FUJIPOLY

Fujipoly Data Sheet

SARCON SPG series

Form in Place Gap Filler Type

FEATURES

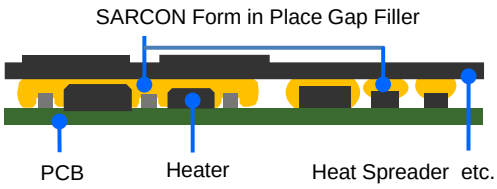
Highly Thermally Conductive and Electricity Insulative Silicone Compound.

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-20B	Highly Heat Transferring and low viscosity Thermal Conductivity：2.1W/m-K by using Hot Disk	・Syringe : 30cc ・Cartridge : 325cc ・Custom Packaging : Available on Request
SARCON SPG-30B	Higher Heat Transferring Thermal Conductivity：3.1W/m-K by using Hot Disk	
SARCON SPG-50A	Higher Heat Transferring Thermal Conductivity：5.0W/m-K by using Hot Disk	
SARCON SPG-70A	Highest Heat Transferring and high flow rate Thermal Conductivity：7.0W/m-K by using Hot Disk	

RECOMMENDED APPLICATION



・Suitable for filling the delicate gaps and still provide superior thermal transfer.
・ 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.

THERMAL RESISTANCE

Test method FTM P-3030

Gap	SPG-20B	SPG-30B	SPG-50A
0.5mm / 0.02in	1.6 (0.25)	1.3 (0.20)	0.9 (0.14)
1.0mm / 0.04in	2.9 (0.45)	2.3 (0.36)	1.7 (0.26)

Measured by using ASTM D5470 modified

Test method FATM P-3031 Unit：K-cm^2/W (K-in^2/W)

Gap	SPG-20B	SPG-30B	SPG-50A	SPG-70A
0.5mm / 0.02in	1.6 (0.24)	1.3 (0.20)	0.9 (0.13)	0.8 (0.12)
1.0mm / 0.04in	3.7 (0.57)	3.1 (0.48)	2.0 (0.31)	1.7 (0.26)

Measured by using ASTM D5470 modified

TYPICAL PROPERTIES

Properties		unit		SPG-20B	SPG-30B	SPG-50A	SPG-70A	Test method
Physical Properties	Color	-		Light Gray	Apricot	Light Sky Blue	Sky Blue	Visual
	Specific Gravity	-		2.8	3.2	3.2	3.2	ASTM D792
	Viscosity	Pa-s	1.0(1/s)	1,000	2,750	4,100	2,750	ASTM D1824 modified
			0.5(1/s)	1,900	4,600	6,900	4,020	
	Flow rate	g		-	-	-	65	Fujipoly Original
	Weight Loss	wt%		0.06	0.05	0.06	0.08	Fujipoly Original
	Consistency	-		330	260	170	184	ASTM D1403
Electrical	Volume Resistivity	Ohm-m		$1x10^{13}$	$1x10^{12}$	$1x10^{12}$	$3.2x10^{9}$	ASTM D257modified
	Dielectric Constant	-	50Hz	10.50	10.34	14.85	-	ASTM D150
			1kHz	10.21	10.25	14.61	-	
			1MHz	9.96	10.18	14.27	-	
	Dissipation Factor	-	50Hz	0.0230	0.0065	0.0236	-	ASTM D150
			1kHz	0.0123	0.0042	0.0087	-	
			1MHz	0.0056	0.0032	0.0041	-	
Thermal Properties	Thermal Conductivity	W/m-K		2.1	3.1	5.0	7.0	by Hot Disk, ISO 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%	D_3 to D_{10}	0.0010	0.0010	0.0016	0.0010	Gas Chromatography
			D_{11} to D_{20}	0.0010	0.0010	0.0010	0.0025*1	

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

b) Flow rate：Syringe PSY-30F, Time 100sec, Pressure 0.5MPa

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

*1 : D_{11}-$D_{19\ total}$ （D_{20} cannot be measured)

COMPRESSION FORCE

Unit：N/6.4cm^2 (psi)

1.0mm Gap	SPG-20B	SPG-30B	SPG-50A	SPG-70A
0.9mm / 0.35in	10 (2.3)	24 (5.4)	34 (7.7)	25 (5.7)
0.8mm / 0.32in	12 (2.7)	28 (6.3)	38 (8.6)	29 (6.6)
0.7mm / 0.28in	14 (3.2)	34 (7.7)	45 (10.2)	34 (7.7)
0.6mm / 0.24in	17 (3.9)	41 (9.3)	54 (12.2)	42 (9.5)
0.5mm / 0.20in	21 (4.8)	53 (12.0)	69 (15.6)	52 (11.8)
Sustain	3 (0.7)	7 (1.6)	16 (3.6)	4 (0.9)

0.5mm Gap	SPG-20B	SPG-30B	SPG-50A	SPG-70A
0.45mm / 0.18in	20 (4.5)	53 (12.0)	80 (18.1)	58 (13.1)
0.40mm / 0.16in	22 (5.0)	62 (14.0)	89 (20.2)	63 (14.3)
0.35mm / 0.14in	24 (5.4)	67 (15.2)	100 (22.7)	73 (16.5)
0.30mm / 0.12in	29 (6.6)	82 (18.6)	119 (27.0)	87 (19.7)
0.25mm / 0.10in	33 (7.5)	96 (21.8)	141 (31.9)	109 (24.7)
Sustain	3 (0.7)	10 (2.3)	6 (1.4)	11 (2.5)

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-cm^2/W (K-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-20B	0.5mm / 0.02in	1.6 (0.25)	1.6 (0.25)	1.6 (0.25)	1.6 (0.25)	1.5 (0.23)	1.5 (0.23)
SPG-30B	1.0mm / 0.04in	2.5 (0.39)	2.5 (0.39)	2.4 (0.37)	2.5 (0.39)	2.4 (0.37)	2.4 (0.37)
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)
SPG-70A	0.5mm / 0.02in	0.8 (0.12)	0.7 (0.11)	0.7 (0.11)	0.8 (0.12)	0.7 (0.10)	0.7 (0.11)
	1.0mm / 0.04in	1.7 (0.26)	1.5 (0.23)	1.7 (0.26)	1.7 (0.27)	1.5 (0.23)	1.6 (0.25)

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

(Specimen is sandwiched between aluminum blocks.)

20B, 30B, 50A：FTM P-3030 70A：FATM P-3031

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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