

3M™ Electrically Conductive Gasket Tape MSG6000F Series

Product Description

3M™ Electrically Conductive Gasket Tape MSG6000F Series consists of a conductive fabric, highly conductive grey foam, and black pressure sensitive adhesive (PSA). It offers excellent grounding performance between substrates and also has high EMI shielding performance. The PSA tack properties make 3M tape series MSG6000F easy to use in assembly operations and offer good adhesion to common metals such as copper, aluminum, stainless steel and smooth conductive substrates.

3M tape series MSG6000F is designed for use in applications that require good conductivity, compressibility and resilience. This tape series will help secure a reliable conductive connection for ESD grounding or form a close conductive enclosure to achieve a good EMI shielding performance.

3M tape series MSG6000F is effective for EMI shielding over a wide range of frequencies from several tens of megahertz to tens of gigahertz. This tape series is a great solution for many mobile hand held devices, including mobile phones, portable digital cameras, and laptops, that need grounding reinforcement or better shielding.

3M™ Electrically Conductive Gasket Tape MSG6000F Series has three thickness options. Standard width is 400 mm. Please contact 3M to review custom width and length options.

3M™ Electrically Conductive Gasket Tape MSG6000F Series

Product Number	Thickness (mm)
MSG6030F	0.3
MSG6060F	0.6
MSG6100F	1.0

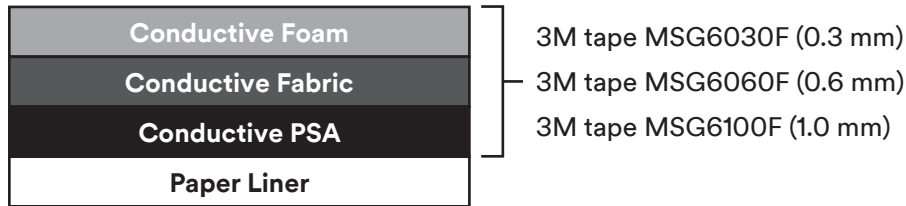
Key Features

- Conductive Foam laminated with fabric allows large compression for wide gap range use
- 3M conductive acrylic pressure sensitive adhesive has high adhesion and good XYZ-axis conductivity
- Removable liner for easy handling and die-cutting
- Halogen-free*

* Halogen Free is defined as having maximum 900 ppm bromine, maximum 900 ppm chlorine, and maximum 1500 ppm total bromine and chlorine, per IEC 61249-2-21.

3M™ Electrically Conductive Gasket Tape MSG6000F Series

3M™ Electrically Conductive Gasket Tape MSG6000F Series



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™ Electrically Conductive Gasket Tape MSG6000F Series

Property	Value
Adhesive Type	Black Conductive Acrylic Pressure Sensitive Adhesive
Carrier Type	Conductive Foam Laminated with Conductive Fabric
Foam Type	Polyurethane Plated with Cu/Ni
Tape Thickness	3M tape MSG6030F 0.3 mm nominal (typical thickness tolerance 0.2 mm - 0.4 mm) 3M tape MSG6060F 0.6 mm nominal (typical thickness tolerance 0.45 mm - 0.8 mm) 3M tape MSG6100F 1.0 mm nominal (typical thickness tolerance 0.85 mm - 1.2 mm)
Liner Type & Color	White PCK with “3M Electronics” logo in red and transparent PET liner

Applications

- Applications that require a good conductivity, compressibility and resilience to secure a reliable conductive connection
- For ESD grounding or form a close conductive enclosure to achieve a good EMI shielding performance
- Mobile handheld devices including mobile phones, portable digital cameras, and laptops

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 commercialized product.

3M™ Electrically Conductive Gasket Tape MSG6000F Series

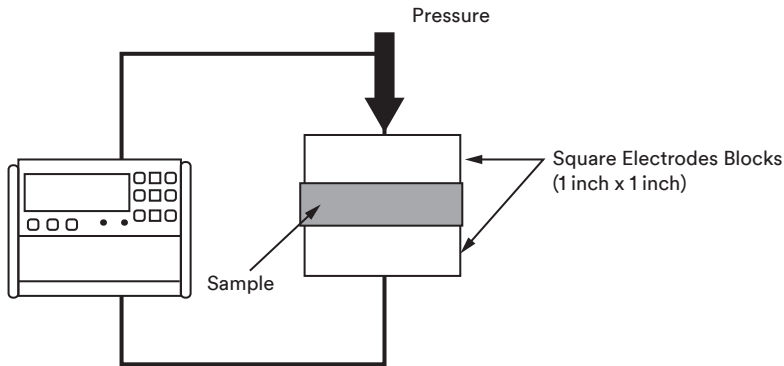
Property	Test Method*	MSG6030F	MSG6060F	MSG6100F
90° Peel Adhesion (dwell 20 min @ RT)	ASTM D3330 (Adhesion to SUS)	0.3N/mm	0.3N/mm	0.3N/mm
Shielding Effectiveness	ASTM D4935	80dB	80dB	80dB
Contact Resistance through Adhesive	ETM-11	≤ 0.03Ω/inch ²	≤ 0.03Ω/inch ²	≤ 0.03Ω/inch ²

*Methods listed as ASTM are tested in accordance with the ASTM method noted; 3M test method ETM-11 as described below

3M™ Electrically Conductive Gasket Tape MSG6000F Series

3M Test Method ETM-11 - Contact Electrical Resistance Test

ETM-11, maintained at 5 psi (3.4N/cm²) measured on 1 square inch surface area, CR Unit: Ω/inch²

