3M™ EMI Shielding and Grounding Foil Tape AL39UL

Product Description

3M™ EMI Shielding and Grounding Foil Tape AL39UL is a single side conductive foil tape which consists of a black PET film laminated aluminum foil backing and conductive nonwoven embedded PSA. The PSA with embedded conductive nonwoven not only provides volume-conductivity and reliably contacts to small surfaces but also enhances the physical properties of the tape for good workability.

Application

- 3M™ EMI Shielding and Grounding Foil Tape AL39UL is typically used for applications requiring excellent electrical conductivity between the application substrates through the adhesive and needs insulation on top of the tape. The black surface of the backing provides anti-reflection property on light exposal.
- Common uses include grounding and EMI shielding in equipment, components, shielded rooms, etc.

Construction

Product	3M™ EMI Shielding and Grounding Foil Tape AL39UL
Adhesive Type	Conductive nonwoven embedded acrylic adhesive
Tape Thicknes **- Tolerance**	0.060 mm +/-10%
Tape Color	Black
Carrier	PET Film laminated with aluminum foil
Release Liner	Single side Silicone treated PET film
Liner Thickness	0.050 mm
Roll Length	Standard: 500 mm x 100 m log roll 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	3M™ EMI Shielding and Grounding Foil Tape AL39UL
Peel Adhesion	1500 gf/inch
Electrical Resistance through adhesive	0.1 ohms
Shelf Life	12 months from date of manufacture when stored in original cartons at room temperature & 50% RH.

Application Techniques

Bonding

- To obtain maximum adhesion, the bonding surfaces must be clean and dry.
- Pressure must be applied to the bond line after assembly to wet the substrates with 3M™ EMI Shielding and Grounding Foil Tape AL39UL and to engage the conductive particles or fibers with the substrates to make electrical connection. Mechanical pressure (roller, metal bar) or finger pressure at 5 to 15 psi (0.03 to 0.10 Mpa) is suggested at 20°C (68°F) to 25°C (77°F). The end user may find through testing that a higher pressure could be more effective in their end use design to meet their specific design criteria. Heat may be applied simultaneously to improve wetting and final bond strength. **See Note A.**
- Tape AL39UL is suggested to be applied at a maximum temperature range not to exceed 60°F - 158°F (15°C - 70°C). Tape application below 50°F (10°C) is not suggested because the adhesive will be too firm to wet the surface of the substrate, resulting in low adhesion. **See Note A.**
- Adhesion builds with time, up to 24 to 72 hours may be required to reach final adhesion values.

Note A) Regarding the application of Temperature, Pressure and Time (T-P-T) during assembly and/or lamination: Care must be taken by the end user during assembly as the modulus of the tape will be reduced with the application of heat.

- An application method with ranges of not more than: 5-15 psi @ 15-70°C for 0.5-30 seconds is suggested as a set of initial evaluation ranges. An example of initial T-P-T that may be evaluated is: 8 psi applied via an assembly fixture using an air actuated pressure pad or roller (pad is a medium firm elastomer) for 0.5-3 seconds @ 23°C. The end user may find assembly T-P-T outside these limits works well in their unique application. The noted T-P-T is a suggested starting point of tape bonding criteria and will be influenced by Tape AL39UL part size, substrate types, substrate modulus, surface features, flatness, assembly fixtures, etc.
- Final bond strength and conductive performance will be impacted by how Temperature-Pressure-Time interact in an end use assembly method to the desired substrates.
- Care must be used to minimize excessive “Temperature-Pressure-Time” assembly methods as they are applied to the tape during assembly so that the conductive filler/acrylic adhesive matrix is not damaged leading to poor performance (ie: excessive squeeze-out of tape, filler-interface damage, minimize over compression and conductive filler/adhesive matrix damage.)
- A Design of Experiments (DOE) is suggested to establish the optimum bonding conditions for each application assembly.

Certification/Recognition

MSDS: 3M has not prepared a MSDS for this product which is not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, the product should not present a health and safety hazard. However, use or processing of the product in a manner not in accordance with the directions for use may affect its performance and present potential health and safety hazards.

TSCA: This product is defined as an article under the Toxic Substances Control Act and therefore, it is exempt from inventory listing requirements.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-251-8634. Address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 651-778-4244 or 1-877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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