Fujipoly Data Sheet

SARCON® SPG series

Form in Place Gap Filler Type

FEATURES

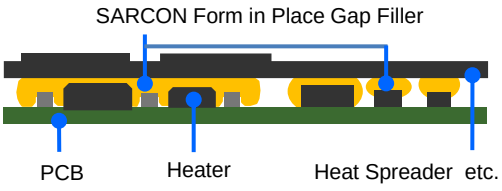
Highly Thermally Conductive and Electricity Insulative Silicone Compound.

SARCON® Form in Place Gap Filler Type is highly conformable and highly thermal conductive type silicone compound with very low compression force. It provides a thermal solution for the recent trends of higher frequencies and integration in the development of electronic device. SARCON® Form in Place Gap Filler Type is suitable for filling the delicate gaps and still provide superior thermal transfer.

CONSTRUCTIONS

Series	Characteristics	Packaging Options
SARCON® SPG-20A	Highl Heat Transferring and very low viscosity Thermal Conductivity ; 2.0W/m-K by using Hot Disk	・Pre-filling tube : 30cc ・Syringe : 30cc ・C a r t r i d g e : 325cc ・Custom Packaging : Available on Request
SARCON® SPG-20B	Highl Heat Transferring and low viscosity Thermal Conductivity ; 2.1W/m-K by using Hot Disk	
SARCON® SPG-30B	Higher Heat Transferring Thermal Conductivity ; 3.1W/m-K by using Hot Disk	
SARCON® SPG-50A	Highest Heat Transferring Thermal Conductivity ; 5.0W/m-K by using Hot Disk	

RECOMMENDED APPLICATION



・Suitable for filling the delicate gaps and still provide superior thermal ransfer.
・ Highly conformable with very low compression forces.
・Has excellent vibration absorption capabilities.
・Maintains thermal properties across a wide temperature range.
・Can be used to "Form-In-Place" and will remain form stable.
・Requires no heat curing.
・Will not cause corrosion on any metal surface.

THERMAL RESISTANCE

Unit : K-cm^2/W (K-in^2/W)

Gap	SPG-20A	SPG-20B	SPG-30B	SPG-50A
0.5mm / 0.02in	2.1 (0.33)	1.8 (0.28)	1.3 (0.20)	0.9 (0.14)
1.0mm / 0.04in	-	2.6 (0.40)	2.1 (0.33)	1.7 (0.26)

Test method: Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.

TYPICAL PROPERTIES

Properties		unit		SPG-20A	SPG-20B	SPG-30B	SPG-50A	Test method
Physical Properties	Color	-		Light Gray	Light Gray	Apricot	Light Sky Blue	Visual
	Specific Gravity	-		2.9	2.8	3.2	3.2	ASTM D792
	Viscosity	Pa-s	1.0(1/s)	600	1,000	2,600	4,100	ASTM D1824
			0.5(1/s)	1,000	1,700	4,000	6,900	
	Weight Loss	wt%		0.03	0.02	0.03	0.06	ASTM D412
	Consistency	-		430	330	230	170	ASTM D1403
Electrical	Volume Resistivity	Ohm-m		$1x10^{12}$	$1x10^{12}$	$1x10^{12}$	$1x10^{12}$	ASTM D257
	Dielectric Constant	-	50Hz	12.47	11.50	14.61	14.85	ASTM D150
			1kHz	12.31	10.95	14.28	14.61	
			1MHz	12.14	10.49	14.38	14.27	
	Dissipation Factor	-	50Hz	0.0030	0.0032	0.0012	0.0024	ASTM D150
			1kHz	0.0007	0.0020	0.0004	0.0009	
			1MHz	0.0003	0.0007	0.0003	0.0004	
Thermal Properties	Thermal Conductivity	W/m-K		2.0	2.1	3.1	5.0	by Hot Disk, ISO/CD 22007-2
	Recommended Operating Temp.	℃		-40 to +150	-40 to +150	-40 to +150	-40 to +150	-
		°F		-40 to +302	-40 to +302	-40 to +302	-40 to +302	
	Extractable Volatiles	wt% (D4 to D20 Total)		0.0026	0.0010	0.0010	0.0043	Gas Chromatography

a) Viscosity: Measured by Modular Advanced Rheometer System RV1 and the specimen flows to 0.5mm Gap between parallel plates.

b) Weight Loss at 150℃(302°F) x24hrs , amount of sample: $2cm^3$ ($0.12in^3$).

c) Thermal Conductivity: Measured by Hot Disk Test method according to ISO / CD22007-2.

