

T-work9000

High Thermal Conductive Gap Filler

LiPOLY T-work9000 offers outstanding thermal conductivity at 20.0 W/m*K and extremely low thermal resistance under minimal force. T-work9000 offers excellent compression, filling small air gaps on uneven surfaces, ensuring an efficient and consistent transfer of heat.

■ FEATURES

- / Thermal conductivity: 20.0 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
- / EV electric vehicle



■ CONSTRUCTION

Series	Characteristics	Configurations
T-work9000	Silicone compound with weak sticky surfaces.	Sheets form, Die-cuts parts

■ TYPICAL PROPERTIES

PROPERTY	T-work9000	TEST METHOD	UNIT
Color	Brown	Visual	-
Surface tack 2-side/1-side	2	-	-
Thickness	Customized	ASTM D374	mm
Density	3.3	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	12	ASTM D5470 modify	%
Deflection @20 psi	27	ASTM D5470 modify	%
Deflection @30 psi	58	ASTM D5470 modify	%
Deflection @40 psi	71	ASTM D5470 modify	%
Deflection @50 psi	74	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	10.5	ASTM D150	-
Dielectric constant@1GHz D _k	10.4	ASTM D150	-
Dielectric constant@1.8GHz D _k	11.2	ASTM D150	-
Dielectric factor@10MHz D _f	0.001	ASTM D150	-
Dielectric factor@1GHz D _f	0.006	ASTM D150	-
Dielectric factor@1.8GHz D _f	0.022	ASTM D150	-
THERMAL			
Thermal conductivity	20.0	ASTM D5470	W/m*K
Thermal conductivity	12.0	ISO 22007-2	W/m*K
Thermal impedance@10psi	0.110	ASTM D5470	°C-in ² / W
Thermal impedance@20psi	0.088	ASTM D5470	°C-in ² / W
Thermal impedance@30psi	0.050	ASTM D5470	°C-in ² / W
Thermal impedance@40psi	0.037	ASTM D5470	°C-in ² / W
Thermal impedance@50psi	0.031	ASTM D5470	°C-in ² / W

■ THERMAL IMPEDANCE & COMPRESSION

Compression Force (psi)	Thermal Impedance (°C-in ² /W)			Compression (%)		
	1.0 mm	2.0 mm	3.0 mm	1.0 mm	2.0 mm	3.0 mm
10	0.110	0.201	0.255	12	21	31
20	0.088	0.105	0.120	27	55	68
30	0.050	0.056	0.064	58	78	83
40	0.037	0.039	0.042	71	85	89
50	0.031	0.033	0.035	74	86	90

Test method: ASTM D5470

■ RELIABILITY

Test Property	Compression Force (psi)	70°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Resistance	10	0.110	0.111	0.112	0.112	0.113
	30	0.050	0.051	0.052	0.052	0.053
	50	0.031	0.031	0.032	0.032	0.033

Test Property	Compression Force (psi)	150°C				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Resistance	10	0.110	0.111	0.112	0.113	0.113
	30	0.050	0.051	0.052	0.053	0.053
	50	0.031	0.032	0.032	0.033	0.033

Test Property	Compression Force (psi)	60°C / 90%RH				
		Initial	100 hrs	250 hrs	500 hrs	1000 hrs
Thermal Resistance	10	0.110	0.111	0.112	0.113	0.113
	30	0.050	0.051	0.052	0.053	0.053
	50	0.031	0.032	0.032	0.033	0.033

Test Property	Compression Force (psi)	-40°C (30min) ↔ +125°C (30min)					
		0 Cycles	100 Cycles	200 Cycles	300 Cycles	400 Cycles	500 Cycles
Thermal Resistance	10	0.110	0.110	0.111	0.112	0.113	0.113
	30	0.050	0.050	0.051	0.052	0.052	0.053
	50	0.031	0.032	0.031	0.032	0.032	0.033

Test Property	Compression Force (psi)	Ultra Low Temperature -60°C					
		Initial	100 hrs	200 hrs	300 hrs	400 hrs	500 hrs
Thermal Resistance	10	0.110	0.110	0.111	0.110	0.111	0.110
	30	0.050	0.051	0.050	0.051	0.050	0.050
	50	0.031	0.031	0.032	0.032	0.032	0.031

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

Note: All specifications provided by LiPOLY are subject to change without notice. The test methods used by LiPOLY are based on the TIM Tester method and ASTM D5470 test method. These test methods are used as the definition standards for LiPOLY. Property values provided in this document are not for product specifications or guaranteed. This document does not guarantee the performance and quality required for the purchaser's specific purpose. The purchaser needs to evaluate and verify the safety before using the material. We strongly recommend the purchaser pre-test the product and verify the performance of the product under the purchaser's specific conditions. Liability and use of the product are the responsibility of the end user. LiPOLY makes no warranty as to the suitability, merchantability, or non-infringement of any LiPOLY material or product for any specific or general uses. LiPOLY shall not be liable for incidental or consequential damages of any kind. All LiPOLY products are sold in accordance with the LiPOLY Terms and Conditions in effect at the time of purchase and a copy of which will be furnished upon request. All rights reserved, including LiPOLY trademarks or registered trademarks of LiPOLY or its affiliates. Statements concerning possible or suggested uses made herein shall not be relied upon or be construed as a guaranty of patent infringement. Copyright 2023 LiPOLY.