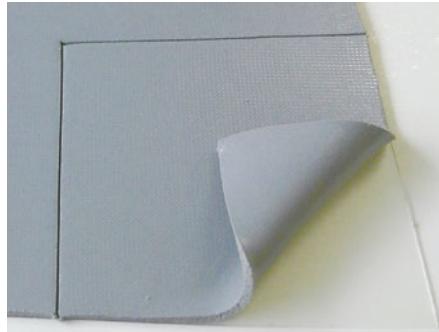


High Thermally Conductive Silicone Pad

TC-UP12

TC-UP12 has good compressibility and higher thermal conductivity than our conventional products.



1 Features

- 1) High thermal conductivity; 12 W/m·K
- 2) Low hardness and good compressibility
- 3) Electrical insulation
- 4) Long term reliability
- 5) Single side less tackiness is available.

2 Applications

Thermal conductive pad for SoC (System on Chip) and so on

3 General properties

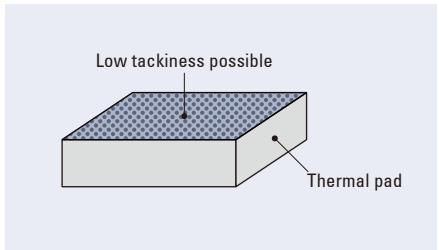
Parameter	Test Method		Grade	TC-UP12	
Color	—		Gray		
Structure*	—		Single layer		
Thickness mm	—		0.5 to 3.0		
Thermal conductivity W/m·K	Hotdisk (ISO22007-2)		12		
Hardness	Asker C		20		
Thermal resistance cm ² ·K/W@1.0 mm	50°C/100 psi ASTM D5470		0.45		
Breakdown voltage in oil kV	JIS C 2110-1 @1 mm		13		
Volume resistivity Ω·cm	JIS K 6249		1.1 × 10 ¹¹		
Dielectric constant (ε)	50 Hz	ASTM D150	13		
	1 kHz		11		
	1 MHz		10		
Dielectric dissipation factor (tan δ)	50 Hz	ASTM D150	2.0 × 10 ⁻¹		
	1 kHz		5.4 × 10 ⁻²		
	1 MHz		2.2 × 10 ⁻²		
Low molecular Siloxane content D ₃ -D ₁₀ ppm	Acetone extraction		20		
Flame retardance	UL94		V-0 equivalent		
Density at 23°C g/cm ³	JIS K 6249		3.0		

* For improving handling, we can prepare the product;

-TL which has less tackiness in one side by special treatment

(Not specified values)

4 Structure



5 How to read Model Number

Example:

TC-100UP12-TL

Thickness

Thermal conductivity

Less tackiness

(By customer request)

* The Thickness of the TC-UP Series product is specified by a two digital code corresponding to the thickness in millimeters multiplied by 100.

6 Thermal resistance

Thermal resistance (cm²·K/W) by ASTM D5470

Pressure (psi)	0.5 mm	1.0 mm	1.5 mm	2.0 mm
10	0.45	0.89	1.21	1.77
40	0.34	0.63	0.79	1.10
70	0.29	0.52	0.64	0.89
100	0.26	0.45	0.54	0.74
130	0.24	0.39	0.46	0.63
170	0.23	0.32	0.37	0.53

(Not specified values)

7 Compression property

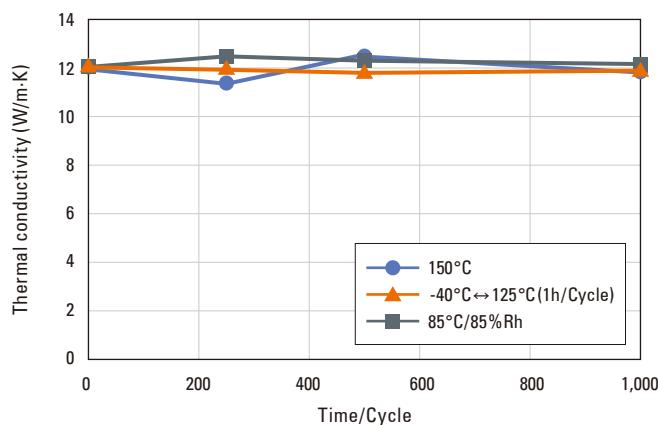
Compression ratio (%)

