

T-top91-s

High Thermal Conductive Gap Filler

LiPOLY T-top91-s offers outstanding thermal conductivity at 13.0 W/m*K and extremely low thermal resistance under minimal force.

T-top91-s offers excellent compression, filling small air gaps on uneven surfaces, ensuring an efficient and consistent transfer of heat.

■ FEATURES

- / Thermal conductivity: 13.0 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-top91-s	Silicone compound with weak sticky surfaces.	Sheets form, Die-cuts parts

■ TYPICAL PROPERTIES

PROPERTY	T-top91-s	TEST METHOD	UNIT
Color	Gray Green	Visual	-
Surface tack 2-side/1-side	2	-	-
Thickness	Customized	ASTM D374	mm
Density	3.4	ASTM D792	g/cm ³
Hardness	65	ASTM D2240	Shore 000
TML	<0.1	By LiPOLY	%
Application temperature	-60~150	-	°C
ROHS & REACH	Compliant	-	-
COMPRESSION			
Deflection @10 psi	11	ASTM D5470 modify	%
Deflection @20 psi	38	ASTM D5470 modify	%
Deflection @30 psi	59	ASTM D5470 modify	%
Deflection @40 psi	69	ASTM D5470 modify	%
Deflection @50 psi	76	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	9.9	ASTM D150	-
Dielectric constant@1GHz D _k	9.8	ASTM D150	-
Dielectric constant@1.8GHz D _k	11.4	ASTM D150	-
Dissipation factor@10MHz D _f	0.007	ASTM D150	-
Dissipation factor@1GHz D _f	0.004	ASTM D150	-
Dissipation factor@1.8GHz D _f	0.024	ASTM D150	-
THERMAL			
Thermal conductivity	13.0	ASTM D5470	W/m*K
Thermal conductivity	8.0	ISO 22007-2	W/m*K
Thermal impedance@10psi	0.201	ASTM D5470	°C-in ² / W
Thermal impedance@20psi	0.159	ASTM D5470	°C-in ² / W
Thermal impedance@30psi	0.103	ASTM D5470	°C-in ² / W
Thermal impedance@40psi	0.084	ASTM D5470	°C-in ² / W
Thermal impedance@50psi	0.075	ASTM D5470	°C-in ² / 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	0.201	0.355	0.418	11	17	23
20	0.159	0.290	0.283	38	40	64
30	0.103	0.169	0.183	59	64	79
40	0.084	0.141	0.156	69	73	82
50	0.075	0.118	0.126	76	75	85

Test method: ASTM D5470

■ RELIABILITY

Test Property	Compression Force (psi)	70°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.201	0.201	0.201	0.202	0.202
	30	0.103	0.103	0.104	0.103	0.104
	50	0.075	0.075	0.075	0.076	0.076

Test Property	Compression Force (psi)	150°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.201	0.201	0.202	0.202	0.202
	30	0.103	0.103	0.104	0.103	0.105
	50	0.075	0.075	0.076	0.077	0.077

Test Property	Compression Force (psi)	60°C / 90%RH				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.201	0.201	0.202	0.202	0.202
	30	0.103	0.103	0.104	0.103	0.104
	50	0.075	0.075	0.075	0.076	0.076

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	0.201	0.202	0.202	0.203	0.203	0.203
	30	0.103	0.103	0.104	0.104	0.105	0.105
	50	0.075	0.075	0.075	0.076	0.075	0.076

Test Property	Compression Force (psi)	Ultra Low Temperature -60°C					
		Initial	100 hrs	200 hrs	300 hrs	400 hrs	500 hrs
Thermal Impedance	10	0.201	0.202	0.202	0.203	0.203	0.202
	30	0.103	0.103	0.103	0.104	0.104	0.104
	50	0.075	0.075	0.076	0.076	0.075	0.076

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