

MAS-300 Series RF Absorbers

MagRAM RF Suppression in thin flexible sheets and rolls



MWT'S MAS-300 series are thin, flexible absorbers designed for the suppression of near field microwave surface currents over the frequency range of 0.01 to 16 GHz. MAS-300 products have scores of applications for analog and digital electronic devices, minimizing cross talk and interference.

These materials are available in two formats. Our most popular version is made with a urethane binder (MAS-310). This version has the best mechanical and bonding properties. We also produce a product with a silicone binder system (MAS-320). The main advantage of the silicone version is its large range of service temperatures (350° F [177°C] continuous with short term exposures to higher temperatures). Both versions are impervious to water and may be used outdoors. Special processing is employed such that no oxidation of iron ingredients is possible. The product is an economical alternative to ferrite loaded elastomers.

MAS-310 is useful for the suppression of surface (AKA travelling) waves, reduction of cavity resonance in microwave modules, side lobe suppression and is also useful in reducing RF coupling of antennas and microwave components. MAS-310 is flexible, permitting application to contoured surfaces. The product has a smooth surface, and can be exposed to outdoor environments as well as high altitudes, including space, with no adverse effects.

Optionally, both our MAS-300 products are available bonded to a 2 mil aluminum substrate and with peel and stick adhesive (PSA) on one or both sides. Both MAS-300 products can be die cut to your size specification, purchased in sheets, or in rolls up to 100 yards long.

Mechanical Properties:

Sheets: 30.5 cm² (12 in²) standard to 46 cm² (18 in²) on request.

Rolls: to 100 yards long.

Die cut: to size.

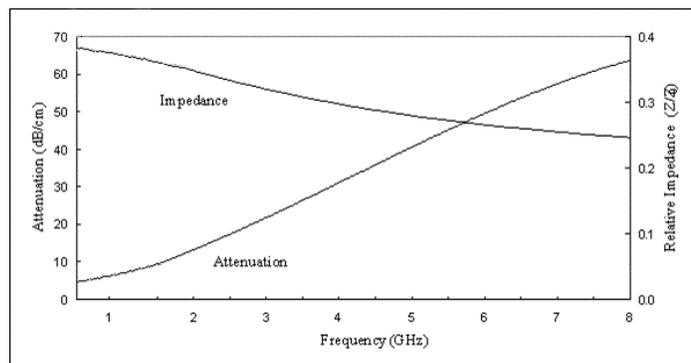
Thickness: 0.08 cm (0.030")

Electrical Performance (Insertion Loss):

48 dB/in @ 3 GHz

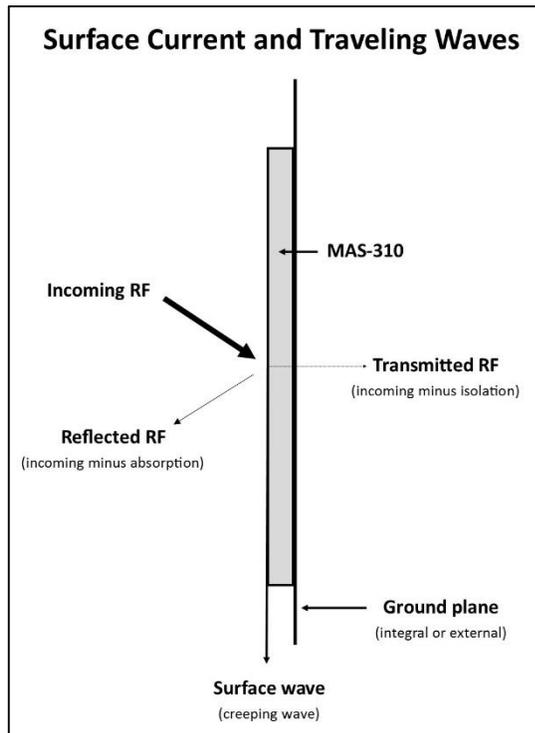
180 dB/in @ 10 GHz.

Attenuation and Impedance vs Frequency



Representative Properties from 0.01 to 8 GHz (10 to 8000 MHz)

| | |
|--|-----------------|
| Attenuation, dB/cm | 4.0 - 63.0 |
| Relative Impedance | 0.66 - 0.23 |
| Volume Resistivity, ohm-cm | 2×10^8 |
| Dielectric Strength, volts/mil | > 20 |
| Nominal Thickness, inches (mm) | 0.03 (0.8) |
| Nominal Weight lb/ft ² (kg/m ²) | 0.90 (4.4) |
| Hardness, Shore A | > 80 |
| Tensile Strength, PSI | > 500 |
| Elongation, % | > 23 |
| Thermal Conductivity (BTU)(in)/(hr) (ft ²)(°F) | 8.7 |
| (Cal)(cm)/(sec)(cm ²)(°C) | 0.003 |



An incident wave will excite surface currents (traveling waves) on a conductive surface. Due to non-specular behavior, a surface current can propagate along the surface. When the surface current encounters a discontinuity on the surface (break or gap) it can radiate. It is important to absorb the surface currents as they propagate. MWT's MAS-300 series products are magnetic absorbers which collect and subsequently attract and dissipate the magnetic portion of the surface wave. Surface wave absorbers act as a wave guide or conduit to guide and attenuate waves as they propagate. In order to function efficiently a ground plane (either integral or external to MAS-300 products) should be present. Side lobe suppression does not require a ground plane be present.