

Fujipoly Data Sheet

SARCON® GR-Pm series

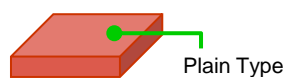
Putty Type

FEATURES

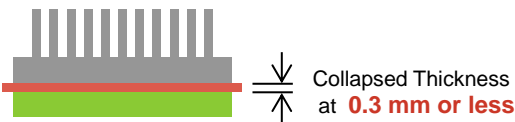
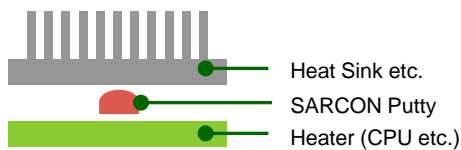
Highly Thermally Conductive and Non-Flammable interface materials.

SARCON® Silicone Putty is a highly conformable, thermally conductive, non-flammable interface materials. The surface consistency is excellent for filling small air gaps and uneven mating surface, making reliable contact with various shapes and sizes of components.

CONSTRUCTION

Series	Characteristics	Constructions
SARCON® GR-Pm	Silicone compound with double sticky surfaces and Thermal Conductivity of GR-Pm material is 6.0W/m-K by using Hot Wire (4.5W/m-K by using Hot Disk)	

RECOMMENDED APPLICATION



What is the optimum size of SARCON Putty to fill Original Gap?



- ✓ Decide Thickness of SARCON depend on the compression force e.g. Decided Thickness = 2mm
- ✓ Calculate Width and Length of SARCON

$$60\text{mm}^3 V \div 2\text{mm} T = 30\text{mm}^2 S$$

$$\bullet 10\text{mm} W : 15\text{mm} L = X : Y$$

$$\bullet X \times Y = 30\text{mm}^2 S$$

$$X = 4.47\text{mm} , Y = 6.71\text{mm}$$

⇒ **use : 200G-Pm 5.0x 7.0**

THERMAL RESISTANCE

Unit : K-cm²/W (K-in²/W)

Compression Force	1.5mmT	2.0mmT	2.5mmT
100kPa(14.5psi)	2.9 (0.45)	3.3 (0.52)	4.3 (0.67)
300kPa(43.5psi)	1.2 (0.19)	1.7 (0.26)	2.0 (0.31)
500kPa(72.5psi)	0.8 (0.12)	1.0 (0.16)	1.4 (0.22)

Test method: Fujipoly Test method, FTM-P3050 by TIM Tester 1300 which is ASTM D5470 equivalent
 • Specimen Area; DIA.33.0mm (1.30in)

TYPICAL PROPERTIES

Properties		unit	GR-Pm		Test method	Specimen	
Physical Properties	Color	-	Dark Radish Gray		Visual	-	
	Specific Gravity	-	3.2		ASTM D 792	A	
Electrical Properties	Volume Resistivity	Ohm-m	1.0x10 ¹²		ASTM D 257	B	
	Breakdown Voltage	kV/mm (volts/mil)	18 (457)		ASTM D 149	B	
	Dielectric Strength	kV/mm (volts/mil)	13 (330)		ASTM D 149	B	
	Dielectric Constant	-	50Hz	7.37		ASTM D 150	A
			1kHz	7.31			
			1MHz	7.34			
Dissipation Factor	-	50Hz	0.0101		ASTM D 150	A	
		1kHz	0.0022				
		1MHz	0.0007				
Thermal Properties	Thermal Conductivity	W/m-K	6.0 by Hot Wire		ASTM D 2326	-	
			4.5 by Hot Disk		ISO/CD 22007-2		
	Useful Temperature	°C (°F)	-40 to +150 (-40 to +302)		-	-	
	Low molecular Siloxane	wt%	D ₄ to D ₂₀ Total	0.0031 or less		Gas Chromatography	-
Flame Retardant	UL94	V-0		UL 94	-		

- Each Specimens are cured for measurement. • Specimen A: 2mmT • Specimen B: 120mmW × 120mmL × 1mmT
- Test methods of Thermal Conductivity are based on Fujipoly Test Method, FTM P-1612 by Hot Disk and FTM P-1620 by Hot Wire.

COMPRESSION FORCEUnit : N/6.4cm² (psi)

Compression Ratio	1.5mmT	2.0mmT	2.5mmT
10%	53 (12.0)	52 (11.8)	50 (11.3)
20%	153 (34.7)	144 (32.6)	123 (27.9)
30%	265 (60.0)	231 (52.3)	207 (46.9)
40%	375 (85.0)	314 (71.1)	289 (65.5)
50%	492 (111.5)	408 (92.4)	371 (84.1)
Sustain 50%	144 (32.6)	118 (26.7)	76 (17.2)

Test method: Measured by ASTM D575-91 for reference

- Specimen Area; DIA.28.6mm (1.13in)
- Platen Area; DIA. 28.6mm (1.13in)
- Sustain 50%: Sustain 50% at 1 minute later
- Compression Velocity; 5.0mm/minute

DURABILITYUnit : K-cm²/W

Test Property	Compression Ratio	70°C					150°C				
		Initial	100hrs	250hrs	500hrs	1,000hrs	Initial	100hrs	250hrs	500hrs	1,000hrs
Thermal Resistance	30%	1.68	1.78	1.78	1.78	1.78	1.68	1.85	1.97	2.27	2.34
	70%	0.90	0.89	0.89	0.89	0.87	0.90	1.02	1.12	1.26	1.33
	90%	0.52	0.52	0.48	0.42	0.42	0.52	0.38	0.38	0.38	0.38
Test Property	Compression Ratio	60°C/90%RH					-40°C(30min)↔+125°C(30min)				
		Initial	100hrs	250hrs	500hrs	1,000hrs	Initial	100hrs	250hrs	500hrs	1,000hrs
Thermal Resistance	30%	1.68	1.68	1.68	1.68	1.65	1.68	1.78	1.78	1.80	1.83
	70%	0.90	0.90	0.90	0.90	0.91	0.90	0.98	1.07	1.07	1.07
	90%	0.52	0.53	0.59	0.60	0.60	0.52	0.44	0.44	0.42	0.42

Test method: Measured by GHP (Guarded Hot Plate) method according to ASTM D5470 modified

- Specimen Area; 30% and 70% compression ratio = 10mm square , initial thickness = 1.5mm
 - Specimen Area; 90% compression ratio = 5mm square , initial thickness = 1.5mm
- (Specimen is sandwiched between aluminum blocks.)

reduced temperature

- 40°C = -40°F
- 60°C = 140°F
- 70°C = 158°F
- 125°C = 257°F
- 150°C = 302°F

TYPES AND CONFIGURATION

Series	Product Name	Thickness	Sheet Size
SARCON® GR-Pm	150G-Pm	1.5mm +0.5/-0mm	300mm x 200mm (Recommended Usable Size:290mmx190mm)
	200G-Pm	2.0mm +0.7/-0mm	
	250G-Pm	2.5mm +0.7/-0mm	

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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