Silicon Adhesive Data

Adhesive	Thr. Cond. (W/K*m)	Shear Mod. (N/mm^2)	Bulk Resist. (Ohm*cm)	Removable	Cure	Comments
AI Technology CGL7018	1.5	0.4/0.5 aged irrad. ~1. 0.01 @20 C fresh 0.16 @10 C fresh 0.20 @ 0 C fresh	$9 * 10^{8}$	Yes	80C/16h	Cure too hot? Too stiff @ -15? Stiffens as ages?
Dow Corning 340	0.6	irrad. ~5.	$2 * 10^{13}$	Yes	UV Tack	Rad hardens
Thermagon Sil-less 431	0.5/0.2	N.A.	$2 * 10^{11}$	Yes	UV Tack	Variable results? HV standoff?
Thermagon T-pcm 705	0.5	>3.4	$3 * 10^{13}$	Yes	50C/5min finger pres.	Too stiff sheet adhesive
Thermagon T-gon 415-10A	0.23	1.2 irrad 2.3	$3 * 10^{14}$	Yes	25C/24h 65C/4h	Silicone based Too stiff after irrad.
Master Bond MasterSil 705TC	1.2	2.0	$1* 10^{14}$	N.A.	25C/1h	No UV Tacks? Silicone based
Master Bond EP21TDC-7AN	0.1	1.5	$5* 10^{10}$	N.A.	25C/24h	Poor Cure? Non-Silicone
Norland NEA 123	N.A.	140	$>1* 10^{14}$	Yes	UV Cure	For tacking TVH deform. tested

Measurements at room temp. unless noted. Underlined items are from manufacturer's data sheets.

Silicon Adhesive Irradiation Data

Adhesive	Thermal Cond. (W/m*K)		Shear Mod. (N/mm^2)		Radiation Dose
	Before	After	Before	After	
AI Technology CGL7018	1.7	1.66	0.4	1.0	2.5×10^{14} protons/cm^2 (42 MRads) Also 22.3 Mrads in sector test
Dow Corning 340	0.43	0.37	0.	~5.	2.5×10^{14} protons/cm^2 (42 MRads)
Dow Corning 340	0.61	0.60			30 MRads Co60
Thermagon Sil-less 431	0.21	0.31	0.	0.	25 MRads Co60
Thermagon T-gon 415-10A	0.23	0.23	1.2	2.3	25 Mrads Co60
Thermagon T-pcm 705	0.51	0.47	>3.4	N.A.	25 Mrads Co60

Tentative Requirements for Silicon-to-Support Adhesive

Thermal conductivity	>0.5 W / mC
Shear modulus	<1 N / mm^2
Bulk resistivity	>10^{14} Ohm*cm, chips up?
Removable	Yes
Application pressure	Finger pressure
Cure temperature	<60 C
Thickness	<100 microns
Dielectric strength	>2000V / 100 microns, chips up?
Radiation resistance	>25 MRads
Electronic properties	?