

## 3M™ Electrically Conductive Adhesive Transfer Tape 9709SL

### Product Description

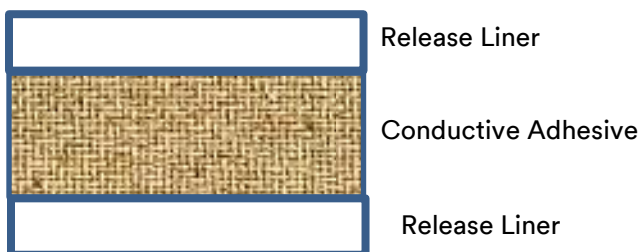
3M™ Electrically Conductive Adhesive Transfer Tape 9709SL is an electrically conductive pressure sensitive adhesive (PSA) conductive tape. 3M tape 9709SL consists of a unique conductive matrix (highly loaded silver based conductive fillers in acrylic adhesive) that allows for an electrically conductive PSA for grounding and attachment to certain surfaces. The product is an acrylic based adhesive solution and offers adhesion and grounding performance to many conductive surface types.

### Key Features

- Conformability and quick bonding
- EMI shielding in bond line gap
- 50 µm thickness to conform to non-flat surfaces
- Acrylic formulation provides compatibility to many surface types
- Handling and workability
- 3M™ Electrically Conductive Adhesive Transfer Tape 9707 is the high adhesion version of 3M tape 9709SL (medium adhesion)
- 3M tape 9709SL uses premium low peel force release liners

### Product Construction

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



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## Product Construction / Materials Descriptions

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3M™ Electrically Conductive Adhesive Transfer Tape 9709SL	
<b>Color</b>	Face Side: Gold metallic Back Side: Gold metallic
<b>Conductive Adhesive Type</b>	Acrylic Conductive Adhesive with silver based fillers
<b>Release Liners</b>	Easy Release Side: 100um poly coated kraft (PCK) liner Tight Release Side: 50um Transparent PET release liner

## 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 product's Certificate of Analysis (COA) that is shipped with the commercialized product.

3M™ Electrically Conductive Adhesive Transfer Tape 9709SL		
Property	Target Value	Test Method
Thickness	50 µm	ASTM D1000 <sup>a</sup>
Adhesion to Stainless Steel	825 gf/inch	ASTM D1000 <sup>a</sup>
Electrical Resistance through Z-axis	0.2 Ω	3M ETM-12 <sup>b</sup>

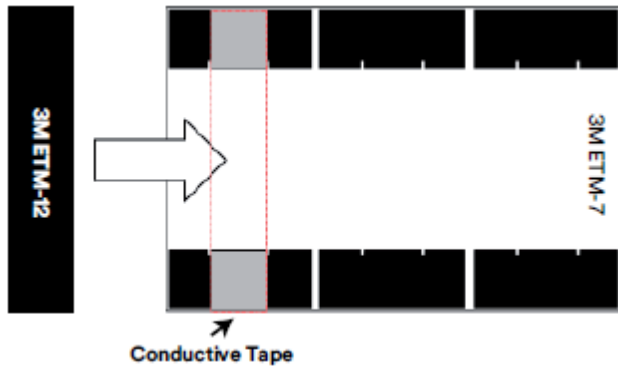
<sup>a</sup> Tested in accordance with modified ASTM D1000 test method.

<sup>b</sup> 3M test methods as described below.

## 3M ETM-12: Z-Axis Electrical Resistance through Adhesive

Place conductive tape pieces in 10 mm x 10 mm on the center of the electrodes on 3M ETM-7 testing board. Then place 3M ETM-12 testing board with the gold-plated side down on the tapes between electrodes. After initial hand lamination to provide for a 10 mm x 10 mm contact area between the tapes and electrodes, apply 2kg rubber roller across the tape one time. Application method simulates a typical manufacturing process that might be used to apply the tapes to a surface. After 20 minutes of dwell time, the DC resistance between the electrodes are measured with a micro-ohm meter. The resistance results are recorded after 5 ~ 30 seconds for initial resistance.

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## Shielding Effectiveness

Many factors determine the shielding effectiveness of a conductive adhesive tape, including type and thickness of the conductive layers, adhesive strength, degree of contact, smoothness of application surface, test frequency, etc. For 3M tape 9709SL, the typical shielding effectiveness is expected to be in the range of 30 dB to 50 dB, using a standard EMI shielding test methods and through the thickness of the sample tested.

## Typical Applications

3M™ Electrically Conductive Adhesive Transfer Tape 9709SL is typically used for applications requiring excellent electrical conductivity from the application substrate through the adhesive to a second substrate. Common uses include grounding and EMI shielding in equipment and components.

## Application Techniques

**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.

The bond strength of 3M™ Electrically Conductive Adhesive Transfer Tape 9709SL 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 9709SL 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 heptane.

## Storage and Shelf Life

The shelf life of 3M™ Electrically Conductive Adhesive Transfer Tape 9709SL is 24 months from the date of manufacture when stored in roll form, in the original packaging materials, and stored at 21°C (70°F) and 50% relative humidity.

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## **Certificate of Analysis (COA)**

The 3M Certificate of Analysis (COA) for this product is established when the product is manufactured and deemed commercially available from 3M. The COA contains the 3M test methods, specifications limits and test results for the product's performance attributes that the product will be supplied against. Contact your local 3M representative for this product's COA.

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