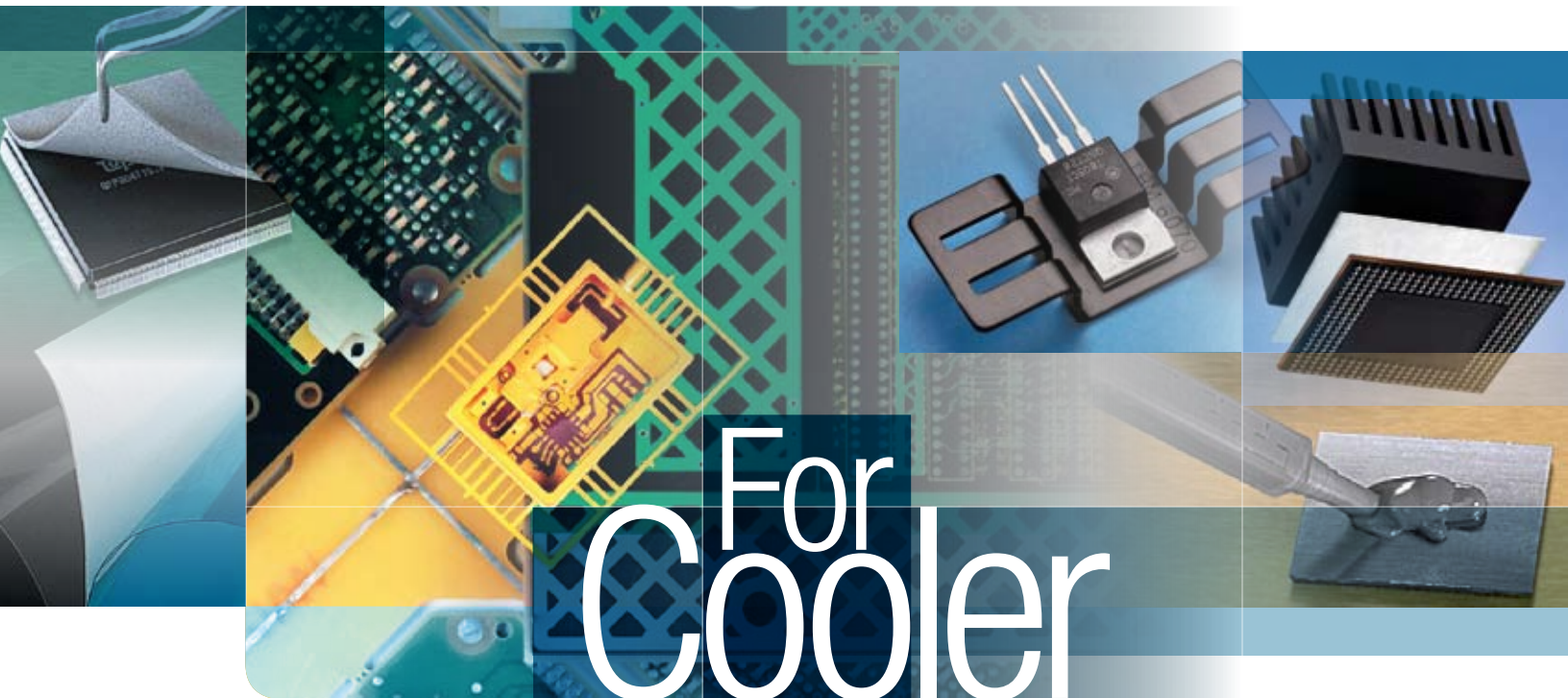


# 3M™ Thermally Conductive Silicone Interface Pads 5516/5516S, 5519/5519S, 5591S, 5592/5592S, 5595/5595S

For applications requiring gap filling and superior thermal performance



## For Cooler More Reliable Devices

**Used to transfer heat from hot surfaces or devices to cooler surface region of assembled devices.**

- Excellent conformability, gap filling property that provides excellent heat flow
- Excellent environmental durability
- Range of thermal performance to 150°C

Designed with a variety of thermal conductivities and softness grades.

