

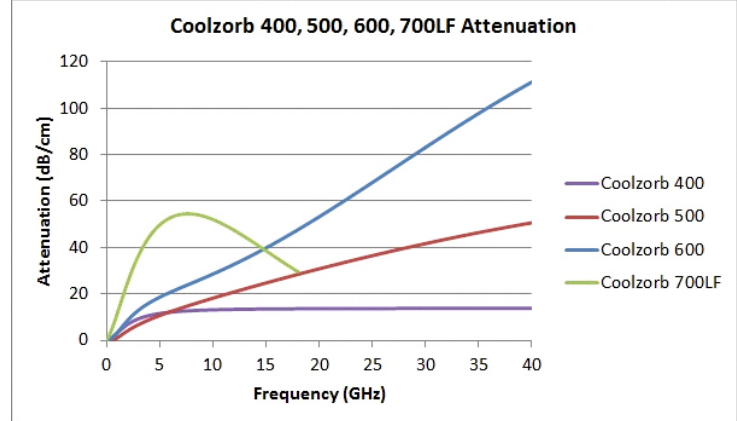
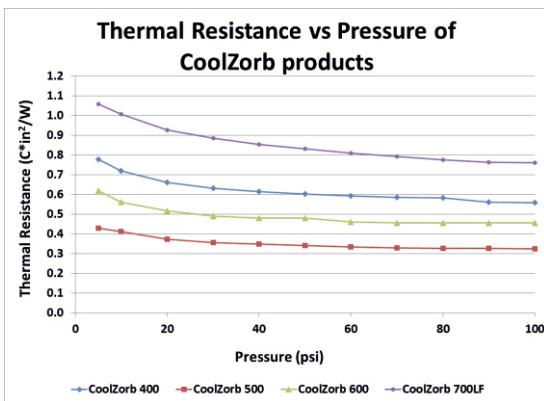
EMI Absorber / Hybrid Thermal Transfer

CoolZorb

CoolZorb is a hybrid absorber/thermal management material that is used for EMI mitigation. Product is used like a traditional thermal interface material between heat source such as an IC and heat sink or other heat transfer device or metal chassis.



Typical Properties	Coolzorb 400	Coolzorb 500	Coolzorb 600	Coolzorb 700LF
Thermal Conductivity	2.0 W/m-K	4.0 W/m-K	3.0 W/m-K	1.9 W/m-K
Hardness	56 Shore 00 for 3 seconds	55 Shore 00 for 3 seconds	60 Shore 00 for 3 seconds	53 Shore 00 for 3 seconds
Temperature Range	-20°C to 100°C	-40°C to 175°C	-40°C to 175°C	-40°C to 175°C
UL Flammability	UL94V0	UL94V0	UL94V0	UL94V0
Attenuation Frequency	5 GHz & higher	5 GHz & higher	3 GHz & higher	500 MHz & higher



- Standard gap fillers have thermal conductivity range of 1-9 W/mk
- CoolZorb products are 2.0 W/mK – 4.0 W/mK range and covers low to mid range in thermal performance
- Product is typically used like standard gap filler between IC and heat sink
- Suitable for low to mid power ICs
- Performance advantage comes from dual functional properties of thermal conductivity and EMI attenuation

Eccosorb LS



Eccosorb LS is the most widely known, used, and recommended polyurethane foam absorber. Eccosorb LS obtains its microwave properties via impregnation with a carbon black dispersion and is therefore electrically conductive. It is a very low cost solution for many applications over the thinner, more expensive rubber absorbers.

- Lossy, flexible broadband foam absorber
- Frequency range is ≥ 1 GHz
- Available in 24" X 24" sheets (61 cm X 61 cm) or custom cut parts to drawing
- Thickness range is 1/8" (0.3 cm) to 1" (1.8 cm)
- Available in many carbon loading levels from LS-14 to LS-30
- LS-26 and LS 30 are most common
- Available with a peel and stick adhesive (SS3) or without
- Main advantage is lower cost but gives lower performance in cavity resonance applications compared to magnetic absorbers
- Available with anti-dust coating (UMSEAL)
- QR-13AF is UL rated version of LS-26
- Most common applications are for free space isolation by insertion loss and cavity resonance reduction
- Insertion loss properties improve with increased thickness and/or higher loading levels

	Attenuation (dB/cm)		Relative Impedance ($ Z /Z_0$)	
	3 GHz	10 GHz	3 GHz	10 GHz
LS-14	1.0	1.7	0.83	0.89
LS-16	1.5	2.3	0.78	0.87
LS-18	3.2	4.7	0.69	0.82
LS-20	4.2	7.0	0.61	0.78
LS-22	7.4	14.9	0.55	0.74
LS-24	11	24	0.25	0.44
LS-26	16	34	0.18	0.31
LS-28	20	40	0.16	0.27
LS-30	24	46	0.13	0.22