3M™ Electrically Conductive Cushion Gasket Tape
ECG7033H • ECG7053H • ECG7073H

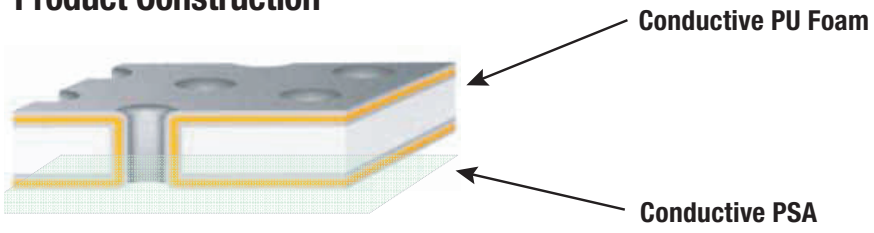
Product Description

3M™ Electrically Conductive Cushion Gasket Tapes ECG7033H, ECG7053H, and ECG7073H are electrically conductive compressible gasket tapes in a single coated tape format with good electrical conductivity and excellent cushion/ recovery properties. The 3M ECG7000H Series tapes offer excellent gap filling performance while maintaining good electrical grounding potential. These products offer conductivity through the thickness (Z-axis) & in the plane of the adhesive (X-Y planes) and are ideal for EMI/EMC gasket tape applications between common substrates, such as metal surfaces (including metal plated substrates). These products consist of a soft & conductive polymeric foam gasket and thin electrically conductive adhesive tape laminated on mesh fabric side (liner side) of the cushion gasket. The conductive adhesive is a high performance 3M™ Electrically Conductive Adhesive Transfer Tapes (ECATT).

The 3M ECG7000H Series tapes are useful for EMI/ RFI shielding & grounding in electronics and electrical devices. The 3M ECG7000H Series tapes may be applied in strips or die cut to specific shapes and sizes. Compared to screws or other mechanical connectors and grounding means, the 3M ECG7000H Series tapes can provide for reduced assembly time and a solid bond line with no bond line gaps which might result in EMI emissions.

3M ECG7000H Series tapes are supplied in a 3M logo printed paper liner configuration for easy handling and convenient die-cutting properties. 3M ECG7000H Series tapes are available in standard size and custom sizes (widths and lengths).

Product Construction



Product Construction (continued)

Product	3M™ Electrically Conductive Gasket Tape ECG7000H Series
Carrier Type	Plated Polyurethane Foam
Adhesive Type	Soft Acrylic PSA
Filler Type	Nickel Particles
Tape Thickness	ECG7033H : 0.32 ± 0.05mm ECG7053H : 0.52 ± 0.07mm ECG7073H : 0.72 ± 0.08mm
Release Liner	PE coated Paper Liner (Light grey color 3M logo printed)
Roll Length	Standard: 50MT Custom size can be supplied by request

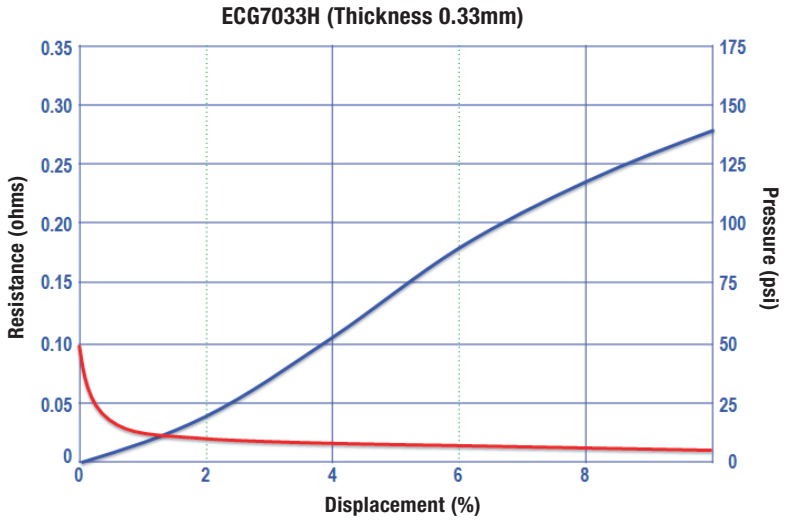
Typical Physical Properties and Performance Characteristics

