

3M™ Conductive and EMI Shielding Tapes



	Conductive-through-adhesive			Conductive adhesive	
3M™ Conductive/ Shielding Tape	1245 SDS DS UL	1267 SDS DS UL	1345 SDS DS UL	CN-3190 SDS DS	2191FR SDS DS UL
Features	Embossed copper foil, acrylic adhesive. ²	Embossed aluminum foil, acrylic adhesive. ²	Embossed tin-plated foil, acrylic adhesive. ²	Anti-corrosion metallized polyester rip-stop fabric, acrylic adhesive.	Anti-corrosion, metallized nonwoven rip-stop fabric, acrylic adhesive.
Roll Length³	18 yds	18 yds	18 yds	54.5 yds	-
Backing Thickness (mils)(mm)	1.4 mil (0,04 mm)	2.0 mil (0,05 mm)	1.4 mil (0,04 mm)	4.3 mil (0,11 mm)	5.2 mil (0,13 mm)
Total Thickness (mils)(mm)	4.0 mil (0,10 mm)	5.0 mil (0,13 mm)	4.0 mil (0,10 mm)	5.8 mil (0,14 mm)	5.3 mil (0,14 mm)
Breaking Strength (lb/in)(N/10 mm)	25 lb/in (44 N/10 mm)	20 lb/in (35 N/10 mm)	25 lb/in (44 N/10 mm)	40 lb/in (70 N/10 mm)	5.5 lbs/in (108 N/10 mm)
Adhesion to Steel⁴ (oz/in)(N/10 mm)	35 oz/in (3.8 N/10 mm)	35 oz/in (3.8 N/10 mm)	45 oz/in (5.0 N/10 mm)	30 oz/in (3.3 N/10 mm)	20 oz/in (2,1 N/10 mm)
Electrical Resistance⁶ (Ohms)	0.001	0.005	0.001	0.05	0.003 (over a 25×25 mm area)

¹ Conductive particles in the adhesive provide the electrically conductive path between the substrate and the backing.

² The embossed pattern provides the electrically conductive path through the adhesive.

³ Multiple-length rolls and custom slit widths are available by special order.

Test methods:

⁴ ASTM D 1000

⁵ Most foil shielding tapes from 3M are UL Recognized (UL) for flame retardancy per UL510A, Product Category OARC2, File E17385.

⁶ Resistance measured through the adhesive. MIL-STD-202 Method 307 maintained at 5 PSI (3,4 N/sq cm) measured over 1 sq in. surface area.

= Flame retardant. See page 15 for product specifications.



Tape Construction

Smooth foil backings with conductive adhesive

3M™ EMI Shielding Tapes 1170 (aluminum), 1181 (copper), and 1183 (tin-plated copper) are smooth-backed foil tapes that establish secure electrical contact with the application surface by means of a unique adhesive. Broadly distributed conductive particles in the adhesive provide a multitude of low-resistance paths between the backing and the substrate. (Figure 1)

Embossed foil backings

The backings of 3M Shielding Tapes 1245 (copper), 1267 (aluminum), and 1345 (tin-plated copper) are impressed with an embossed pattern (Figure 2) that protrudes through the acrylic adhesive to make direct electrical contact with the application surface. This reliable “through-the-adhesive” conductivity system provides stable contact resistance and a high level of shielding effectiveness.

Tin-plated foil backings

The copper used in 3M EMI Shielding Tapes 1183 (smooth backing) and 1345 (embossed backing) is plated on both sides with tin to provide excellent solderability and resistance to corrosion and oxidation, but will remain conductive if oxidation does occur.

Conductive adhesive on both sides

3M Shielding Tape 1182 is a copper foil tape coated on both sides with conductive acrylic adhesive. This unique construction offers an excellent method of grounding and bonding conductive surfaces. It also exhibits low thermal resistance. 3M tape 1182 is supplied with a removable liner on each side for ease of handling.

Smooth foil backing with nonconductive adhesive

3M Shielding Tape 1194 is a smooth-backed copper tape that features the same high quality solvent-resistant, acrylic adhesive as other 3M foil tapes. Good solderability makes it an economical choice for applications like connector and cable shielding, grounding, electrostatic shielding between transformer windings, outer wrap for coils, and attachment of connector tabs on rolled film-and-foil capacitors.

Conductive fabric tape

3M Fabric Tape CN-3190 is an anti-corrosion polyester ripstop fabric backing with an electrically conductive acrylic adhesive. It provides effective copper-nickel shielding with excellent flexibility and conformability as well as lightweight and high strength.

Adhesive

Both the conductive and nonconductive versions use the same acid-free, corrosion-resistant acrylic resin.

Figure 1 Smooth Backing with Conductive Adhesive

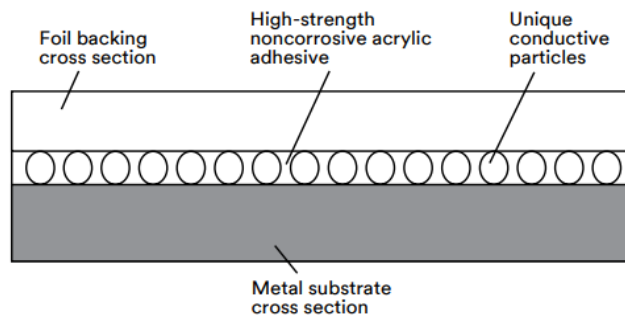


Figure 2 Embossed Backing with “Through-the-Adhesive” Contact

