Technical Data

TCGF-2.0-B Thermal Conductive Gap Filler

Features & Benefits

- Conformable
- Low Modulus
- Electrically Isolating
- Low Interfacial Resistance
- Superior Thermal Performance

Applications

- Automotive Electronics (HEV, NEV, Batteries)
- PCBA to heatsink
- Discrete components to heat spreader
- Fiber optic and Telecom equipment

Introduction

TCLAD TCGF is a thermally conductive gap filling material that is offered in a two-part material. The purpose of the material is to minimize thermal resistance between the heat source and the heat sink or heat spreader. Depending on application the material is available in different viscosity and hardness.

Typical properties of gap filling materials have the following characteristics: Thermal conductivity, viscosity, hardness, pot life, volume resistivity etc. It is typically offered in cartridges, or containers and can be dispensed through a static mixing nozzle with a handheld dispensing gun or by automated dispensing equipment.

Mixing the two-parts into a single material, the liquid form cures into a solid form depending on the curing time and temperature. Before the material cures into a solid form, the material should be placed in the interface and put into compression so that it can form around the surrounding surfaces to remove as much air and to wet out to the adjoining surfaces as much possible.

How to use: Depending on storage time the material is stored from the date on manufacture, premixing prior to use may be required. Mix part A and B 1:1 and apply mixture to the surface. Apply pressure to remove the air gap as much as possible to improve heat dissipation.

Processing: After the material is exposed to air it will begin to cure. At room temperature. Curing can be accelerated by increasing the temperature.

Useable life and storage: TCGF products are best if stored in a cool and dry / non-humid environment, especially where it is not exposed to any sunlight. Containers that have been stored longer than two months should be remixed with a clean mixer and vacuum to prevent air entrapment. Whereas the cartridge containers should be flipped upside down every two weeks to prevent the particle fillers from settling to the bottom. The shelf life can be up to 6 months when properly stored.

Package Information: Typical package size, cartridges: 25cc, 200cc, 590cc, Containers: 20L and 200L.

Precautions: Please carefully review the product data sheet of the material before use of the product in terms of the material characteristics. In addition to the TDS the container labels for safety must be reviewed., which contains any physical health hazard information.

Item	Condition	Unit	Value	Method
General				
Stand off	-	μm	Glass bead	-
Color	Visual	-	A: Yellow B: White	1:1
Continuous Use Temp	-	°C	-50 ~ 150	-
Viscosity (A)	25°C (1rpm, no 52 spindle)	cps	250,000	ASTM D2196
Viscosity (B)	25°C (1rpm, no 52 spindle)	cps	250,000	ASTM D2196
Viscosity (Mix)	25°C (1rpm, no 52 spindle)	cps	250,000	ASTM D2196
Density	25°C Gravimeter	g/cc	2.3	ASTM D792
Hardness	Shore	00	60	ASTM D2240
Elongation	-	%	90	ASTM D412
Electrical				
Flame Rating	Vertical Burning	-	V-0	UL94
Withstand Voltage	3KVAC	mA	<0.2	ASTM D149
Dielectric Strength	-	kV/mm	18	ASTM D149
Volume Resistivity	-	Ω·cm	$>1x10^{12}$	-
Thermal				
Thermal Conductivity	-	W/m-K	2.0	ASTM D7984
Durability				
Heating Stability (Thermal conductivity, Breakdown voltage)	150°C 500hr	%	< 10	
Cooling stability (Thermal conductivity, Breakdown voltage)	-40°C 500hr	%	< 10	
Temperature Humidity (Thermal conductivity, Breakdown voltage)	500hr (85°C / 85% HUM)	%	< 10	
Thermal Shock Test (Thermal conductivity, Breakdown voltage)	500 cycle (-40°C~125°C)	%	< 10	
Low molecular siloxane	D_3~D_6	ppm	< 100	
Cure Schedule				
Pot life @ 25°C	2x viscosity	Hours	1	
Cure @ 25°C	Oven	Hours	5	
Cure @ 100°C	Oven	Minutes	30	
Cure @120°C	Oven	Minutes	20	
Cure @ 150°C	Oven	Minutes	15	

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