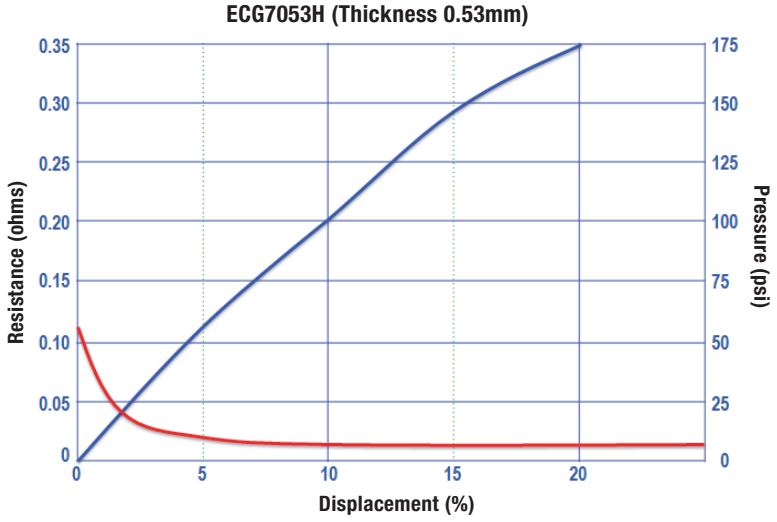
Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

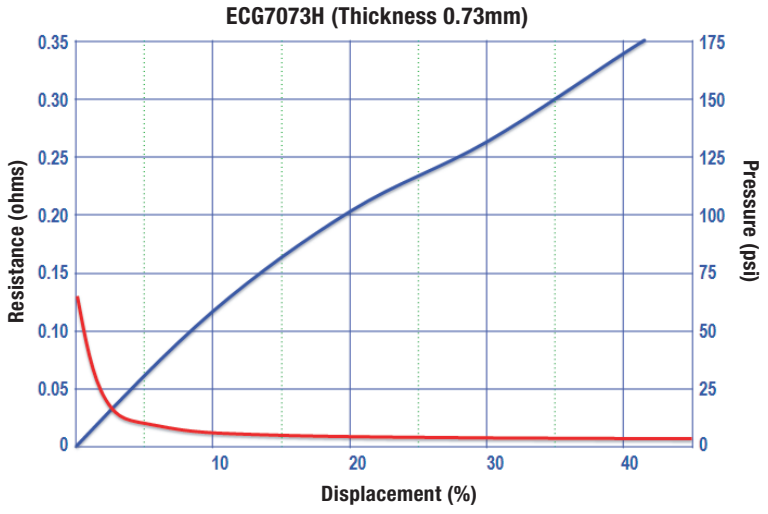
	Product No. 3M™ ECG7000H Series	Test Method
Electrical Properties		
Z-axis Resistance[1] (1 inch x 1 inch)	< 0.05 Ω	3M TS-EMC-0001
Z-axis Resistance[2] (10 mm x 10 mm)	< 0.1 Ω	3M TS-EMC-0001
Surface Resistance[3]	< 0.1 Ω/□	3M TS-KOR-939
Outgassing	Total Mass Loss (TML) : 1.0% Collected Volatile Condensed Material (CVCM) : 0.02% Water Vapor Recovered (WVR) : 0.3%	ASTM E-595
Minimum Overlap Length	3.0mm	
Minimum Overlap Width	3.0mm	
Thermal Property		
Thermal Conductivity	0.9W/m-K	QTM-500
Adhesion Properties		
180° Peel Adhesion[4]	500gf/25mm	3M TS-EMC-0002

