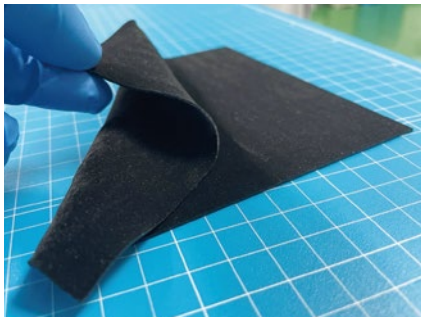
High Thermal Conductive Silicone Pad

STC-PAC50

STC-PAC50 is extremely high performance thermal conductive pad with highly thermally conductive filler oriented vertically.

1 Features

1) Extremely high thermal conductivity through the thickness; 50W/m·K
2) Flexibility
3) Long term reliability



2 Applications

Thermal conductive pad for server, communication base station and so on.

3 General properties

Parameter / Test Method / Grade			STC-PAC50
Color		—	Black
Structure		—	Single layer
Thickness	mm	—	0.5 to 2.5
Thermal conductivity (Bulk)	W/m·K	Xenon flash method	50
Hardness		Asker C	45
		Shore 00	70
Thermal resistance* 50°C/100 psi	$cm^2 \cdot K/W$	ASTM D5470	0.27
Volume resistance	Ω·cm	JIS K 6249	5.0
Dielectric constant (ε)	50 Hz	ASTM D150	2.4×10^3
	1 kHz		6.7×10^2
	1 MHz		5.8×10^2
Dielectric dissipation factor (tanδ)	50 Hz	ASTM D150	5.8×10^3
	1 kHz		8.2×10^2
	1 MHz		9.5×10^{-1}
Flame retardance		UL94	V-0 equivalent
Density at 23°C	g/cm^2	JIS K 6249	1.6
Continuous use temp.	°C	—	-40 to 180

* Uses 1.0 mm pad

(Not specified values)

4 How to read Model Number

Example:

STC-100PAC50

- 100: Thickness 1.0 mm*
- 50: Thermal conductivity 50 W/m·K

* The thickness of the STC-PAC50 product is specified by a two digital code corresponding to the thickness in milimeters multiplied by 100.

With this product, compression control is important. Excessive compression will cause an increase in thermal resistance.

5 Thermal resistance

Thermal resistance ($cm^2 \cdot K/W$) by ASTM D5470

Compression ratio (%)	0.5 mmt	1.0 mmt	1.5 mmt	2.0 mmt	2.5 mmt
5	2.13	0.94	0.58	0.58	0.71
10	0.77	0.37	0.39	0.49	0.61
15	0.30	0.27	0.37	0.49	0.60
20	0.18	0.26	0.38	0.51	0.61
30	0.18	0.27	0.40	0.54	0.66
40	0.18	0.29	0.44	0.59	0.72

(Not specified values)

6 Pressure required for compression

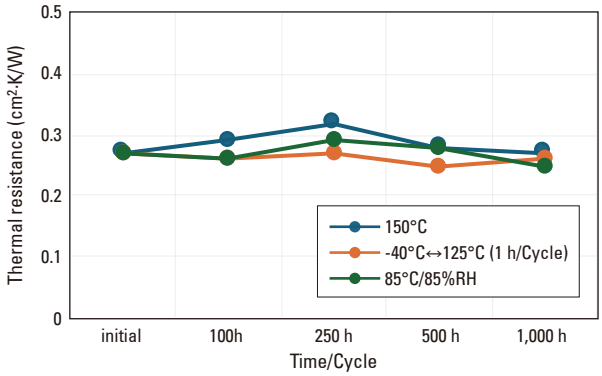
Pressure (psi)

Compression ratio (%)	0.5 mmt	1.0 mmt	1.5 mmt	2.0 mmt	2.5 mmt
5	2.9	7.6	25.9	30.2	26.7
10	8.9	36.5	73.3	50.6	46.7
15	29.0	95.3	81.8	54.6	51.8
20	116.3	123.0	85.9	56.3	52.5
30	189.3	135.5	97.2	62.7	57.1
40	261.7	167.3	118.9	75.3	67.7

(Not specified values)

7 Reliability data (1.0 mmt)

■ **Long-term reliability**

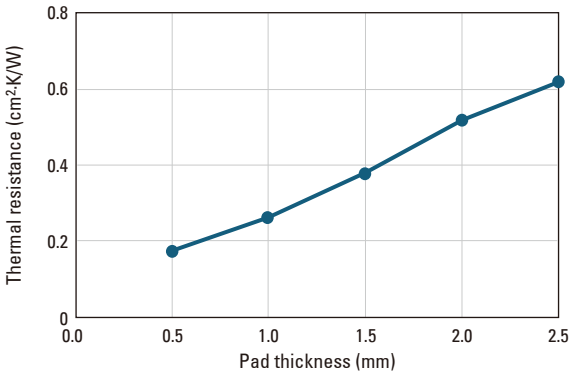


Thermal resistance (cm²·K/W) with 30% compression

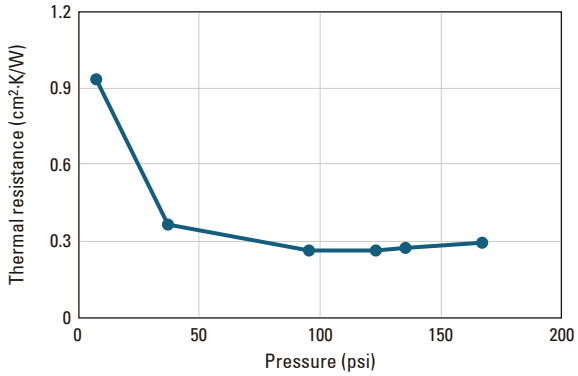
	initial	100 h	250 h	500 h	1,000 h
150°C	0.27	0.29	0.32	0.28	0.27
-40°C↔125°C (1h/Cycle)	0.27	0.26	0.27	0.25	0.26
85°C/85%RH	0.27	0.26	0.29	0.28	0.25

(Not specified values)

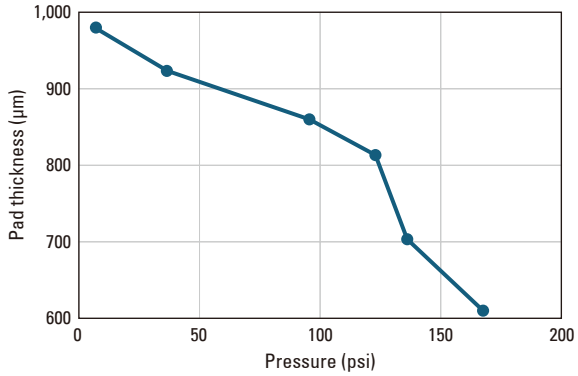
8 Thermal resistance vs. Thickness (20% compression)



9 Thermal resistance vs. Pressure (1.0 mmt)



10 Thickness vs. Pressure (1.0 mmt)



11 Handling precautions

1) Products should be stored in a dry out of direct sunlight.
2) Avoid contact with residual solvents or oils as they may deteriorate the properties.
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 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.

ShinEtsu

https://www.shinetsusilicone-global.com/

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