LiPOLY®
SHIU LI TECHNOLOGY CO.,LTD

T-top99-s

High Thermal Conductive Gap Filler

LiPOLY T-top99-s offers outstanding thermal conductivity at 24.0 W/m*K and extremely low thermal resistance under minimal force.
T-top99-s offers excellent compression, filling small air gaps on uneven surfaces, ensuring an efficient and consistent transfer of heat.

FEATURES

/ Thermal conductivity: 24.0 W/m*K
/ High compression rate
/ Extremely low thermal impedance

TYPICAL APPLICATION

/ Between CPU and heat sink
/ Between a component and heat sink
/ Flat-panel displays
/ Power supplies
/ High speed mass storage drives
/ Telecommunication hardware
/ 5G base station & infrastructure
/ High-end Chip

CONSTRUCTION

Series	Characteristics	Configurations
T-top99-s	Silicone compound with weak sticky surfaces.	Sheets form, Die-cuts parts

TYPICAL PROPERTIES

PROPERTY	T-top99-s	TEST METHOD	UNIT
Color	Gray	Visual	-
Surface tack 2-side/1-side	2	-	-
Thickness	Customized	ASTM D374	mm
Density	3.3	ASTM D792	g/cm³
Hardness	70	ASTM D2240	Shore OOO
TML	<0.1	By LiPOLY	%
Application temperature	-60~150	-	°C
ROHS & REACH	Compliant	-	-
COMPRESSION			
Deflection @10 psi	10	ASTM D5470 modify	%
Deflection @20 psi	22	ASTM D5470 modify	%
Deflection @30 psi	53	ASTM D5470 modify	%
Deflection @40 psi	63	ASTM D5470 modify	%
Deflection @50 psi	65	ASTM D5470 modify	%
ELECTRICAL			
Dielectric breakdown	8	ASTM D149	KV/mm
Surface resistivity	$>10^{11}$	ASTM D257	Ohm
Volume resistivity	$>10^{10}$	ASTM D257	Ohm-m
Dielectric constant@10MHz D_k	10.3	ASTM D150	-
Dielectric constant@1GHz D_k	10.2	ASTM D150	-
Dielectric constant@1.8GHz D_k	10.8	ASTM D150	-
Dissipation factor@10MHz D_f	0.002	ASTM D150	-
Dissipation factor@1GHz D_f	0.006	ASTM D150	-
Dissipation factor@1.8GHz D_f	0.023	ASTM D150	-
THERMAL			
Thermal Conductivity	24.0	ASTM D5470	W/m*K
Thermal Conductivity	15.0	ISO 22007-2	W/m*K
Thermal impedance@10psi	0.085	ASTM D5470	°C-in²/ W
Thermal impedance@20psi	0.077	ASTM D5470	°C-in²/ W
Thermal impedance@30psi	0.048	ASTM D5470	°C-in²/ W
Thermal impedance@40psi	0.034	ASTM D5470	°C-in²/ W
Thermal impedance@50psi	0.029	ASTM D5470	°C-in²/ W

THERMAL IMPEDANCE & COMPRESSION

Compression Force (psi)	Thermal Impedance (°C-in²/W)			Compression (%)		
	1.0 mm	2.0 mm	3.0 mm	1.0 mm	2.0 mm	3.0 mm
10	0.085	0.163	0.221	10	13	16
20	0.077	0.099	0.116	22	49	60
30	0.048	0.050	0.055	53	75	82
40	0.034	0.035	0.039	63	81	86
50	0.029	0.030	0.033	65	82	87

Test method: ASTM D5470

RELIABILITY

Test Property	Compression Force (psi)	70°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.085	0.085	0.086	0.086	0.086
	30	0.048	0.048	0.048	0.049	0.049
	50	0.029	0.029	0.029	0.030	0.030

Test Property	Compression Force (psi)	150°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.085	0.085	0.086	0.087	0.087
	30	0.048	0.048	0.049	0.049	0.050
	50	0.029	0.029	0.030	0.030	0.031

Test Property	Compression Force (psi)	60°C / 90%RH				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.085	0.085	0.085	0.086	0.086
	30	0.048	0.048	0.048	0.049	0.049
	50	0.029	0.029	0.029	0.030	0.030

Test Property	Compression Force (psi)	-40°C (30min) ⟷ +125°C (30min)					
		0 Cycles	100 Cycles	200 Cycles	300 Cycles	400 Cycles	500 Cycles
Thermal Impedance	10	0.085	0.085	0.086	0.087	0.087	0.087
	30	0.048	0.048	0.049	0.049	0.050	0.050
	50	0.029	0.030	0.030	0.031	0.031	0.031

Test Property	Compression Force (psi)	Ultra Low Temperature -60°C					
		Initial	100 hrs	200 hrs	300 hrs	400 hrs	500 hrs
Thermal Impedance	10	0.085	0.085	0.085	0.086	0.086	0.086
	30	0.048	0.048	0.048	0.049	0.049	0.049
	50	0.029	0.029	0.029	0.030	0.030	0.030

Test method: ASTM D5470 , Specimen thickness = 1.0mm , Unit: °C-in²/W

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