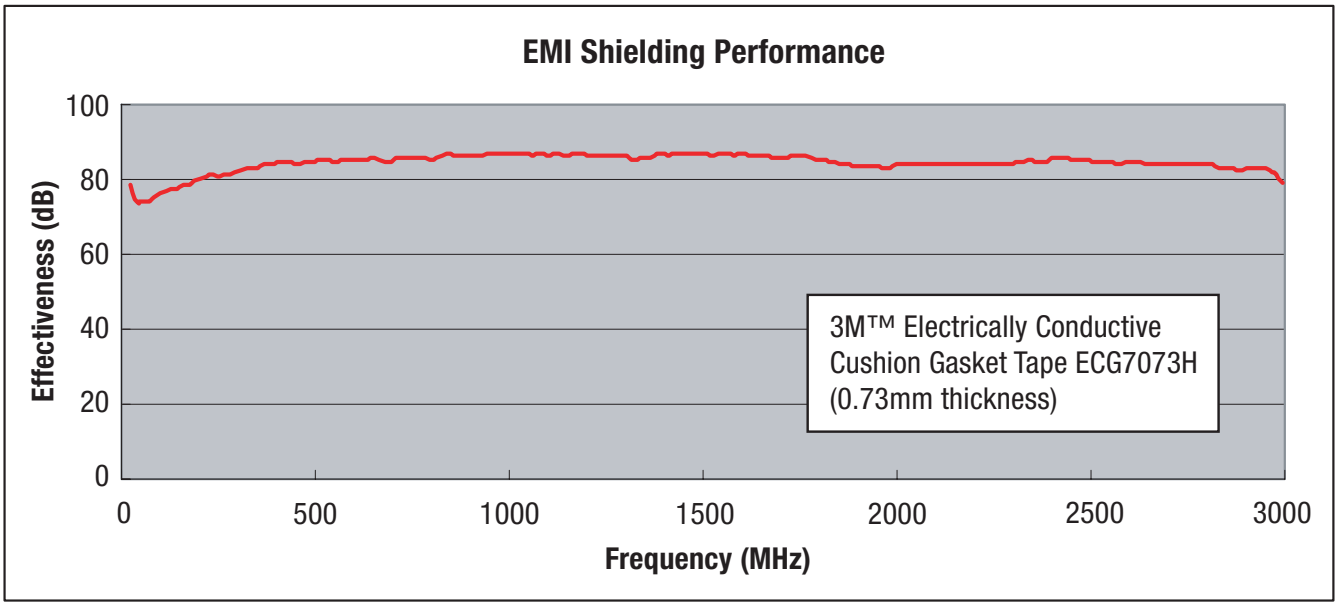
Force-Displacement-Resistance Characteristics

Contact Size: 10mm x 10mm square









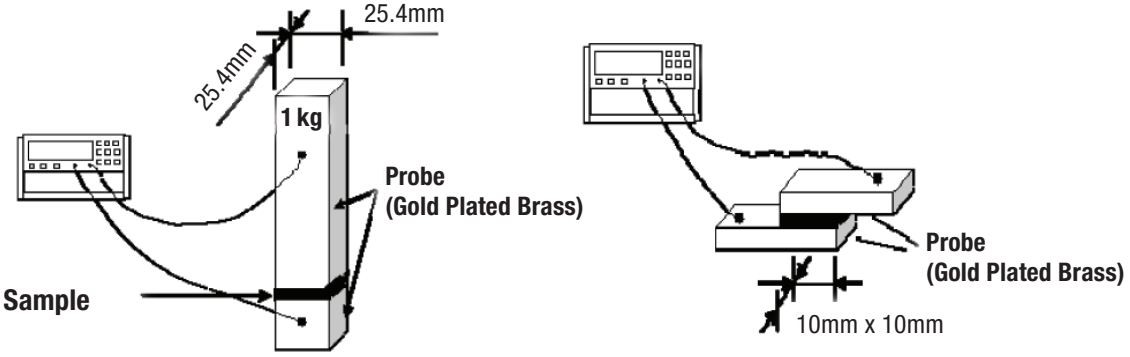
Operating Temperature Range & Shelf Life

Short Term Exposure (minutes, hours)	Long Term Exposure (days, weeks)
125°C	80°C
Shelf Life of Tape in Roll Form:	12 months from date of manufacture when stored in original packaging and stored at 23°C and 50% relative humidity.