Pressure (psi)	0.5 mm	1.0 mm	1.5 mm	2.0 mm
10	13	11	14	13
40	30	36	43	41
70	39	46	54	53
100	45	55	62	62
130	48	61	68	68
170	50	67	74	74

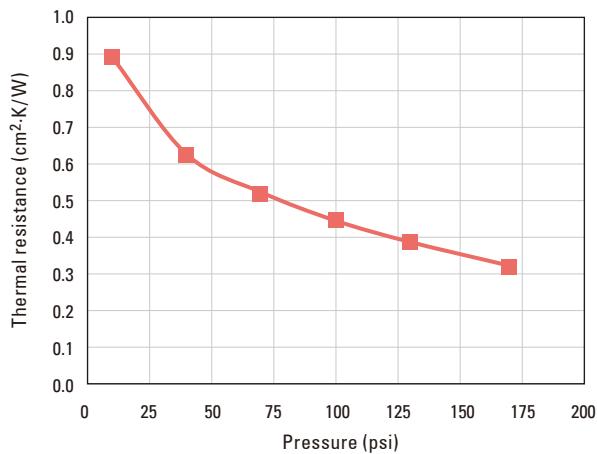
(Not specified values)

8 Reliability data (1 mmt)

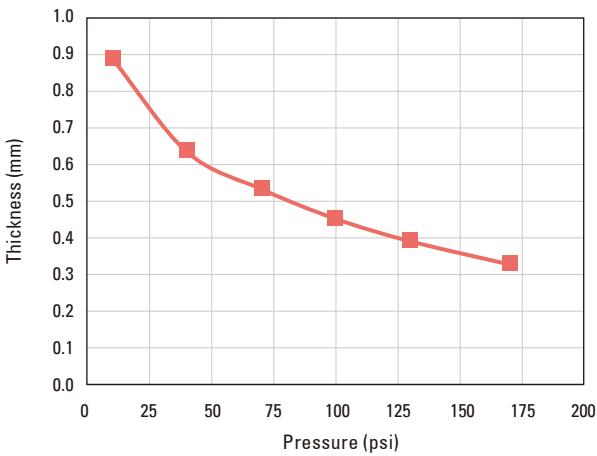
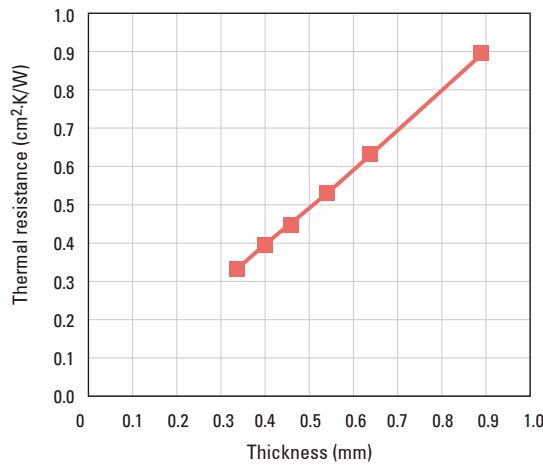
■ Long-term reliability



10 Thermal resistance, Thickness vs. Pressure (1 mmt)



9 Thermal resistance vs. Thickness



11 Handling precautions

- 1) Products should be stored in a dry place out of direct sunlight.
- 2) Avoid contact with residual solvents or oils as they may deteriorate the properties of the product.
- 3) For better results, the substrate surface should be cleaned and dried to remove any dirt, moisture or oils before application.
- 4) Prior to using the product with a thermal interface grease, test a sample with a small amount to determine compatibility.
- 5) Keep out of reach of children.
- 6) Be sure to read the Safety Data Sheets (SDS) for these products before use. SDS are available from the Shin-Etsu Silicone website. If the SDS is not listed on the website, please contact the sales department.

CAUTION

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- For detailed information regarding safety, please refer to the Safety Data Sheet (SDS). Please download the SDS from our website. If the SDS is not listed on the website, please contact the sales department.
- SDS download URL: <https://www.shinetsusilicone-global.com/support/sdstds/>
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ShinEtsu

Shin-Etsu Chemical Co., Ltd.

Marunouchi Eiraku Bldg., 4-1, Marunouchi 1-chome,
Chiyoda-ku, Tokyo, 100-0005 Japan

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Silicone Division, Sales and Marketing Department

Phone : +81-(0)3-6812-2409 Fax : +81-(0)3-6812-2415