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3M™ Metal Shielding Gasket Tape MSG6100

Product Description

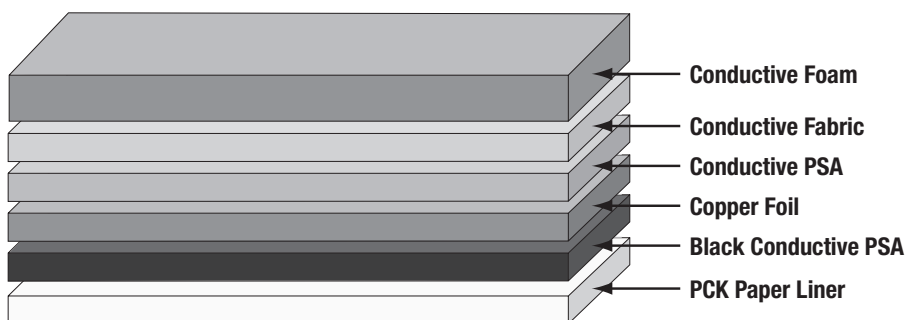
3M™ Metal Shielding Gasket Tape MSG6100 is a conductive tape structure intended for ESD grounding and EMI shielding. It consists of a soft copper foil and highly conductive foam coated with electrically conductive ferromagnetic material.

3M tape MSG6100 is available in standard and custom widths and lengths. Standard width is 400mm. Please contact your 3M representative to review custom width and length options.

Features and Benefits

- Excellent conductivity for both X-Y and Z-Axis direction
- Good ESD grounding and EMI shielding performance
- Large compressible range for gap filling
- Copper foil with foam backing designed to provide good EMI shielding function
- Excellent reliability after accelerated aging test
- Conductive acrylic pressure sensitive adhesive
- Supplied with a removable release liner for easy handling, compressibility and die-cutting into various shapes

Product Structure



Product Construction/Material Description

3M™ Metal Shielding Gasket Tape MSG6100	
Color	Grey
Carrier Type	Conductive Foam laminated with conductive foil
Adhesive Type	Conductive acrylic pressure sensitive adhesive
Tape Thickness	1.0 mm nominal (typical thickness tolerance 0.8mm-1.4mm)
Liner, Color, Type	White PCK with “3M Electronics” logo in red



Applications

3M™ Metal Shielding Gasket Tape MSG6100 is typically used for applications that require good conductivity, compressibility and resilience to secure a reliable conductive connection for ESD grounding or form a closed conductive enclosure to achieve a good EMI shielding performance.

3M tape MSG6100 is effective on EMI shielding over a wide range of frequencies from several tens of MHz to GHz. The gasket is an ideal product for use in many kinds of mobile hand held equipment like mobile phones, portable digital cameras, laptops and other electronic devices that need grounding reinforcement or better shielding. MSG foams do not provide an environmental barrier as they are an open cell structure.

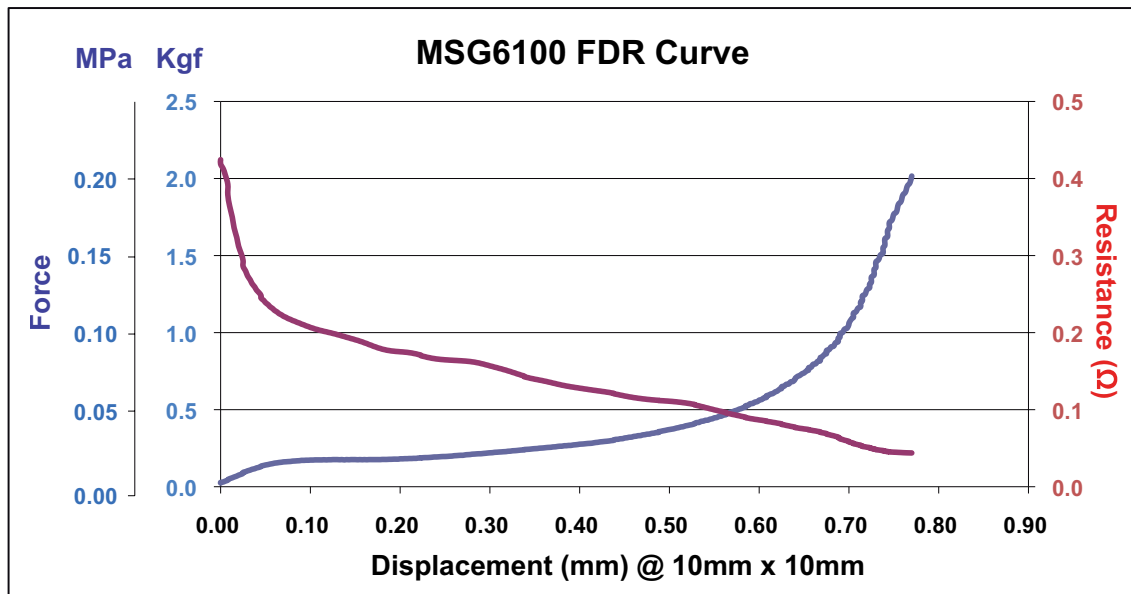
Typical Physical Properties and Performance Characteristics

