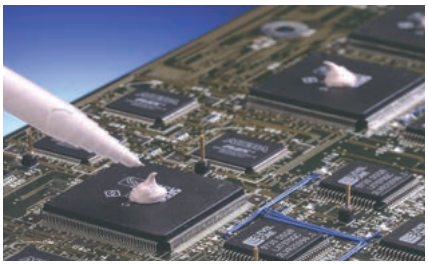
THERM-A-FORM CIP35, T64x and 164x Series

Cure-in-Place Potting and Underfill Materials



Description

THERM-A-FORM™ thermally conductive silicone elastomer products are dispensable form-in-place compounds designed for heat transfer without excessive compressive force in electronics cooling applications. These versatile liquid reactive materials can be dispensed and cured into complex geometries for cooling of multi-height components on a PCB without the expense of a molded sheet. Each compound is available in ready-to-use cartridge systems, eliminating weighing, mixing, and degassing procedures.

THERM-A-FORM™ Cure-in-Place Potting and Underfill Materials

	Typical Properties	T647	T646	CIP35	T642	1642	1641	Test Method
Physical	Colour	Gray	Yellow	Green	Blue	Purple	White	Visual
	Binder	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	--
	Filler	Aluminium Oxide	Aluminium Oxide	Aluminium oxide and Boron nitride	Boron Nitride	Aluminium Oxide	Aluminium Oxide	--
	Number of Components	2-part	2-part	2-part	2-part	2-part	1-part	--
	Mix Ratio	1 : 1	1 : 1	1 : 1	10 : 1	100 : 3	N/A	--
	Specific Gravity	2.80	2.45	2.87	1.50	2.30	2.10	ASTM D792
	Hardness, Shore A	25	50	55	70	76	56	ASTM D2240
	Viscosity, poise	> 5000	> 5000	5000	2500	2500	3000	ASTM D2196
	Pot Life, minutes	300	300	100	60	60	30	Time to 2X Starting Viscosity at 23 °C
	Cure Cycles	3 min. @ 150 °C 60 min. @ 60 °C 48 hrs. @ 23 °C	3 min. @ 150 °C 60 min. @ 60 °C 48 hrs. @ 23 °C	3 min. @ 150 °C 180 min. @100°C 48 hrs. @ 23 °C	3 min. @ 150 °C 30 min. @ 70 °C 48 hrs. @ 23 °C	60 min. @ 100 °C 4 hrs. @ 65 °C 1 week @ 23 °C	48 hrs. @ 23 °C @ 50% RH	Chomerics
	Brittle Point, °F (°C)	-67 (-55)	-67 (-55)		-67 (-55)	-103 (-75)	-103 (-75)	ASTM D2137
	Extractable Silicone, %	4	8.5		1 - 2	Not Tested	Not Tested	Chomerics
Thermal	Thermal Conductivity, W/m-K	3.00	0.90	3.5	1.20	0.95	0.90	ASTM D5470
	Heat Capacity, J/g-K	0.9	1.0		1.0	1.0	1.0	ASTM E1269
	Coefficient of Thermal Expansion, ppm/K	150	250		300	200	150	ASTM E831
	Operating Temperature Range, °F (°C)	-58 to 302 (-50 to 150)	-58 to 302 (-50 to 150)	-58 to 392 (-55to 200)	-58 to 302 (-50 to 150)	-94 to 392 (-70 to 200)	-94 to 392 (-70 to 200)	--
Electrical	Dielectric Strength, KVac/mm (Vac / mil)	10 (250)	10 (250)	10 (250)	20 (500)	20 (500)	20 (500)	ASTM D149
	Volume Resistivity, ohm-cm	1.0×10^{14}	1.0×10^{14}	1.0×10^{14}	1.0×10^{13}	1.0×10^{13}	1.0×10^{13}	ASTM D257
	Dielectric Constant @1,000 kHz	8	6.5		4.0	3.9	3.9	ASTM D150
	Dissipation Factor @ 1,000 kHz	0.010	0.013		0.001	0.010	0.010	Chomerics
Regulatory	Flammability Rating (See UL File E140244)	Not Tested	HB	UL94-V0	Not Tested	Not Tested	Not Tested	UL 94
	RoHS Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Chomerics Certification
	Outgassing, % TML (%CVCM)	Not Tested	0.17 (0.10)	0.22 (0.06)	0.32 (0.21)	0.40 (0.18)	Not Tested	ASTM E595
	Shelf Life, months from date of manufacture	3	3	12	3	12	6	Chomerics