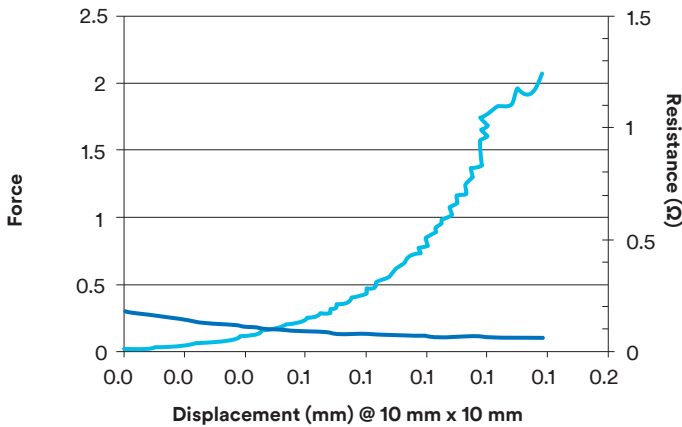


Typical Operating Temperature Range**	Long Term (days-weeks): 85°C (185°F)	3M Test Method
	Short Term (Minutes-hours): 121°C (250°F)	

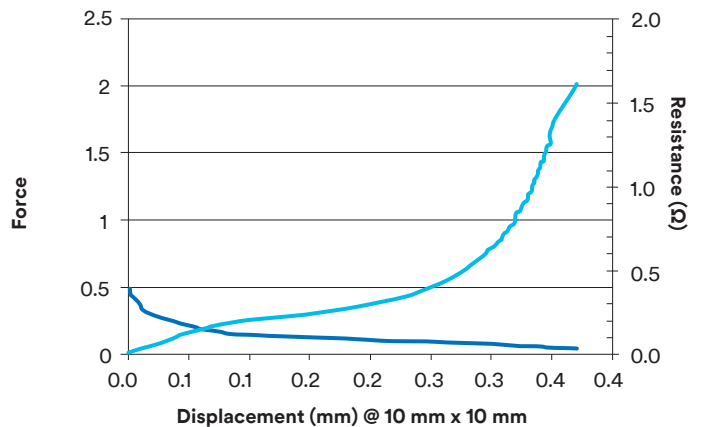
**It is not suggested for excessive high or low temperature excursions where the application performance might be compromised. The user is recommended to conduct application evaluation to determine the fit-for-purpose of tape in their design.

Force-Displacement-Resistance (FDR) Measurement Curves

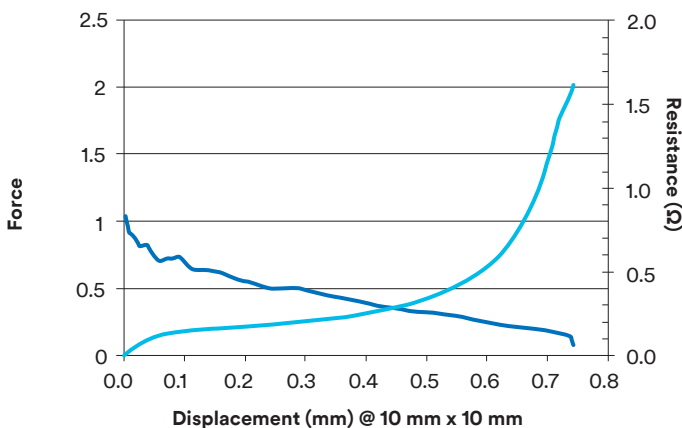
MPa Kgf **3M Tape MSG6030F FDR Curve**



MPa Kgf **3M Tape MSG6060F FDR Curve**



MPa Kgf **3M Tape MSG6100F FDR Curve**



3M™ Electrically Conductive Gasket Tape MSG6000F Series

Application Guide

The bond strength of 3M™ Electrically Conductive Gasket Tape MSG6000F Series depends on the amount of adhesive-to-surface contact developed during application and substrate type and surface conditions.

1. Firm application pressure helps develop better wet-out and adhesive contact and may lead to improved bond strength as well as electrical conductivity. Pressure must be applied to the bond area after assembly to ensure sufficient wet-out of the adhesive to the substrates and to engage the conductive acrylic adhesive fillers with the substrates to make electrical connection. Mechanical pressure (roller, metal bar) or finger pressure at 5-15 psi. (Optimally the application conditions are determined via a set of Design of experiments (DOE) using a range of application pressure, dwell time and temperatures (suggested initial range might include 5-15psi, 2-5 seconds, 21°C - 38°C).
2. Heat may be applied simultaneously with pressure to improve wetting, final bond strength and electrical conductivity. Suggested temperature range to evaluate is in the 38°C - 60°C range.
3. To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane.
4. Adhesion builds with time, up to 24 to 72 hours may be required to reach final adhesion values.

Note: Carefully read and follow the manufacturer's precautions and directions for use when working with solvents. Tape application below 10°C (50°F) is not suggested. Once properly applied, low temperature holding power is generally satisfactory.

Storage and Shelf Life

The shelf life of 3M™ Electrically Conductive Gasket Tape MSG6000F Series 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™ Electrically Conductive Gasket Tape MSG6000F Series

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.



Electronics Materials Solutions Division

3M Center, Building 224-3N-11
St. Paul, MN 55144-1000

Phone 1-800-251-8634
Fax 651-778-4244
Web www.3M.com/electronics

3M is a trademark of 3M Company.
Please recycle.
©3M 2016. All rights reserved.
60-5002-0916-2