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Technical Data | September 2016

# 3M™ Thermally Conductive Silicone Interface Pad 5584

## Product Description

3M™ Thermally Conductive Silicone Interface Pad 5584 is designed to provide a preferential heat transfer path between heat generating components and heat sinks, heat spreaders or other cooling devices. 3M pad 5584 consists of a highly conformable and slightly tacky silicone elastomeric sheet filled with thermally conductive ceramic particles that provide enhanced thermal conductivity and excellent electrical insulation performance.

## Key Features

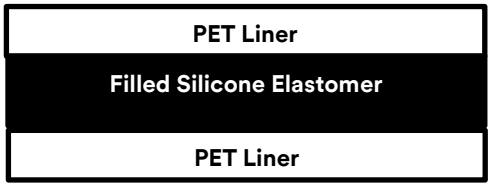
- Good softness and conformability even to non-flat surfaces
- Good thermal conductivity
- Good electrical insulation properties
- Compression relaxation properties helps reduce pressure to electric components
- Slight tack allows pre-assembly
- Good wettability for improved and lower thermal resistance

## Product Construction/Material Description

**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 Silicone Interface Pad 5584 | |
|---|---|
| **Property** | **Value** |
| Color | White |
| Base resin | Silicone |
| Thickness | 0.5 - 2.0 mm* |
| Primary filler | Ceramic |
| Product liner | PET Film Liners |

* Standard thickness range. Custom thickness options available up to 10 mm. Contact your local 3M Technical Representative for more information.




## Applications

- Integrated circuit (IC) chip packaging heat conduction
- Heat sink interface
- Chip on film (COF) heat conduction
- LED board thermal interface material (TIM)
- HD TV IC chip
- General gap filling in electronic devices

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## Application Techniques

Substrate surfaces should be clean and dry prior to the thermal pad application to ensure best thermal performance. A clean surface can improve the thermal performance of an application.

- Isopropyl alcohol (isopropanol) applied with a lint-free wipe or swab should be adequate for removing surface contamination such as dust or fingerprints. Do not use "denatured alcohol" or glass cleaners, which often contain oily components. Allow the surface to dry for several minutes before applying the thermal pad. More aggressive solvents (such as acetone, methyl ethyl ketone (MEK) or toluene) may be required to remove heavier contamination (such as grease, machine oils, solder flux) but should be followed by a final isopropanol wipe as described above.

  **Note:** Be sure to read and follow the manufacturers' precautions and directions when using 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 its application.
- Remove the release liner before application.
- Assemble the part by applying compression to the substrates to ensure a good wetting of the substrate surfaces with the thermal pads. Rigid substrates are more difficult to assemble without air entrapment as most rigid parts are not flat. Flexible substrates can be assembled to rigid or flexible parts with much less concern about air entrapment because one of the flexible substrate can conform to the other substrates during application.

## 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 Silicone Interface Pad 5584** | | |
|---|---|---|
| **Property** | **Method[a]** | **Value** |
| **Thermal Conductivity (W/m-K)** | ASTM D5470 | 1.1 W/m-K |
| **Density (g/cm$^3$, @ 25°C)** | ASTM D6111 | 1.9 |
| **Operating Temperature Range**<br>Long Term (Weeks-Months)<br>Short Term (Hours-Days) | 3M test method | <br>-50°C to 125°C<br>-50°C to 160°C |
| **Shore 00[b]** | Modified ASTM D2240 | 40 ~ 50 |
| **Dielectric Breakdown** | Modified ASTM D149<br>(3M test method) | 7 KV/mm |
| **Volume Resistivity** | ASTM D257 | 3 x 10$^{12}$ Ohms |

[a]Methods listed as ASTM are tested in accordance with the ASTM method, or a modified version of the test noted
[b]Shore 00 results depend on test method and thickness of the sample tested. Typical results are in the 40-50 Shore 00 range @ 6 mm test thickness. Ask your 3M Technical Representative for more details on pad softness.

## Storage and Shelf Life

The shelf life of 3M™ Thermally Conductive Silicone Interface Pad 5584 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 and is shipped with the product. 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 3M Technical Representative for the COA for this product. This technical data sheet may contain preliminary data that is not within the COA specification limits and/or test methods used for COA purposes.

# 3M™ Thermally Conductive Silicone Interface Pad 5584

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

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