

3M™ Electrically Conductive Single-Sided Tape 5113SFT Series

Product Description

3M™ Electrically Conductive Single-Sided Tape 5113SFT Series is a family of XYZ-axis electrically conductive pressure sensitive adhesive (PSA) tapes. The tape consists of a conductive matrix carrier and a conductive PSA that is electrically conductive and is for PSA attachment to the desired grounding surfaces. The polyolefin PSA offers high adhesion, long shelf life and good grounding performance to many surface types. These tapes are useful for grounding, PSA attachment and EMI shielding designs.

Key Features

- XYZ-axis conductivity through the adhesive
- Excellent EMI shielding in bond line gap
- Excellent electrical contact to small size areas
- Long shelf-life and stable in humid environments

3M™ Electrically Conductive Single-Sided Tape 5113SFT



Product Construction/Material Description

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

3M™ Electrically Conductive Single-Sided Tape 5113SFT	
Property	Value
Color	Metallic
Conductive Adhesive Type	Polyolefin conductive adhesive
Release Liner	75 μm clear PET release liner

Note: The product is available in A4 sample sizes under Developmental Status. For other sizes, please contact your local 3M representative for more information.

Applications

- Typically used for applications requiring excellent electrical conductivity from the application substrate through the adhesive to a second substrate
- Grounding and EMI shielding in equipment and components

3M™ Electrically Conductive Single-Sided Tape 5113SFT

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 Single-Sided Tape 5113SFT Series 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 adhesive to the substrates and to engage the conductive polyolefin 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 pressure, 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.
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.

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 once it is approved by 3M for general commercialization and development work is completed.

3M™ Electrically Conductive Single-Sided Tape 5113SFT Series		
Property	Method*	5113SFT-50
Thickness	ASTM D1000 *	50 µm
Adhesion to SUS (gf/inch)	ASTM D1000 *	
20 min dwell		1300
24 hour dwell		1500
7 day dwell		1700
Electrical Resistance through XY-Axis	3M ETM-7 **	0.07 Ω

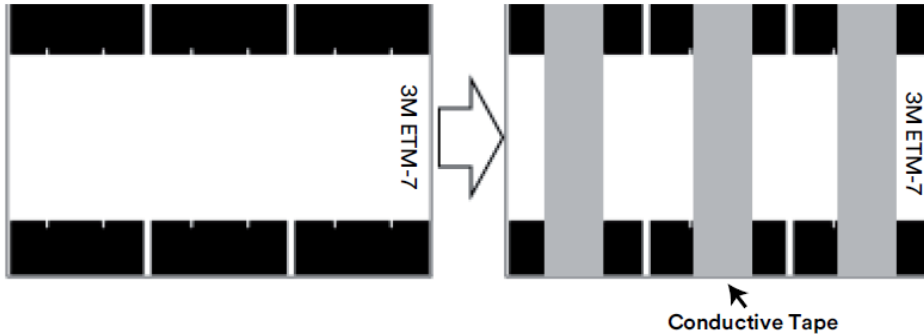
*Methods listed as ASTM are tested in accordance with the ASTM method noted

**3M test methods as described below

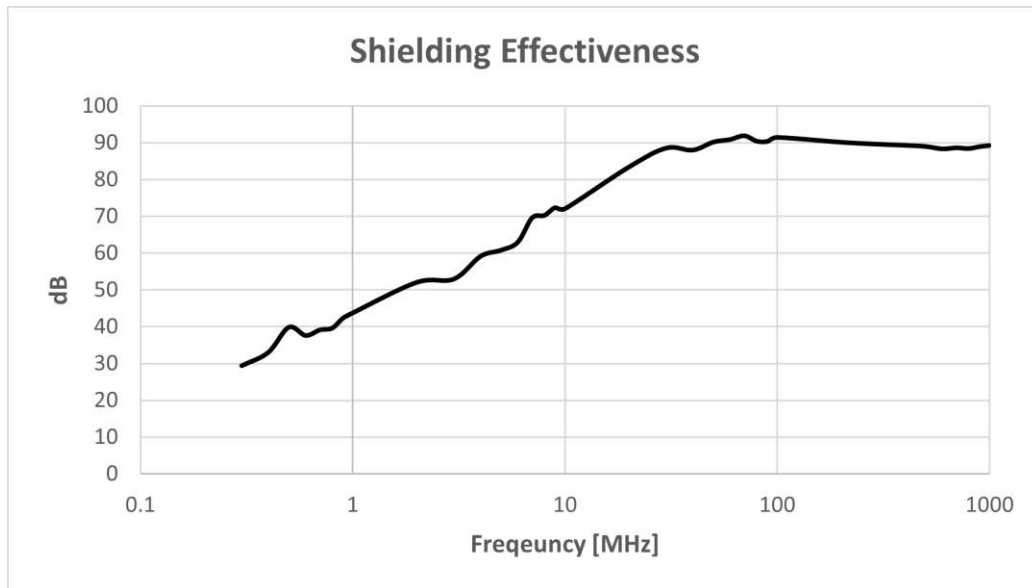
3M™ Electrically Conductive Single-Sided Tape 5113SFT

3M Test Method ETM-7: XY-Axis Electrical Resistance through Adhesive**

Place a strip of the single side conductive tape in 10 mm x 40 mm with adhesive side down between the electrodes on 3M ETM-7 testing board. After initial hand lamination to provide for a 10 mm x 10 mm contact area between the tape and electrodes, apply a 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 is measured with a micro-ohm meter. The resistance results are recorded after 5 ~ 30 seconds for initial resistance.



3M™ Electrically Conductive Single-Sided Tape 5113SFT Shielding Effectiveness



Typical Operating Temperature Range***

Long Term (days-weeks): 105°C (220°F)
Short Term (minutes-hours): 121°C (250°F)

3M Test Method

***It is not suggested for excessive high or low temperature excursions where the application performance might be compromised. The user is recommended to conduct application evaluation to determine the fit-for-purpose of tape in their design or application.

3M™ Electrically Conductive Single-Sided Tape 5113SFT

Storage and Shelf Life

The shelf life of 3M™ Electrically Conductive Single-Sided Tape 5113SFT is 48 months from the date of manufacture when stored in the original packaging materials and stored at 21°C (70°F) and 50% relative humidity.

Certificate of Analysis (COA)

The 3M Certificate of Analysis (COA) for this product is established when the product is manufactured and is deemed commercially available from 3M. The COA contains the 3M specifications, test methods 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.

This technical data sheet may contain preliminary data and may not match the COA specification limits and/or test methods that may be used for COA purposes.

Regulatory: For regulatory information about this product, contact your 3M representative.

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third-party intellectual property rights is granted or implied with this information.

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. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. **3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.** If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement or repair of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by applicable law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: For industrial use only. Not intended, labeled or packaged for consumer sale or use.



Electronics Materials Solutions Division
3M Center, Building 223-3S-32
St. Paul, MN 55144-1000
1-800-251-8634 phone
651-778-4244 fax
www.3M.com/electronics

3M is a trademark of 3M Company.
Please recycle.
©3M 2023. All rights reserved.
60-5005-0417-4

3M™ Electrically Conductive Single-Sided Tape 5113SFT