

Ultra18PT-s

Single-Part Thermal Conductive Adhesive

High Conductivity · Low Resistance · Low Stress · Adhesive Thermal Gel

LiPOLY Ultra18PT-s is a high-performance, single-component silicone-based thermal gel developed by Shiuli Technology for high-power, high-heat-flux electronic devices. The product features a thermal conductivity of up to 18.0 W/m·K and a thermal impedance as low as 0.050 °C·in²/W @ 10 psi, effectively reducing interfacial thermal resistance between heat-generating components and heat sinks, metal housings, or heat-spreading structures to enhance thermal dissipation efficiency. With high viscosity, excellent dispensability, adhesion, and conformability, Ultra18PT-s effectively fills micro-gaps and accommodates assembly tolerances. Its soft material characteristics help minimize material extrusion and displacement while reducing mechanical stress on chips, PCBs, and precision electronic components. Ultra18PT-s is suitable for automated dispensing processes and can be cured at room temperature or by heat to form a stable and reliable bond. It also provides excellent electrical insulation performance and a wide operating temperature range.

■ FEATURES

- / 18.0 W/m·K thermal conductivity
- / Single-component packaging with excellent dispensing and automated processability
- / Working time at 25°C: 3 days; heat curing at 100°C for 60 minutes
- / Soft and compressible, accommodating surface irregularities and reducing component stress.
- / Excellent electrical insulation performance
- / Dissipation Factor, $D_f = 0.0008$ @ 10 MHz
- / Excellent resistance to flow
- / Packaging – Cartridges: 30 mL, 55 mL

■ TYPICAL APPLICATION

/ Ultra18PT-s is suitable for high-power electronic applications across Artificial Intelligence (AI), High Performance Computing (HPC), Data Centers, Optical Communication, High-Speed Networking, Enterprise Storage, and Industrial Electronics. Typical applications include power modules, automotive electronics, battery management systems (BMS), power conversion, heat sink bonding, inverters, 5G, telecommunications, as well as automated TIM dispensing processes.

■ TYPICAL PROPERTIES

PROPERTY	Ultra18PT-s	UNIT	TEST METHOD
Color	Gray	-	Visual
Resin base	Silicone	-	-
Flow rate (30cc EFD tube, 2.35mm Orifice diameter, 90psi & 30s)	54	g/30sec	Internal Test Method
Density	3.1	g/cm ³	ASTM D792
Hardness	85	Shore OO	ASTM D2240
Application temperature	-60~150	°C	-
Bond line thickness	100~1500	μm	-
Working time @ 25°C	3	Days	Internal Test Method
Cure @ 100°C	60	Min	Internal Test Method
Cure @ 140°C	2	Min	Internal Test Method
Lap shear to aluminum	20	N/cm ²	ASTM D1002
Shelf life	6 months	-	-
ROHS & REACH	Compliant	-	-
ELECTRICAL @ 1.0mm			
Dielectric breakdown	15	KV/mm	ASTM D149
Surface resistivity	>10 ¹²	Ohm	ASTM D257
Volume resistivity	>10 ¹²	Ohm-m	ASTM D257
Dielectric constant @ 10MHz D_k	5.3	-	ASTM D150
Dissipation factor @ 10MHz D_f	0.0008	-	ASTM D150
THERMAL			
Thermal conductivity	18.0	W/m·K	ASTM D5470
Thermal impedance @ 10 psi	0.050	°C·in ² /W	ASTM D5470

■ RELIABILITY

Reliability testing was conducted under the specified conditions. Results may vary depending on test conditions and sample configuration. Test method: ASTM D5470. Unit: °C·in²/W.

Test Property	Test Pressure (psi)	Thermal Aging 125°C				
		Initial	200 hrs	400 hrs	700 hrs	1000 hrs
Thermal Impedance	10	0.050	0.053	0.055	0.057	0.058

Test Property	Test Pressure (psi)	Thermal HAST 85°C / 85%RH				
		Initial	200 hrs	400 hrs	700 hrs	1000 hrs
Thermal Impedance	10	0.050	0.050	0.051	0.052	0.052

Test Property	Test Pressure (psi)	Thermal Cycling -40°C (30min) ↔ +125°C (30min)				
		100 Cycles	200 Cycles	300 Cycles	400 Cycles	500 Cycles
Thermal Impedance	10	0.050	0.052	0.053	0.054	0.054

Test Property	Test Pressure (psi)	Ultra Low Temperature -60°C				
		Initial	200 hrs	400 hrs	700 hrs	1000 hrs
Thermal Impedance	10	0.050	0.050	0.051	0.051	0.051

■ WHY Ultra18PT-s?

Ultra18PT-s combines high thermal performance, excellent interface conformability, and reliable electrical insulation to meet the demanding requirements of next-generation high-power electronic devices. Its advanced thermal interface properties enable efficient heat dissipation while accommodating surface irregularities and assembly variations, helping reduce mechanical stress and improve overall thermal performance. With excellent processability and compatibility with automated dispensing, Ultra18PT-s provides a reliable and efficient thermal management solution for high-speed, high-frequency, and high-power electronic applications.

■ STORAGE & SHELF LIFE

- / Store in the original sealed packaging at ≤10°C and protect from direct sunlight and excessive heat.
- / Shelf Life: 6 months when stored unopened at ≤10°C.

■ LiPOLY® THERMAL MANAGEMENT SOLUTIONS

Shiuli Technology (LiPOLY) is dedicated to the development and manufacturing of high performance Thermal Interface Materials, offering comprehensive thermal management solutions including thermal pads, thermal gels, thermal pastes, phase-change materials, and thermally conductive EMI-absorbing materials for electronic devices and high-power applications.