

GAP PAD VO ULTRA SOFT™

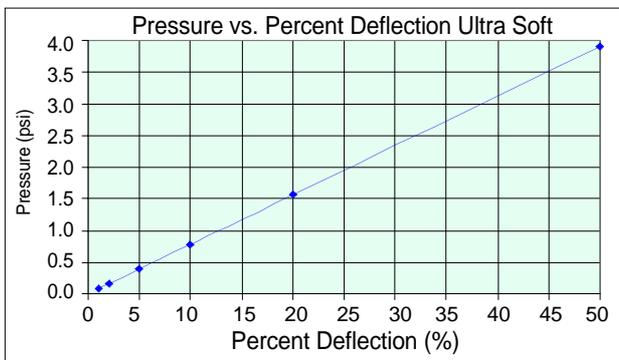
Conformable, Thermally Conductive Material for Filling Air Gaps

Gap Pad VO Ultra Soft is a cost-effective material, recommended for extremely low stress applications that require a thermally conductive interface material. The highly conformable nature of the material allows the pad to fill in air voids and air gaps between PC boards and heat sinks or metal chassis with steps, rough surfaces, and high stack up tolerances. The viscoelastic nature of the material also gives excellent low stress vibration dampening and shock absorbing characteristics.

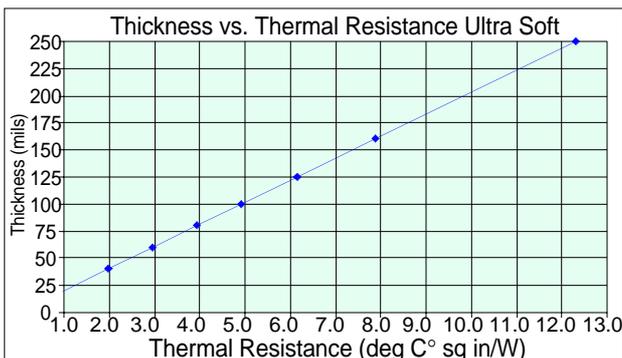
GP Ultra Soft is an electrically isolating material, which allows its use in applications requiring isolation between heat sinks and high voltage, bare leaded devices.

GP Ultra Soft is a filled thermally conductive polymer supplied on a rubber coated fiberglass carrier allowing for easy material handling and enhanced puncture, shear, and tear resistance.

GP Ultra Soft is offered in thicknesses from 0.020" to 0.250" with the rubber-coated carrier on one side and removable protective liner on the naturally tacky side of the material. Material is available in die-cut parts and sheets, 0.020" material is also offered in roll form. Standard sheet size is 8" X 16", with or without adhesive, thickness tolerance is $\pm 5\%$ of material thickness.



The resultant thickness of the Gap Pad will determine the thermal resistance. Subtracting the initial gap pad thickness by the deflection value, obtained above, will give the resultant thickness. Refer to the graph below to obtain the thermal resistance for a given thickness of material.



To calculate the approximate amount of deflection at a given pressure, refer to the first graph. Multiply the thickness of the material by the percentage at the given applied pressure.*

Typical Applications

- Between chassis wall and other surface
- CDROM Cooling
- Area where heat needs to be transferred to a frame, chassis, or other type of heat spreader
- Between a CPU and Heat Spreader
- Between a semiconductor and heat sink

Bergquist Gap Pad VO Ultra Soft

Physical Properties	Typical Value (mm)	Test Method
Color	Mauve/Pink	Visual
Thickness of Substrate	0.020" to .250"	ASTM D374
Specific Gravity	1.6	ASTM D792
Heat Capacity	1.0 J/g-K	ASTM D351
Continuous Use Temperature	-60°C - 200°C	
Hardness (Shore Type 00)	Thickness	Hardness
	0.020" to 0.250"	55 to 15
Young's Modulus* (psi)	Rate	Modulus
	0.01	8
Thermal		
Thermal Conductivity (@10 psi)	1 W/m-K	ASTM D5470
Electrical		
Breakdown Voltage	>6 kV	ASTM D149
Dielectric Constant	5.5	ASTM D150
Volume Resistivity	10 ¹¹ ohm-m	ASTM D257

MODULUS * The modulus of Gap Pad VO is rate dependent due to its viscoelastic properties. At high rates of compression Gap Pad is elastic and at low rates it is viscous. The elastic strain (deflection) is not time dependent. A completely elastic material, when compressed will recover 100% to its original shape when the force is released. Viscous strain, however, is time dependent. Deformation is not instantaneous but occurs over time and is not completely recovered after the stress is removed. As an example; if Gap Pad is molded into a ball and dropped, it will bounce, and rebound close to 100%. However, if a load is placed on the ball for a long period of time it will flatten out a degree and will not recover completely to its original shape when the load is removed. For more information on Gap Pad modulus refer to Bergquist Application Note #116.

*Graphs and data generated from Young's Modulus, calculated using 0.01 inch/min. step rate of strain with a sample size of 0.79 inch².