

3M Science.
Applied to Life.™



Come in loud and clear.

3M™ EMI/EMC Materials

Solutions for protecting electronics from the effects of
electromagnetic interference and electrostatic discharge



Don't let unwanted frequencies interfere with device performance.

Excellent versatility

Our 3M™ EMI/EMC Materials are highly versatile and appropriate for diverse applications:

- Consumer electronics
- Servers and high performance computing equipment
- Communications infrastructure
- Defense electronics
- Automotive electronics

Safeguard your designs with 3M™ EMI/EMC Materials

Generated from common electronics and communications signals, thunderstorms and solar activity, electromagnetic frequencies and static electricity are part of everyday life. Though they are almost always present, these phenomena can interfere with electronic device performance, potentially causing errors or data loss.

Reduce interference – and help protect your customers' investments – by incorporating 3M™ EMI/EMC Materials into your products. These solutions block and/or absorb electromagnetic interference (EMI) from a wide variety of frequencies and sources to help keep electronics performing at their full potential. Complementing our EMI/EMC solutions, 3M offers Flux Field Directional Materials (FFDM) that are useful for magnetic shielding, wireless power charging and near field communications (NFC).

All-around solutions for tough EMI/EMC challenges



Solutions for shielding and grounding

Your designs require robust protection against EMI interference and electrostatic discharge (ESD) and our family of solutions for shielding and grounding can help. All are designed to be lightweight and require less space while delivering high conductivity and reliability.

- 3M™ Electrically Conductive Adhesive Transfer Tapes are designed to deliver a broad spectrum of performance including products with high EMI shielding in the bond line gap for high frequency attenuation, stable contact resistance and reliable electrical conductivity. Multiple thicknesses are available, including double-coated, non-woven and particle designs.
- 3M™ EMI Foil and Fabric Tapes offer shielding against a wide range of EMI frequencies. They are available in conductive fabric and foil backing options, and multi-layer laminate options (including PET, polymer films and foil) that offer increased toughness and external electrical insulation.
- 3M™ Electrically Conductive Cushioning Gasket Tapes are soft, conformable foam that adhere well to a wide variety of surfaces. They provide excellent electrical conductivity, EMI shielding and grounding.



Solutions for EMI absorption

Another way to protect electronics from EMI interference is to absorb the frequencies using materials incorporating specialized magnetic particles. Whether your application requires absorption of low or high frequencies, we have a 3M™ EMI Absorber with high performance in one or more of the key frequency ranges: 0.1-1.0 GHz, 1-6 GHz and greater than 6 GHz.

- 3M™ EMI Absorbers are designed to work to dissipate and absorb EMI at most common frequencies. High and low frequency options are available, and there are multiple thicknesses available to suit diverse applications. These materials are flexible and offer high permeability and magnetic loss in the targeted frequency range.
- 3M™ EMI Shielding Absorbers offer the benefits of EMI shielding and absorption together in one product for maximum protection. This solution includes an EMI absorber and an aluminum shielding layer plus an optional conductive adhesive for added grounding.



Solutions for NFC, WPC and magnetic shielding

Near field communication (NFC), radio frequency identification (RFID) and wireless power charging (WPC) antennas often face unique interference challenges and can be optimized for performance using Flux Field Directional Material (FFDM) solutions. These low profile solutions can help improve WPC efficiency and NFC or RFID read ranges. 3M FFDM solutions can also be used for magnetic field shielding to help protect sensitive electronics.

- 3M™ Flux Field Directional Materials are thin, with high magnetic permeability and low magnetic loss that help provide efficient flux field redirection for applications less than 20 MHz. Three different types of FFDMs are available from 3M:
 - o Composite, for maximum flexibility and lower cost
 - o Ferrite, for high performance across broad frequencies
 - o Nano-crystalline metal foil, for a thinner profile and high performance across low frequencies





Let's get started – together

Not sure which 3M EMI/EMC solution is right for your particular application? Our team of experienced professionals will help you select the right materials to help protect your devices from electromagnetic interference and electrostatic discharge (ESD). For applications with a high degree of complexity and individualized needs, we offer these materials in custom shapes, sizes and quantities.

Visit **3M.com/Electronics** to learn more and get started today.

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