clean and dry prior to pad application. Isopropyl alcohol (isopropanol) applied with a lint free wipe or swab should be adequate for removing surface contamination such as dust or finger prints. Do not use "denatured alcohol" or glass cleaners which often contain oily components. Allow the surface to dry for several minutes before applying the pad. More aggressive solvents (such as acetone, methyl ethyl ketone (MEK) or toluene) may be required to remove heavier contamination (grease, machine oils, solder flux, etc.) but should be followed by a final isopropanol wipe as described above.
- Be sure to read and follow the manufacturers' precautions and directions when using primers and solvents.
- Apply the thermal pad to one substrate at a modest angle with the use of a squeegee, rubber roller or finger pressure to help reduce the potential for air entrapment under the thermal pad during application.
- Ideal application temperature range is from 15°C to 40°C. Initial application to surfaces at temperatures below 10°C is not recommended because the pad becomes too firm to be wetted readily. However, once properly applied, low temperature performance is generally satisfactory.

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. Final product specifications and testing methods will be outlined in the products Certificate of Analysis (COA) that is shipped with the product.

3M™ Thermally Conductive Acrylic Interface Pad 5570N		
Property	**Method[1]**	**Typical Value**
Thermal conductivity (W/m-K)	ASTM D5470	1.1
	ATSTM C113	1.3
Hardness (Shore 00)	ASTM D2240	50
Density (grams/cm^3)	ASTM D6111	1.75
Flammability 0.5 mm thickness 1.0 - 2.0 mm thicknesses	UL 94*[1]	 V-2 V-0
Dielectric Strength (kV/mm)	ASTM D149	20
Volume Resistivity (Ω-cm)	ASTM D257	2.9 x 10^{12}

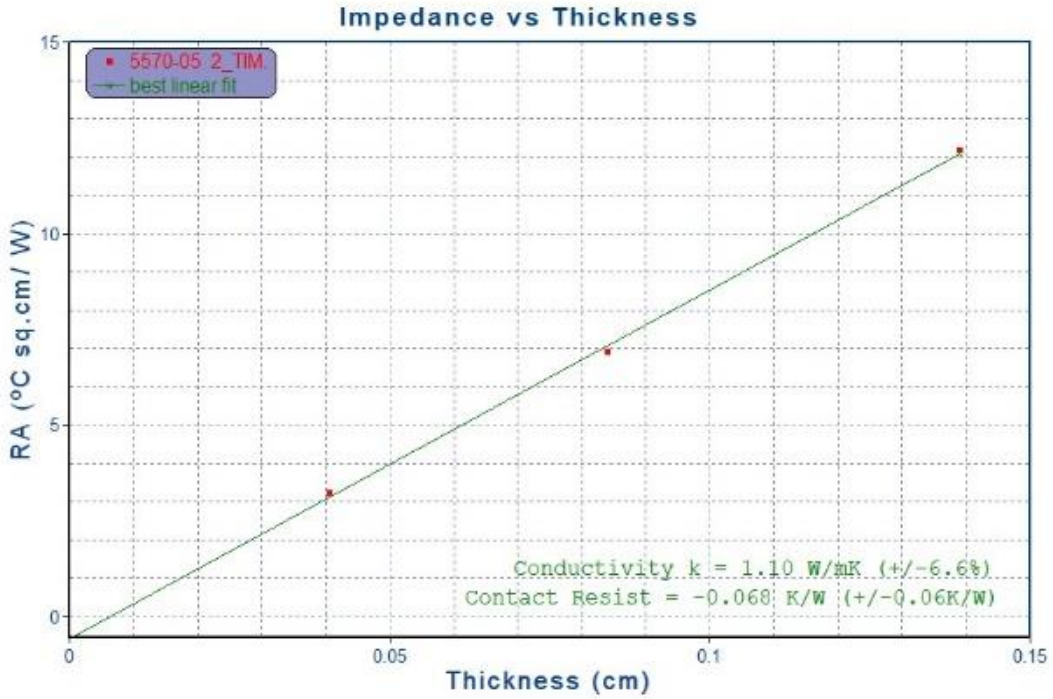
Methods listed as ASTM are tested in accordance with the ASTM method noted
*1 UL Certification QMFZ2.E239181

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Final product specifications and testing methods will be outlined in the products Certificate of Analysis (COA) that is shipped with the commercialized product. This value is a measured value, not a guaranteed value.

3M™ Thermally Conductive Acrylic Interface Pad 5570N Heat Resistance[2,3]				
Duration (hrs.)	**Initial**	**1000**	**2000**	**5000**
Thermal Conductivity (W/m-K)	1.3	1.4	1.4	1.4
Hardness (Shore 00)	48	49	50	50
Appearance	-	No effect	No effect	No effect

[2]Aged by dwelling at 110°C high temperature chamber
[3]The end use customer application, design and verification testing will determine the final in-use effective temperature range based on each application's environmental conditions

3M™ Thermally Conductive Acrylic Interface Pad 5570N



Storage and Shelf Life

The shelf life of 3M™ Thermally Conductive Acrylic Interface Pad 5570N is 12 months from the date of manufacture when stored in the original packaging materials and stored at 21°C (70°F) and 50% relative humidity.

Certificate of Analysis (COA)

The 3M Certificate of Analysis (COA) for this product is established when the product is commercially available from 3M. The commercially available product will have a COA specification established. The COA contains the 3M specifications and test methods for the products performance limits that the product will be supplied against. The 3M product is supplied to 3M COA test specifications and the COA test methods. Contact your local 3M representative for this product's COA.

This technical data sheet may contain preliminary data and may not match the COA specification limits and/or test methods that may be used for COA purposes. Final product specifications and testing methods will be outlined in the products Certificate of Analysis (COA) that is shipped with the commercialized product.

3M™ Thermally Conductive Acrylic Interface Pad 5570N

Regulatory: For regulatory information about this product, contact your 3M representative.

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.

Warranty, Limited Remedy, and Disclaimer: Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M Product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

3M™ Thermally Conductive Acrylic Interface Pad 5570N

Electronics Materials Solutions Division
3M Center, Building 224-3N-11
St. Paul, MN 55144-1000
1-800-251-8634 phone
651-778-4244 fax
www.3M.com/electronics

3M is a trademark of 3M Company.
Please recycle.
©3M 2019. All rights reserved.
60-5002-0918-8