



CUMING MICROWAVE

Technical Bulletin 310-5

RoHS
Compliant

C-RAM FDSS HIGH LOSS SILICONE RUBBER SHEET ABSORBER FOR SUPPRESSION OF UHF SURFACE WAVES

C-RAM FDSS is a thin, magnetically filled, silicone rubber sheet stock, which has high loss at UHF frequencies. It is similar to C-RAM GDSS, except that it has higher magnetic loss at lower frequencies. It is applied to metal surfaces to attenuate RF surface currents. It can be used to modify antenna patterns, lower the Q of a cavity, act as a transmission line attenuator, and modify the radar cross section of targets.

C-RAM FDSS is a thin elastomer sheet, so it will conform to curvatures of the substrate. It is not electrically conductive, and has high dielectric strength. It is a soft material and is readily die-cut or cut with a razor. Since it is a silicone rubber, it will withstand wide temperature ranges, and survive outdoor exposure.

C-RAM FDSS has a high magnetic loss tangent from about 300 MHz to 3 GHz. It will perform well in the 900 MHz cellular frequencies. Generally, thicker grades are required to attenuate lower frequencies to the same degree as a thinner grade at higher frequency.

TYPICAL PROPERTIES

Color: Dark grey

Flammability: non-flammable

Thickness and weight (3 grades):

0.75mm (.030") --2.0 kg/m² (0.41 lb/ft²)

1.52mm (.060") --4.0 kg/m² (0.82 lb/ft²)

3.18mm (.125") --8.1 kg/m² (1.68 lb/ft²)

Service temperature: -50 to +200°C
(-65 to +400°F)

Therm. Conductivity: 0.002 cal-cmlsec-cm²-°C

Volume resistivity: >10¹¹ ohm-cm

Dielectric strength: 10 kv/mm (250 v/mil)

Attenuation: @ 1 GHz 15 dB/cm
@ 3 GHz 24 dB/cm



METHOD OF APPLICATION

The normal method of applying C-RAM FDSS to a substrate is with a silicone RTV adhesive. For best results, the metal should be scuffed with sandpaper, wiped with alcohol to remove dust and grease, and have a silicone primer applied, such as C-PRIME 215.

A silicone adhesive, such as C-BOND 255 or equivalent, is brushed or rolled onto one of the surfaces, and the sheet is then applied to the metal. An overnight cure is generally required, and a modest temperature cycle, such as a few hours at 150 °F, helps the bond.

C-RAM FDSS can also be supplied with a pressure sensitive adhesive. While not as strong as an RTV adhesive, it will provide an adequate bond in many applications, particularly when one is bonding smaller pieces. Simply peel off the backing, stick the part to a primed surface, and apply heat with a heat gun for 1-2 minutes to effect a good bond.

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AVAILABILITY

C-RAM FDSS is available in three standard thicknesses -- .030", .060", and .125".

Standard dimensions for all thicknesses are flat sheets 300 x 300mm (12 x 12 in), and 400 x 500 mm (16 x 20 in), in the nominal thickness for the particular grade. Specify the part as C-RAM FDSS-xxx, where xxx is the nominal thickness in inches (030, 060,125), and include the dimensions.

We can supply other dimensions, and can die-cut, water jet or laser-cut parts to your drawings.

C-RAM FDSS can also be supplied with a peel-and-stick pressure sensitive adhesive backing; specify by adding a /PSA suffix to the part name.

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