Available with PET permanent film on one side

- Non-tacky surface eases rework and assembly
- Improves dielectric strength



## Selection Guide

| Product                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Description             |                                              |             |            | Adhesion/Shore 00 Softness                                                | Thermal Performance                   |                                                              | Dielectric Properties                           |                             | UL Flammability Rating | Potential Operating Temperature Range*** (°C)                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------|-------------|------------|---------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------|-------------------------------------------------|-----------------------------|------------------------|-----------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Base Material Type      | Product Thickness mil (mm)                   | Filler Type | Liner Type | Adhesion Characterization /// Shore 00 Testing based on TM 6mm Thickness  | Conductivity (W/m-K 3M ASTM D5470 TM) | Impedance**** (°C-in <sup>2</sup> /W (°C-cm <sup>2</sup> /W) | Dielectric Strength KV/mm (Film version tested) | Volume Resistivity (ohm/cm) |                        |                                                                       |
| 5516<br>5516S*<br>Soft Pad                                                                                                                                                                                                                                                                                                                                                                                                                                         | Filled Silicone Polymer | 20(0.5)<br>40(1.0)<br>60(1.5)<br>80(2.0)     | Ceramic     | PET        | No added adhesive layer. Pad is tacky and conformable /// Shore 00=73     | 3.1                                   | 0.31 (2.0)<br>0.53 (3.4)<br>0.76 (4.9)<br>0.98 (6.3)         | 3.1                                             | 6.9 x 10 <sup>14</sup>      | 3M V1 or VO TM**       | Short Term (Hours-Days): 150°C<br>Long Term (Weeks-Months): 100-125°C |
| Notes: *1) 3M Pad 5516S is Thermal Pad 5516 with a polymeric permanent film on one side to be used as a non-tacky surface for ease of reworking an assembly. Thermal Conductivity and Thermal Impedance are slightly changed with addition of the film, while Dielectric strength is improved. 2) Optional thicknesses >2.0mm are available. Call 3M for details.                                                                                                  |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |
| 5519<br>5519S*<br>Soft Pad                                                                                                                                                                                                                                                                                                                                                                                                                                         | Filled Silicone Polymer | 20 (0.5)<br>40 (1.0)<br>60 (1.5)<br>80 (2.0) | Ceramic     | PET        | No added adhesive layer. Pad is tacky and conformable /// Shore 00=80     | 4.1                                   | 0.29 (1.9)<br>0.48 (3.1)<br>0.65 (4.2)<br>0.82 (5.3)         | 3.1                                             | 6.9 x 10 <sup>14</sup>      | 3M V1/VO or VO TM**    | Short Term (Hours-Days): 150°C<br>Long Term (Weeks-Months): 100-125°C |
| Notes: *1) 3M Pad 5519S is Thermal Pad 5519 with a polymeric permanent film on one side to be used as a non-tacky surface for ease of reworking an assembly. Thermal Conductivity and Thermal Impedance are slightly changed with addition of the film, while Dielectric strength is improved. 2) Optional thicknesses >2.0mm are available. Call 3M for details.                                                                                                  |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |
| 5591S*<br>Ultra Soft Pad                                                                                                                                                                                                                                                                                                                                                                                                                                           | Filled Silicone Polymer | 20 (0.5)<br>40 (1.0)<br>60 (1.5)<br>80 (2.0) | Ceramic     | PET        | No Added adhesive layer. Pad is tacky and conformable /// Shore 00=10-15  | 1.0                                   | 1.14 (7.3)<br>1.92 (12.4)<br>2.71 (17.5)<br>3.49 (22.5)      | 7.9                                             | 2.0 X 10 <sup>12</sup>      | 3M V1 or VO TM**       | Short Term (Hours-Days): 150°C<br>Long Term (Weeks-Months): 100-125°C |
