CUMING MICROWAVE

Technical Bulletin 310-4

RoHS Compliant

C-RAM GDSS

HIGH LOSS SILICONE RUBBER SHEET ABSORBER FOR SUPPRESSION OF SURFACE WAVES

C-RAM GDSS is a thin, magnetically filled, silicone rubber sheet stock which has high loss at microwave 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 GDSS 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 made of silicone, it will withstand wide temperature ranges, and survive outdoor exposure.

C-RAM GDSS has a high magnetic loss tangent from about 1 GHz to 20 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. In the VHF and lower UHF frequencies, C-RAM FDSS will attenuate RF energy better; it has a different magnetic filler, which exhibits high loss tangents at lower frequencies.

TYPICAL PROPERTIES

Color: Grey
Flammability: non-flammable
Thickness and weight (3 grades):
0.75 mm (.030") --- 2.3 kg/m^2 (0.47 lb/ft^2)
1.52 mm (.060") --- 4.6 kg/m^2 (0.95 lb/ft^2)
3.18 mm (.125") --- 9.6 kg/m^2 (1.98 lb/ft^2)
Service temperature: -50 to +200°C
(-65 to +400°F)
Hardness, Shore A: 80
Thermal Conductivity: 0.002 cal-cm/sec-cm^2-°C
Volume resistivity: >10^{11} ohm-cm
Dielectric strength: 10 kv/mm (250 v/mil)

METHOD OF APPLICATION

The normal method of applying C-RAM GDSS 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.

The 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.

As an alternative, C-RAM GDSS can 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, press the part onto 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 GDSS is available in three standard thicknesses-- .030", .060", and .125".

Standard dimensions for all thicknesses are flat sheets 300 x 300 mm (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 GDSS-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 GDSS can also be supplied with a peel-and-stick pressure sensitive adhesive backing (specify by adding a /PSA suffix to the part name).