

## MAS-310

### Thin RFID Absorbing Sheets

#### Reduce crosstalk and enhance signal integrity



MWT'S MAS-310 thin, flexible urethane MagRAM absorber designed for the suppression of microwave surface currents over the range of 0.01 to 16 GHz (covering the RFID frequencies of 125 KHz through 13.56 MHz). This material can be applied between the RFID tag (or antenna) and the metal surface of the object being tracked. Our Tag Pads suppress interfering eddy currents between the metal surface and the antenna of the RFID tag. This increases the effective communication distance between the tag and the RFID reader system and can help reduce misreads of your RFID tags.

Our MAS-310 sheets can be applied directly to RFID antennas to control their beam width and direction.

Our RFID absorbing sheets are made with a urethane resin binder (or we can substitute a silicone for continuous service temperatures up to 350° F [177°C] and short term exposures to higher temperatures. Both versions are impervious to water, will not support fungal growth, and may be used outdoors. They are RoHS compliant. The product is flexible, permitting application to contoured surfaces. Special processing is employed such that no oxidation of active ingredients is possible.

MAS-310 is available bonded to a 2 mil aluminum substrate (ground plane) with peel and stick adhesive (PSA) on one or both sides. MAS-310 can also be die cut into RFID Tag Pads of your size specifications.

#### Mechanical Properties:

Sheets: 30.5 cm<sup>2</sup> (12 in<sup>2</sup>) standard to 46 cm<sup>2</sup> (18 in<sup>2</sup>) on request.

Rolls: to 100 yards long.

Die cut: to size.

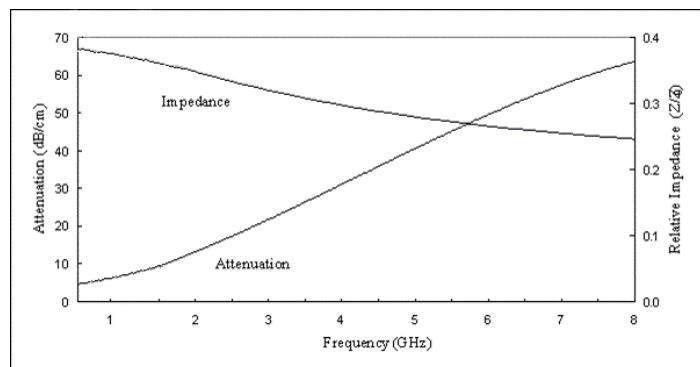
Thickness: 0.08 cm (0.030")

#### Electrical Performance (Insertion Loss):

48 dB/in @ 3 GHz

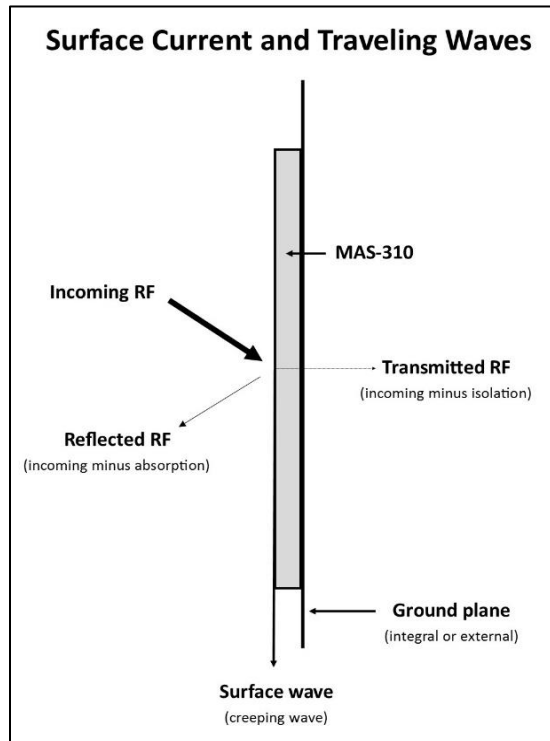
180 dB/in @ 10 GHz.

#### Attenuation and Impedance vs Frequency



## Representative Properties

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



An incident wave will excite surface currents (travelling 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-310 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-310) should be present.