COMPRESSION FORCE

Unit : $N/6.4cm^2$ (psi)

1.0mm Gap	SPG-20A	SPG-20B	SPG-30B	SPG-50A
0.9mm / 0.35in	7 (1.6)	9 (2.0)	11 (2.5)	34 (7.7)
0.8mm / 0.32in	9 (2.0)	11 (2.5)	17 (3.9)	38 (8.6)
0.7mm / 0.28in	12 (2.7)	13 (2.9)	25 (5.7)	45 (10.2)
0.6mm / 0.24in	16 (3.6)	17 (3.9)	36 (8.2)	54 (12.2)
0.5mm / 0.20in	24 (5.4)	22 (5.0)	50 (11.3)	69 (15.6)
Sustain	0 (0.0)	2 (0.5)	5 (1.1)	16 (3.6)

0.5mm Gap	SPG-20A	SPG-20B	SPG-30B	SPG-50A
0.45mm / 0.18in	30 (6.8)	32 (7.3)	36 (8.2)	80 (18.1)
0.40mm / 0.16in	39 (8.8)	42 (9.5)	43 (9.7)	89 (20.2)
0.35mm / 0.14in	48 (10.9)	54 (12.2)	55 (12.5)	100 (22.7)
0.30mm / 0.12in	66 (15.0)	69 (15.6)	61 (13.8)	119 (27.0)
0.25mm / 0.10in	85 (19.3)	86 (19.5)	79 (17.9)	141 (31.9)
Sustain	0 (0.0)	3 (0.7)	7 (1.6)	6 (1.4)

Test method: Measured by ASTM D575-91 for reference

- Specimen Area; DIA.28.6mm (1.13in)
- Platens Area; DIA. 28.6mm (1.13in)
- Sustain: Sustain at 0.5mm/0.25mm for 1 minute
- Compression Velocity; 5.0mm/minute
- Setting Gap : 0.5mm or 1.0mm (Initial Gap)
- The specimen is pressed till setting a gap, and then waiting for the load to settle down.

DURABILITY

Thermal Resistance

Unit : $K\text{-}cm^2/W$ ($K\text{-}in^2/W$)

Series	Gap	Initial	+70℃	+150℃	-40℃	+60℃/95%RH	-40℃⇔+125℃ /30min each
			After 1,000hrs	After 1,000hrs	After 1,000hrs	After 1,000hrs	After 1,000hrs
SPG-20A	0.5mm / 0.02in	2.1 (0.33)	2.1 (0.33)	2.1 (0.33)	2.2 (0.34)	2.2 (0.34)	2.6 (0.40)
SPG-20B	0.5mm / 0.02in	1.8 (0.28)	1.8 (0.28)	1.8 (0.28)	1.8 (0.28)	1.8 (0.28)	1.8 (0.28)
SPG-30B	1.0mm / 0.04in	2.1 (0.33)	2.1 (0.33)	2.6 (0.40)	2.1 (0.33)	2.1 (0.33)	2.2 (0.34)
SPG-50A	0.5mm / 0.02in	0.9 (0.14)	1.0 (0.16)	1.2 (0.19)	1.1 (0.17)	0.9 (0.14)	0.9 (0.14)
	1.0mm / 0.04in	1.7 (0.26)	1.8 (0.28)	1.8 (0.28)	1.8 (0.28)	1.7 (0.26)	1.7 (0.26)

Thermal Conductivity ; Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.
(Specimen is sandwiched between aluminum blocks.)

HANDLING NOTES

- It is recommended to compress the material with the equal ratio on the whole surface. Partial excessive stress may also result in excessive silicone oil exudation.

WARRANTY STATEMENT

- Fujipoly has been utilizing Hot Disk method and TIM Tester method since Fujipoly defined them as Fujipoly standard.
- Properties of the products may be revised due to some changes for improving performance.
- Properties values in this document are not specification or guaranteed.
- This product is made of silicone, and silicone oil may exude from the product.
- This product is made of silicone, and low molecular siloxane may vaporize depending on operating conditions.
- The product is designed, developed, and manufactured for general industrial use only. Never use for medical, surgical, and/or relating purposes. Never use for the purpose of implantation and/or other purposes by which a part of or whole product remains in human body.
- Before using, a safety must be evaluated and verified by the purchaser.
- Contents described in the document do not guarantee the performances and qualities required for the purchaser's specific purposes. The purchaser is responsible for pre-testing the product under the purchaser's specific conditions and for verifying the expected performances.
- Statements concerning possible or suggested uses made herein may not be relied upon, or be constructed, as a guaranty of no patent infringement.
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