

3M™ Electrically Conductive Single-Sided Tape CEF-3BV

Product Description

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

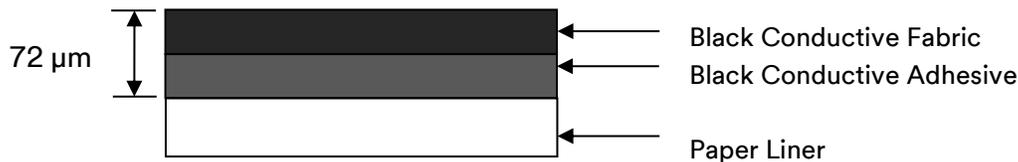
3M tape CEF-3BV offers excellent handling characteristics, is thin in overall construction and allows for easy rework. This tape is available in standard and custom widths and lengths. Standard length is 50 M. Please contact 3M to review custom width and length options.

Key Features

- 3M conductive acrylic adhesive offers high adhesion and good Z-axis conductivity
- Excellent conformability and quick bonding
- Good handling and workability
- Cu/Ni plated fabric offering excellent EMI/EMC shielding performance
- Halogen Free*

* Halogen Free is defined as having maximum 900 ppm bromine, maximum 900 ppm chlorine, and maximum 1500 ppm total bromine and chlorine, per IEC 61249-2-21.

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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 CEF-3BV | |
|---|---|
| Property | Value |
| Color | Black |
| Adhesive type | Black conductive acrylic pressure sensitive adhesive |
| Carrier type | Cu/Ni coated conductive polyester fabric |
| Tape thickness | 72 µm nominal (typical thickness tolerance 65 µm – 79 µm) |
| Liner type | White PCK with “3M Electronics” logo in red |

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Applications

3M™ Electrically Conductive Single-Sided Tape CEF-3BV is typically used for applications requiring excellent electrical conductivity and EMI/EMC shielding. Common uses include grounding and EMI shielding in equipment and components.

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

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 tape CEF-3BV 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 3M tape CEF-3BV 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.

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 products Certificate of Analysis (COA) that is shipped with the commercialized product.

| 3M™ Electrically Conductive Single-Sided Tape CEF-3BV | | |
|---|-----------|-------------|
| Property | Value | Test Method |
| 180° Peel adhesion (dwell 20 min @ RT) | 0.45 N/mm | ASTM D3330* |
| Surface resistance of adhesive side | 0.2 Ω | ETM-1** |
| Electrical resistance through adhesive | 0.4 Ω | ETM-7*** |
| Shielding effectiveness | 60 dB | ASTM 4935* |

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

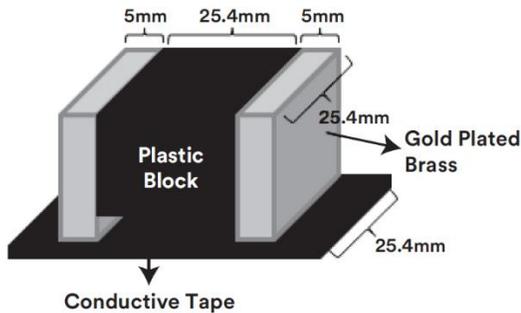
**3M Test Method: ETM-1 as described below

***3M Test Method: ETM-7 as described below

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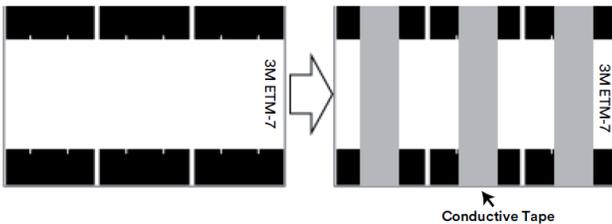
3M ETM-1: XY-Axis Electrical Resistance of Backing**

Prepare the tape strip in 25.4 mm width and place the adhesive side of the tape down on to a clean glass plate using light finger pressure. Place the gold-plated block jig (250 g weight) onto the backing side of conductive tape, then start measuring the DC resistance between the electrodes with micro-ohm meter and record the resistance after 15 ~ 60 seconds.



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

Place a strip of the single (double) 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 2 kg 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.



Storage and Shelf Life

The shelf life of 3M™ Electrically Conductive Single-Sided Tape CEF-3BV is 12 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 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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Safety Data Sheet: Consult Safety Data Sheet before use.

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

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Electronics Materials Solutions Division
3M Center, Building 224-3N-11
St. Paul, MN 55144-1000
1-800-251-8634 phone
651-778-4244 fax
www.3M.com/electronics

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