RFRET – RETICULATED FOAM ABSORBERS

RFRET is reticulated foam absorber. Reticulated foam is a urethane-based foam with a well-defined open-cell structure. The cell size can be chosen to optimize penetration of the conductive coating to which it is adhered. R&F uses two separate processes to produce its reticulated foam absorber. Our unique spray process applies a coating that is graded through the thickness of the foam. The grading of the coating also produces an electrical grading that results in a material with excellent broadband reflectivity reduction.

R&F also uses a dip process to produce foam with uniform electrical properties. This type of foam is described in more detail in the LS foam section on page 13. RFRET–LS is produced to a specific insertion loss (dB/in.) at a specific frequency (generally 3 or 10GHz).

R&F also dips RFRET-CV, a convoluted egg-crate shaped foam. This shaping allows for the graded impedance, which provides broadband reflectivity reduction. RFRET-CV is produced in thicknesses from 1.5" to 4" (38.1 mm to 101.6 mm) and is used when broadband performance from 2 to 18GHz is required. The product can be supplied with a bonded-on ground plane and pressure-sensitive adhesive.

APPLICATIONS

RFRET broadband foam is commonly used around antennas to provide isolation or side lobe reduction. It can be die-cut into components for EMI reduction inside microwave cavities and is used to manufacture antenna hats and test boxes. It can be encapsulated into a textile cover for use outdoors and fabricated into blankets, covers and other components. Recently, it has been used for a combination air/EMI filter in networking equipment. The product can be made UL94 HF1 for such applications.

FIGURE 2.

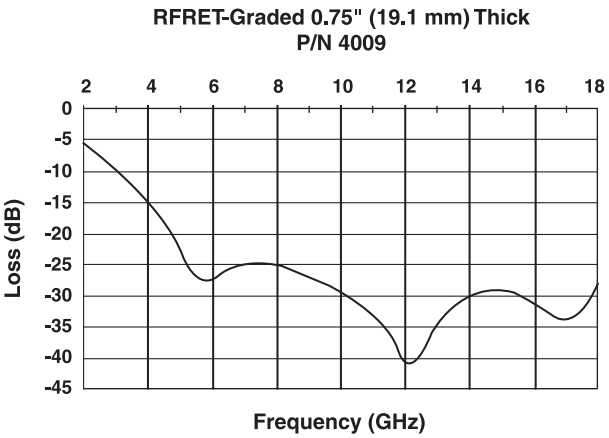


FIGURE 1.

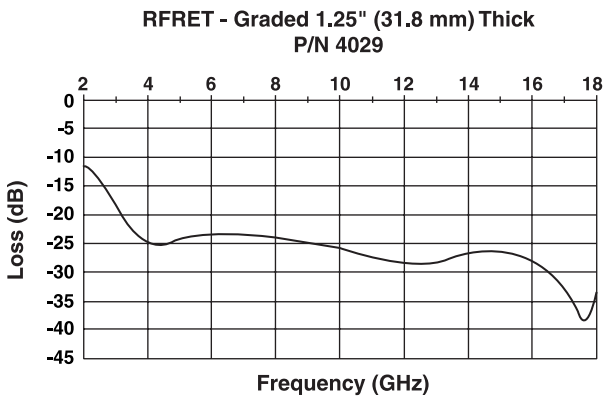
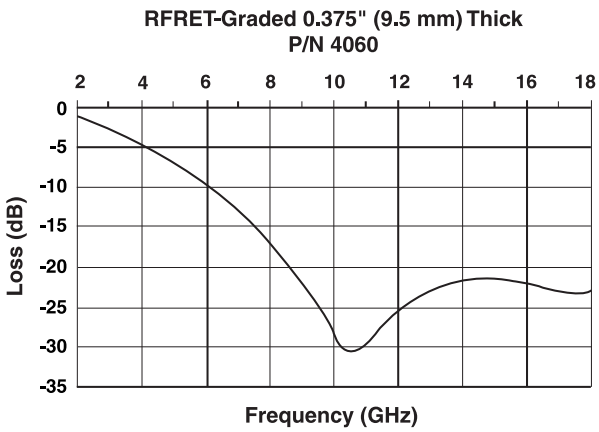


FIGURE 3.