[1]Z-axis Resistance: Measured between gold plated brass probes with 1 kg load. Contact area: 25.4 mm x 25.4 mm, Dwell time: 60 seconds.

[2]Z-axis Resistance: Measured between gold plated brass probes without load. Contact area: 10 mm x 10 mm, Dwell time: 60 seconds.

[3]Surface Resistance: Cu Plate size 25 mm x 25 mm. Dwell time: 10 seconds.



[4]180° Peel Adhesion (FS): 25 mm W x 200 mm L size sample, SUS substrate, Cross-head speed - 305 mm/min. Test after 1 day dwelling at RT.

Application Techniques

- To obtain maximum adhesion, the bonding surfaces must be clean and dry. Isopropyl alcohol is suggested as a cleaning solvent.*
- Bond strength is dependent upon the amount of adhesive-to-surface contact developed during application. The contact area can be increased by a roller roll down or finger pressure to exclude air entrapment. Adhesion is optimized when the substrates are flat or conformable substrates.
- Electrical performance is dependent upon the nature of the substrate surface finish and surface type (Stainless steel, Aluminum, etc.). Most metal surfaces give enhanced electrical performance with 3M™ Electrically Conductive Cushion Gasket Tapes ECG7033H, ECG7053H, and ECG7073H when the surface has been lightly abraded and cleaned. Scotch-Brite™ pads are suggested for preparing the metal surface.
- 3M ECG7000H Series tapes should be applied between 17°C - 35°C. Tape application below 10°C is not suggested because the adhesive will be too firm to wet the substrates, resulting in low adhesion. Warming the substrates to 38°C facilitates adhesion. Once properly applied, low temperature holding power is generally satisfactory.
- 3M ECG7000H Series tapes can be removed by separating the parts using torque for rigid parts or peel for flexible ones. Remove the adhesive by pulling off as much as possible by hand is suggested. Residual adhesive may be removed by rubbing with your finger or by application of 3M™ Packaging Tape over the residual adhesive followed by removal of the packaging tape. The surfaces should be cleaned again before applying a new piece of 3M ECG7000H Series tape. The force required to separate the parts and/or remove the adhesive can be reduced by softening the adhesive by heating to 70°C - 100°C or using solvents such as acetone.*

***Note:** Carefully read and follow the manufacturer's precautions and directions for use when handling cleaning solvents.

General Information

3M ECG7000H Series tapes provide good adhesion to most metal surfaces and provides good electrical resistance to many substrates. The pressure sensitive nature and fiber reinforcement of 3M ECG7000H Series tapes make this product convenient to use and 3M ECG7000H Series tapes also have very good handling properties including good liner release.

Application Ideas

3M ECG7000H Series tapes are typically used for applications requiring excellent EMI shielding, flexibility/gap filling in applied space, contact grounding and a mechanical cushion to protect from mechanical shock/vibration in the electronic devices.

- Grounding Mobile Hand Held and Flat Panel Display.
- Key pads and display modules in Mobile Hand Held devices and Flat panel display as LCD and PDP need to be electrically attached to the grounding mechanism.
- Assembly of EMI Cage, Metal Case & Frame in Modern Electronic Devices and High Speed Telecommunication Equipment.
- Assembly of cover case and main frame parts
- EMI cage to PCB (printed circuit board). The EMI cages are typically constructed from aluminum frames and lids to protect components on the PCB from EMI/RFI. 3M ECG7000H Series tapes are applied as a die cut in the shape of the perimeter, then the frame is bonded to the perimeter trace.

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.

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