Preliminary Feb. 2018

3M™ Black Electrically Conductive Single-Sided Tape CEF-3BV(M)

Product Description

3M™ Black Electrically Conductive Single-Sided Tape CEF-3BV(M) consists of a Cu/Ni coated conductive polyester fabric and a unique electrically conductive pressure-sensitive acrylic adhesive. It offers excellent grounding performance between substrates and also has high EMI shielding performance, typically greater than 60dB in specific frequency.

3M™ Black Electrically Conductive Single-Sided Tape CEF-3BV(M) offer excellent handling characteristics, is thin in overall construction, allows for easy rework. It is available in standard and custom widths and lengths. Standard length is 50M. Please contact 3M to review custom width and length options.

Product Construction/Material Description

	EMI/EMC# CEF-3BV(M)
Color	Black
Carrier Type	Black Conductive Fabric (Copper/Nickel plated)
Adhesive Type	Black Conductive Acrylic Pressure Sensitive Adhesive
Tape Thickness	72 µm nominal (typical thickness tolerance 65µm -79µm)
Liner Color, Type	White PCK with “3M Electronics” logo in red



Features and Benefits

- Cu/Ni plated conductive fabric offer excellent conformability and shielding performance
- Higher adhesion for reliable bonding
- Optimized conductive acrylic adhesive has stable conductivity in small size area
- Good handling and die-cutting
- Halogen Free meets industry guidelines

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Applications

3M™ Black Electrically Conductive Single-Sided Tape CEF-3BV(M) is used for grounding and EMI shielding applications. 3M™ CEF-3BV(M) can be used to replace metal foil EMI shielding and grounding tapes in many application where improved conformability, tear resistance, puncture resistance, etc. may be needed.

The unique metalized fabric backing offers the benefits of excellent flexibility and conformability, very light weight, and exceptional strength. The fabric backing also offers superior tear resistance.

Typical Physical Properties and Performance Characteristics *

Property	Value	Test
180° Peel Adhesion (dwell, 20min, 60min@RT)	0.45 N/mm (Adhesion to SUS)	ASTM D 3330
Surface Resistance of adhesive	0.2 Ω/□ (Max. 0.5 Ω/□)	3M ETM-1
Operating Temperature Range Typical *	85°C (185 F) for Long Term (days, weeks) 121°C (250 F) for Short Term (minutes, hours)	
Shielding Effectiveness	>60Db	ASTM4935
Shelf Life	See TDS Storage and Shelf Life section	
Wear resistance	>400 cycle as 2KG Fabric Pressure	

Note *: 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.

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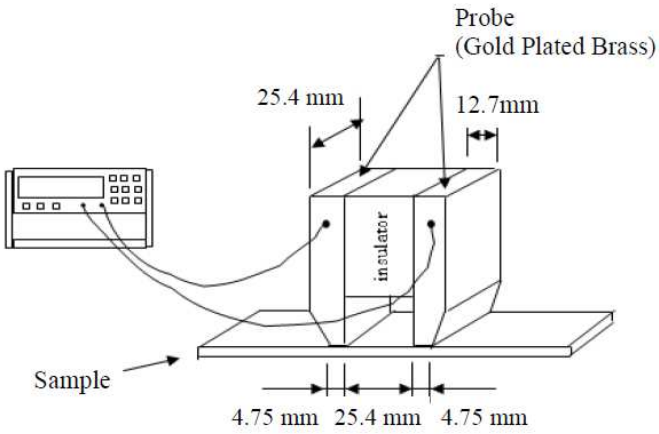
3M Conductivity Test Methods

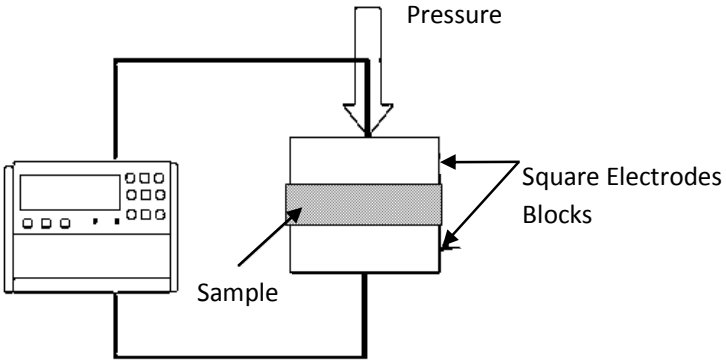
1. ETM-1 Surface Resistance Test Method

Place the gold plated block jig onto the backing or adhesive side of conductive tape, then start measuring the DC resistance between the electrodes with micro-ohm meter and record the resistance after 60 seconds (Refer to and modified MIL-G-83528).



2. ETM-11 Electrical Resistance through Adhesive Test Method

MIL-STD-202 Method 307 maintained at 5 psi (3.4N/cm2) measured on 1 square inch surface area, CR Unit : Ω/inch2



Application Techniques*

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3M™ Black Electrically Conductive Single-Sided Tape CEF-3BV(M) tape's bond strength 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 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 pressure, dwell time and temperatures (suggested initial range might include 5-15psi, 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.
4) Adhesion builds with time, up to 24 to72 hours may be required to reach final adhesion values.

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.

Environmental Performance

Agency Approvals & Self Certifications



RoHS 2011/65/EU

RoHS Compliant 2011/65/EU" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2011/65/EU, as amended by Commission Decision 2011/65/EU, unless the substance is in an application that is exempt under RoHS. This information represents 3M's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.

Storage and Shelf Life

Tape in roll form and stored in original shipping packaging: Shelf life is 12 months from the date

of manufacture when stored in original cartons at 21°C (70°F) and 50% relative humidity.

Regulatory (Certification/Recognition)

MSDS: 3M will prepare MSDS for the products which are 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.

For Additional Information

To request additional product information or to arrange for sales assistance, contact your local 3M Technical Service. In the P.R. China., address correspondence to: 3M, Electronics Markets Materials Division, 3M China R&D Center, No.222 TianLin Road, Shanghai, 200233. Our Phone Number: 021-22105335 for R&D reception transfer.

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