ORDERING INFORMATION

Tables 1-3, on page 12, provide ordering information and existing part numbers for three types of reticulated foam absorbers: RFRET–Graded Coating, RFRET– Uniform Coating and RFRET/CV Convoluted Reticulated Foam.

RFRET – GRADED COATING

Select desired frequency range, noting thickness (in ascending order) from Table 1. The base part number determines the length, width and frequency range. The other options column indicates flame retardant (FR), pressure-sensitive adhesive (PSA) or ground plane (GP).

All dimensions shown are in inches (millimeters) unless otherwise specified.

RFRET – RETICULATED FOAM ABSORBERS *(con't)*

TABLE 1: RFRET – GRADED COATING PART NUMBERS

Note: Other combinations of attributes or materials are available; please contact sales for assistance.

4000 – 4299 RFRET – GRADED COATING

PART NUMBER	THICKNESS IN (MM)	LENGTH IN (MM)	WIDTH IN (MM)	FREQ. RANGE (GHZ) -20DB	OTHER
4044	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)	12-18	FR
4032	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)	12-18	
4054	0.375 (9.5)	24.0 (609.6)	24.0 (609.6)	10-18	
4050	0.375 (9.5)	24.0 (609.6)	24.0 (609.6)	10-18	FR
4000	0.375 (9.5)	24.0 (609.6)	24.0 (609.6)	10-18	
4078	0.375 (9.5)	48.0 (1219.2)	24.0 (609.6)	10-18	GP
4058	0.375 (9.5)	24.0 (609.6)	24.0 (609.6)	10-18	GP-PSA
4060	0.375 (9.5)	24.0 (609.6)	24.0 (609.6)	10-18	PSA
4074	0.500 (12.7)	24.0 (609.6)	24.0 (609.6)	8-18	
4001	0.500 (12.7)	24.0 (609.6)	24.0 (609.6)	8-18	
4014	0.500 (12.7)	96.0 (2438.4)	24.0 (609.6)	8-18	
4056	0.500 (12.7)	24.0 (609.6)	24.0 (609.6)	8-18	GP
4002	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	6-18	
4012	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	6-18	
4006	0.750 (19.1)	96.0 (2438.4)	24.0 (609.6)	6-18	
4009	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	6-18	
4038	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	6-18	
4022	0.750 (19.1)	59.0 (1498.6)	24.0 (609.6)	6-18	
4043	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	6-18	GP
4059	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	6-18	PSA
4062	1.000 (25.4)	24.0 (609.6)	24.0 (609.6)	5-18	
4036	1.125 (28.6)	60.0 (1524.0)	30.0 (762.0)	4-18	
4037	1.125 (28.6)	96.0 (2438.4)	30.0 (762.0)	4-18	
4003	1.125 (28.6)	24.0 (609.6)	24.0 (609.6)	4-18	
4015	1.125 (28.6)	24.0 (609.6)	24.0 (609.6)	4-18	GP
4029	1.250 (31.8)	24.0 (609.6)	24.0 (609.6)	4-18	
4071	1.250 (31.8)	24.0 (609.6)	24.0 (609.6)	4-18	GP-PSA
4076	1.250 (31.8)	24.0 (609.6)	24.0 (609.6)	4-18	PSA
4021	1.500 (38.1)	24.0 (609.6)	24.0 (609.6)	4-18	
4073	2.000 (50.8)	40.0 (1016.0)	30.0 (762.0)	2-18	
4020	2.000 (50.8)	24.0 (609.6)	24.0 (609.6)	2-18	
4051	2.000 (50.8)	24.0 (609.6)	24.0 (609.6)	2-18	FR
4024	2.000 (50.8)	24.0 (609.6)	24.0 (609.6)	2-18	
4026	2.000 (50.8)	60.0 (1524.0)	30.0 (762.0)	2-18	
4077	2.000 (50.8)	24.0 (609.6)	24.0 (609.6)	2-18	GP
4040	3.000 (76.2)	24.0 (609.6)	24.0 (609.6)	2-18	

RFRET–UNIFORM COATING

Table 2 shows existing part numbers for uniform reticulated foam materials. Select the desired thickness and part number. Within a given thickness, the insertion loss can be tailored by the addition of more of the conductive carbon coating. Performance is measured in dB insertion loss compared to air either at 3 or 10GHz. The other column indicates flame retardancy (FR), pressure-sensitive adhesive (PSA) or ground plane (GP).

