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XYZ-Axis Electrically Conductive Tape 9725

Preliminary Technical Data

October 2008

Developmental Status Notice

3M™ XYZ-Axis Electrically Conductive Tape 9725 is a 3M developmental product. It is currently available on a limited basis and is only provided for evaluation in qualified applications.

Product Description

3M™ XYZ-Axis Electrically Conductive Tape 9725 is an isotropically electrical conductive tape. It consists of conductive acrylic pressure sensitive adhesive loaded with conductive nonwoven. The result is a double-sided tape providing both high adhesion and very good electrical conductivity. The conductive nonwoven in Tape 9725 also provides improved handling characteristics.

Tape 9725 conducts electricity through the thickness (Z-axis) and in the plane of the adhesive (X, Y planes), it is ideal for EMI shields and EMI gasket attachment to electronic and electrical devices. It may be used with many types of foil laminate shields to provide a customized shielding solution. This tape may also be used to attach conductive fabric/foam core EMI gaskets to electronic cabinetry.

Construction

Product	9725
Adhesive adhesive	Conductive acrylic based pressure sensitive adhesive
Carrier Type	Conductive nonwoven
Tape Thickness	2 mil (50 µm)
Liner Color, Type, Print	White PCK with white 3M logo
Liner Caliper	5mil (130 µm)

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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	9725
Adhesion -180 degree peel strength to stainless steel (Modified ASTM D3330 180 degree, 2 mil PET as backing)	Oz/in (N/100mm)
- 20 minutes@RT	46(50)
- 24 hours@RT	52(57)
- 72 hours@RT	61(66)

Operative temperature ranges*:

Long Term (days, weeks)	158 ° F (70°C)
Short Term (minutes, hours)	250 ° F (121°C)

*Tape 9725 is not recommended for uncertain high or low temperature excursions where the electrical performance might be compromised, even if holding power is not affected. The user is responsible for the temperature performance qualification of Tape 9725 in their design.

Electrical conductivity

Electrical resistance through adhesive* < 0.02Ω/inch²

*3M internal test method: Based upon general resistance measurements made with crossed pieces of Foil/tape/foil construction using a 1.0 in x 1.0 in square piece of Tape 9725.

Shelf Life of Tape in Roll Form	24 months from date of manufacture when stored in original cartons at 70° F (21°C) and 50% relative humidity.
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Application Techniques

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improves bond strength as well as electrical conductivity. Pressure must be applied to the bond line after assembly to wet the substrates with 3MTM XYZ-Axis Electrically Conductive Tape 9725 and to engage the conductive nonwoven with the substrates to make electrical connection. Mechanical pressure (roller, metal bar) or finger pressure at 15 psi (0.10 Mpa) or greater is suggested. Heat may be applied simultaneously to improve wetting and final bond strength as well as electrical conductivity. To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane.

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Note: Carefully read and follow the manufacturer's precautions and directions for use when working with solvents.

Ideal tape application temperature range is 61°F to 100°F (16°C to 38°C). Tape application below 50°F (10°C) is not recommended because the adhesive will be too firm to wet the substrates, resulting in low adhesion and poor electrical conductivity. Once properly applied, low temperature holding power is generally satisfactory.

General Information

Tape 9725 provides good adhesion to metal surfaces and provides low electrical resistance that is stable over time. The pressure sensitive nature and fiber reinforcement of Tape 9725 makes this product convenient to use and shows good handling properties.

Application Ideas

Tape 9725 is ideal for attaching foil laminate EMI shields and EMI gaskets to electronic and electrical devices. These shields typically consist of either copper or aluminum foils and the gaskets typically consist of conductive fabric over a foam core. Tape 9725 may be applied in strips or die cut to specific shapes and sizes to meet the design.

Certification/Recognition

MSDS: 3M has not prepared a MSDS for the products which are not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. **TSCA:** The product is defined as articles under the Toxic Substances Control Act and therefore, is exempt from inventory listing requirements.

Important Notice

3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

Limitation of Remedies and Liability

If the 3M product is proved to be defective, the exclusive remedy, at 3M's option, shall be to refund the purchase price of or to repair or replace the defective 3M product. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including, but not limited to, contract, negligence, warranty, or strict liability.

ISO 9002

This product was manufactured under a 3M quality system registered to ISO 9002 standards.

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No.8 Xing Yi Road, Shanghai
200336 P.R.C.