LiPOLY®
SHIU LI TECHNOLOGY CO.,LTD

T-top81-s

High Thermal Conductive Gap Filler

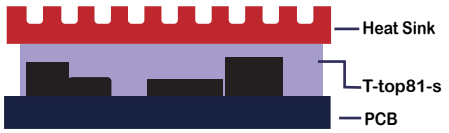
LiPOLY T-top81-s offers outstanding thermal conductivity at 8.0 W/m*K and extremely low thermal resistance under minimal force.
T-top81-s offers excellent compression, filling small air gaps on uneven surfaces, ensuring an efficient and consistent transfer of heat.

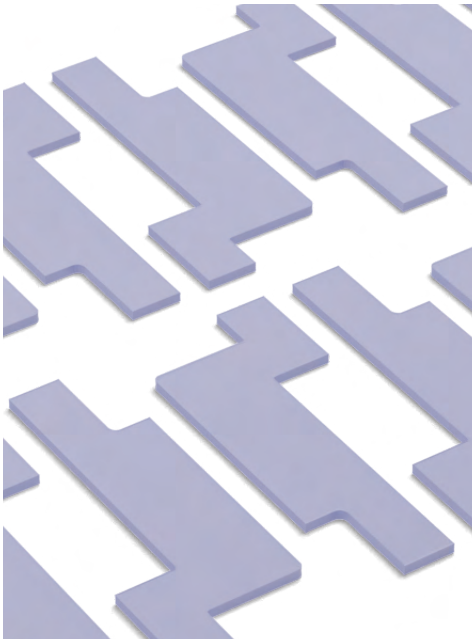
FEATURES

/ Thermal conductivity: 8.0 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-top81-s	Silicone compound with weak sticky surfaces.	Sheets form, Die-cuts parts

TYPICAL PROPERTIES

PROPERTY	T-top81-s	TEST METHOD	UNIT
Color	Purple	Visual	-
Surface tack 2-side/1-side	2	-	-
Thickness	Customized	ASTM D374	mm
Density	3.4	ASTM D792	g/cm³
Hardness	50	ASTM D2240	Shore OO
TML	<0.1	By LiPOLY	%
Application temperature	-60~150	-	°C
ROHS & REACH	Compliant	-	-
COMPRESSION			
Deflection @10 psi	7	ASTM D5470 modify	%
Deflection @20 psi	20	ASTM D5470 modify	%
Deflection @30 psi	43	ASTM D5470 modify	%
Deflection @40 psi	64	ASTM D5470 modify	%
Deflection @50 psi	68	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	10.2	ASTM D150	-
Dielectric constant@1GHz D_k	10.1	ASTM D150	-
Dielectric constant@1.8GHz D_k	10.8	ASTM D150	-
Dissipation factor@10MHz D_f	0.006	ASTM D150	-
Dissipation factor@1GHz D_f	0.002	ASTM D150	-
Dissipation factor@1.8GHz D_f	0.021	ASTM D150	-
THERMAL			
Thermal conductivity	8.0	ASTM D5470	W/m*K
Thermal conductivity	5.5	ISO 22007-2	W/m*K
Thermal impedance@10psi	0.260	ASTM D5470	°C-in²/ W
Thermal impedance@20psi	0.221	ASTM D5470	°C-in²/ W
Thermal impedance@30psi	0.148	ASTM D5470	°C-in²/ W
Thermal impedance@40psi	0.122	ASTM D5470	°C-in²/ W
Thermal impedance@50psi	0.112	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	0.260	0.427	0.613	7	13	16
20	0.221	0.344	0.372	20	30	56
30	0.148	0.212	0.227	43	58	69
40	0.122	0.156	0.182	64	76	85
50	0.112	0.133	0.148	68	80	89

Test method: ASTM D5470

RELIABILITY

Test Property	Compression Force (psi)	70°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.260	0.261	0.260	0.261	0.262
	30	0.148	0.148	0.149	0.149	0.150
	50	0.112	0.113	0.114	0.113	0.115

Test Property	Compression Force (psi)	150°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.260	0.261	0.262	0.261	0.262
	30	0.148	0.149	0.150	0.149	0.151
	50	0.112	0.114	0.113	0.113	0.114

Test Property	Compression Force (psi)	60°C / 90%RH				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.260	0.260	0.259	0.260	0.259
	30	0.148	0.149	0.148	0.149	0.149
	50	0.112	0.113	0.112	0.112	0.111

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	0.260	0.260	0.261	0.260	0.261	0.261
	30	0.148	0.149	0.148	0.150	0.149	0.150
	50	0.112	0.113	0.112	0.113	0.113	0.114

Test Property	Compression Force (psi)	Ultra Low Temperature -60°C					
		Initial	100 hrs	200 hrs	300 hrs	400 hrs	500 hrs
Thermal Impedance	10	0.260	0.260	0.261	0.260	0.261	0.260
	30	0.148	0.147	0.148	0.147	0.148	0.148
	50	0.112	0.111	0.112	0.112	0.112	0.111

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