Standard sheet size is 24" x 24" (609.6 mm x 609.6 mm); other sizes are also available.

All dimensions shown are in inches (millimeters) unless otherwise specified.

TABLE 2: RFRET – UNIFORM COATING RETICULATED FOAM PART NUMBERS

Note: Other materials or combinations of attributes are available; please contact sales for assistance.

4300 – 4399 RFRET – UNIFORM COATING

PART NUMBER	THICKNESS IN (MM)	LENGTH IN (MM)	WIDTH IN (MM)	INSERTION LOSS AT 3GHZ (DB/IN)	INSERTION LOSS AT 10GHZ (DB/IN)	OTHER
4312	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)		-8.0	
4313	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)		-12.0	
4341	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)		-49.0	PSA
4308	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)		-68.0	
4340	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)		-76.0	
4314	0.250 (6.4)	24.0 (609.6)	24.0 (609.6)		-18.0	
4315	0.500 (12.7)	24.0 (609.6)	24.0 (609.6)	-40.0		
4316	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	-20.0		
4318	0.750 (19.1)	24.0 (609.6)	24.0 (609.6)	-40.0		
4347	1.000 (25.4)	24.0 (609.6)	24.0 (609.6)	-10.5		
4320	1.000 (25.4)	24.0 (609.6)	24.0 (609.6)	-11.5		
4346	1.000 (25.4)	24.0 (609.6)	24.0 (609.6)	-5.0		

RFRET/CV – CONVOLUTED RETICULATED FOAM

Table 3 lists existing part numbers for convoluted reticulated foam materials. Select the desired frequency range and thickness and determine the part number. The thicker the foam material, the broader the frequency ranges of coverage. Performance is nominally –20dB reflectivity reduction over the frequency range listed. Standard sheet size is 24" x 24" (609.6 mm x 609.6 mm); other sizes are also available.

TABLE 3: RFRET/CV – CONVOLUTED RETICULATED FOAM PART NUMBERS

Note: Other materials or combinations of attributes are available; please contact sales for assistance.

4500-4599 RFRET/CV – CONVOLUTED RETICULATED FOAM

PART NUMBER	THICKNESS IN (MM)	LENGTH IN (MM)	WIDTH IN (MM)	FREQ. RANGE (GHZ) -20DB	OTHER
4506	1.500 (38.1)	24.0 (609.6)	24.0 (609.6)	4-18	
4507	1.500 (38.1)	24.0 (609.6)	48.0 (1219.2)	4-18	
4511	1.500 (38.1)	24.0 (609.6)	24.0 (609.6)	2-18	FR
4513	2.000 (50.8)	24.0 (609.6)	24.0 (609.6)	2-18	
4514	2.000 (50.8)	24.0 (609.6)	24.0 (609.6)	2-18	GP
4500	2.500 (63.5)	24.0 (609.6)	24.0 (609.6)	2-18	
4509	2.500 (63.5)	24.0 (609.6)	24.0 (609.6)	2-18	
4503	2.750 (69.9)	24.0 (609.6)	24.0 (609.6)	2-18	
4501	3.000 (76.2)	24.0 (609.6)	24.0 (609.6)	2-18	
4504	3.000 (76.2)	24.0 (609.6)	24.0 (609.6)	2-18	
4512	3.000 (76.2)	24.0 (609.6)	24.0 (609.6)	2-18	PSA
4502	4.000 (101.6)	24.0 (609.6)	24.0 (609.6)	2-18	
4505	4.000 (101.6)	24.0 (609.6)	24.0 (609.6)	2-18	PSA
4510	4.000 (101.6)	24.0 (609.6)	24.0 (609.6)	2-18	GP