| Notes: *1) 3M Pad 5591S has a 12µm PET permanent film on one side to be used as a non-tacky surface for ease of reworking an assembly. 2) 3M Pad 5591S is available in the 0.5mm -2.0mm thickness. 3) Optional thicknesses > 2.0mm are available. Call 3M for details.                                                                                                                                                                                             |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |
| 5592<br>5592S*<br>Soft Pad                                                                                                                                                                                                                                                                                                                                                                                                                                         | Filled Silicone Polymer | 20 (0.5)<br>40 (1.0)<br>60 (1.5)<br>80 (2.0) | Ceramic     | PET        | No added adhesive layer. Pad is tacky and conformable /// Shore 00=40-50  | 1.1                                   | 0.64 (4.1)<br>1.15 (7.4)<br>1.66 (10.7)<br>2.43 (15.7)       | 14.7                                            | 3.0 X 10 <sup>12</sup>      | 3M V1 or VO TM**       | Short Term (Hours-Days): 150°C<br>Long Term (Weeks-Months): 100-125°C |
| Notes: *1) 3M Pad 5592S is Thermal Pad 5592 with a 12µm PET permanent film on one side to be used as a non-tacky surface for ease of reworking an assembly. Thermal Conductivity and Thermal Impedance are slightly changed with addition of the PET film, while Dielectric strength is improved. 2) 3M Pad 5592S is available in the 0.5mm -2.0mm thickness. 3M Pad 5592 1.0-2.0mm thickness. 3) Optional thicknesses > 2.0mm are available. Call 3M for details. |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |
| 5595<br>5595S*<br>Soft Pad                                                                                                                                                                                                                                                                                                                                                                                                                                         | Filled Silicone Polymer | 20 (0.5)<br>40 (1.0)<br>60 (1.5)<br>80 (2.0) | Ceramic     | PET        | No added adhesive layer. Pad is tacky and conformable /// Shore 00= 50-60 | 1.6                                   | 0.70 (4.5)<br>1.21 (7.8)<br>1.71 (11.0)<br>2.22 (14.3)       | 15.7                                            | 5.0 X 10 <sup>12</sup>      | 3M V1 or VO TM**       | Short Term (Hours-Days): 150°C<br>Long Term (Weeks-Months): 100-125°C |
| Notes: *1) 3M Pad 5595S is Thermal Pad 5595 with a 12µm PET permanent film on one side to be used as a non-tacky surface for ease of reworking an assembly. Thermal Conductivity and Thermal Impedance are slightly changed with addition of the PET film, while Dielectric strength is improved. 2) 3M Pad 5595S is available in the 0.5mm -2.0mm thickness. 3M Pad 5595 1.0-2.0mm thickness. 3) Optional thicknesses > 2.0mm are available. Call 3M for details. |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |
| ** 3M V1 or VO TM Notes: 1) Test results based on 3M UL Test Method. 2) The 3M V1 TM testing applies to the 0.5mm thick products in the "S" version.                                                                                                                                                                                                                                                                                                               |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |
| **** Thermal impedance is measured with the test sample under a nominal 10psi pressure to reflect a typical end use application.                                                                                                                                                                                                                                                                                                                                   |                         |                                              |             |            |                                                                           |                                       |                                                              |                                                 |                             |                        |                                                                       |

**Important Notice:** Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

**Warranty; Limited Remedy; Limited Liability:** 3M's product warranty is stated in its Product Literature available upon request. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.



### Electronics Markets Materials Division

3M Center, Building 225-3S-06  
St. Paul, MN 55144-1000  
www.3M.com/electronics  
1-800-251-8634

Please recycle. Printed in USA.  
© 3M 2009. All rights reserved.  
Issued: 8/09 6994 (HB)  
60-5002-0427-0

3M is trademark of 3M Company.  
Used under license by 3M  
subsidiaries and affiliates.