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

Property	Value	Test ¹
90° Peel Adhesion	50 N/100mm (20 minutes @ RT)	ASTM D 3330
Surface Resistance of Backing	≤ 0.2Ω/inch ²	3M Test Method
Z-Axis: Electrical Resistance through Adhesive (1"x 1")	≤ 0.05Ω	3M Test Method
Operating Temperature Range Typical ²	85°C (185°F) for Long Term (days, weeks)	ASTM D792
	121°C (250°F) for Short Term (minutes, hours)	
Shelf Life	See TDS Storage and Shelf Life section	3M Test Method

¹ Test data results based on a 3M "For reference only material testing" set-up for a similar test method to the ASTM method.

² 3M tape MSG6100 is not suggested for excessive high or low temperature excursions where the application performance might be compromised.



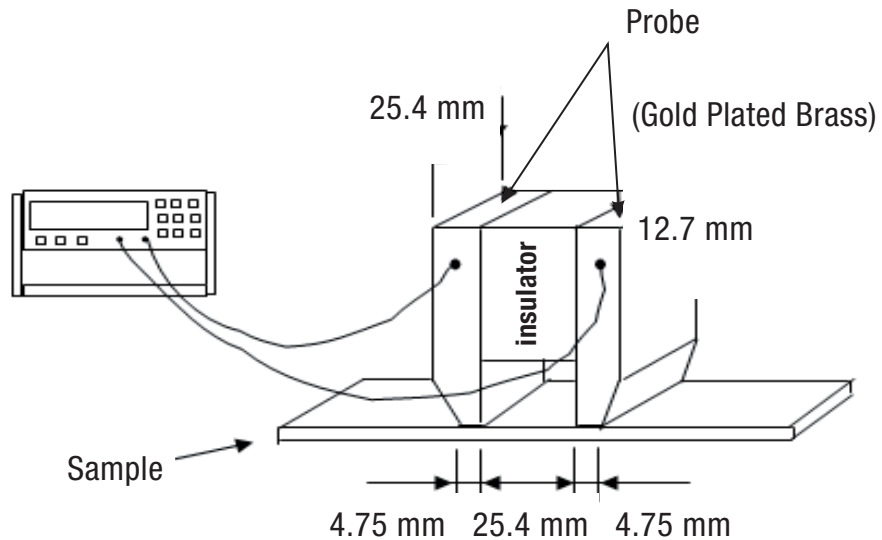
Contact Resistance vs. Displacement and Pressure Force

3M Conductivity Test Methods

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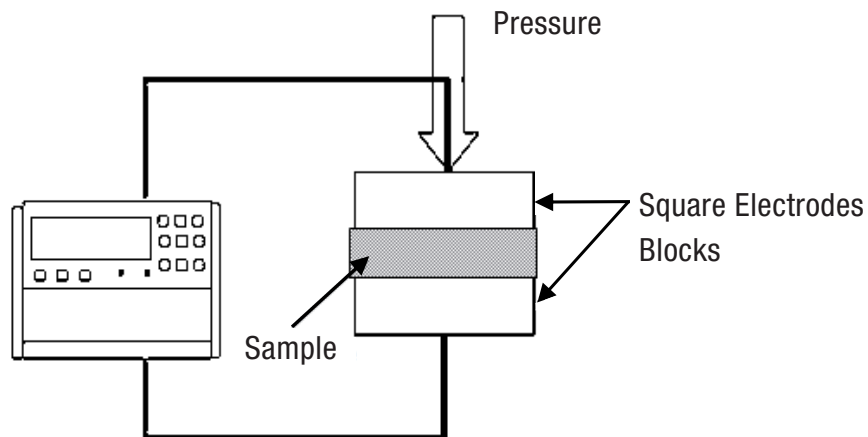
1. Surface Electrical Resistance Test Method

Test data results based on a 3M “For reference only material testing” set-up for a similar test method to the MIL-G-83528 Surface Probe, Surface Resistance on a Material, SR Unit: Ω/inch^2



2. Contact Electrical Resistance Test Method

Test data results based on a 3M “For reference only material testing” set-up for a similar test method to the MIL-STD-202 Method 307 maintained at 5 psi ($3.4\text{N}/\text{cm}^2$) measured on 1 square inch surface area, CR Unit: Ω/inch^2



Application Techniques

The bond strength of 3M™ Metal Shielding Gasket Tape MSG6100 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 3M tape MSG6100 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 pressures, dwell time and temperatures (suggested initial range might include 5 - 15 psi, 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 heptanes.

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™ Metal Shielding Gasket Tape MSG6100 is 12 months from the date of manufacture when stored in original shipping packaging at 21°C (70°F) and 50% relative humidity.

Safety Data Sheet

Consult product Safety Data Sheet prior to use.

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.

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