T-work8000

High Thermal Conductive Gap Filler

LiPOLY T-work8000 offers outstanding thermal conductivity at 15.0 W/m*K and extremely low thermal resistance under minimal force. T-work8000 offers excellent compression, filling small air gaps on uneven surfaces, ensuring an efficient and consistent transfer of heat.

FEATURES

/ Thermal conductivity: 15.0 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-work8000	Silicone compound with weak sticky surfaces.	Sheets form, Die-cuts parts

TYPICAL PROPERTIES

PROPERTY	T-work8000	TEST METHOD	UNIT
Color	Purple	Visual	-
Surface tack 2-side/1-side	2	-	-
Thickness	Customized	ASTM D374	mm
Density	3.3	ASTM D792	g/cm³
Hardness	65	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	42	ASTM D5470 modify	%
Deflection @30 psi	64	ASTM D5470 modify	%
Deflection @40 psi	71	ASTM D5470 modify	%
Deflection @50 psi	79	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	9.4	ASTM D150	-
Dielectric constant@1GHz D_k	9.3	ASTM D150	-
Dielectric constant@1.8GHz D_k	10.3	ASTM D150	-
Dissipation factor@10MHz D_f	0.006	ASTM D150	-
Dissipation factor@1GHz D_f	0.009	ASTM D150	-
Dissipation factor@1.8GHz D_f	0.028	ASTM D150	-
THERMAL			
Thermal conductivity	15.0	ASTM D5470	W/m*K
Thermal conductivity	9.0	ISO 22007-2	W/m*K
Thermal impedance@10psi	0.185	ASTM D5470	°C-in²/ W
Thermal impedance@20psi	0.122	ASTM D5470	°C-in²/ W
Thermal impedance@30psi	0.074	ASTM D5470	°C-in²/ W
Thermal impedance@40psi	0.054	ASTM D5470	°C-in²/ W
Thermal impedance@50psi	0.046	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	0.185	0.293	0.335	10	20	41
20	0.122	0.167	0.174	42	60	72
30	0.074	0.106	0.115	64	74	82
40	0.054	0.076	0.083	71	82	87
50	0.046	0.059	0.064	79	86	90

Test method: ASTM D5470

RELIABILITY

Test Property	Compression Force (psi)	70°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.185	0.183	0.184	0.185	0.187
	30	0.074	0.076	0.076	0.075	0.077
	50	0.046	0.048	0.047	0.046	0.048

Test Property	Compression Force (psi)	150°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.185	0.186	0.187	0.186	0.187
	30	0.074	0.076	0.077	0.077	0.078
	50	0.046	0.048	0.047	0.047	0.048

Test Property	Compression Force (psi)	60°C / 90%RH				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Impedance	10	0.185	0.186	0.185	0.184	0.183
	30	0.074	0.076	0.077	0.076	0.075
	50	0.046	0.047	0.046	0.045	0.045

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	0.185	0.183	0.184	0.186	0.185	0.186
	30	0.074	0.073	0.074	0.077	0.076	0.076
	50	0.046	0.047	0.045	0.048	0.047	0.047

Test Property	Compression Force (psi)	Ultra Low Temperature -60°C					
		Initial	100 hrs	200 hrs	300 hrs	400 hrs	500 hrs
Thermal Impedance	10	0.185	0.186	0.185	0.184	0.185	0.186
	30	0.074	0.075	0.075	0.073	0.074	0.075
	50	0.046	0.047	0.046	0.045	0.047	0.047

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