Fujipoly Data Sheet

SARCON® GR14A series

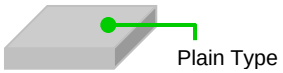
Gap Filler Type

FEATURES

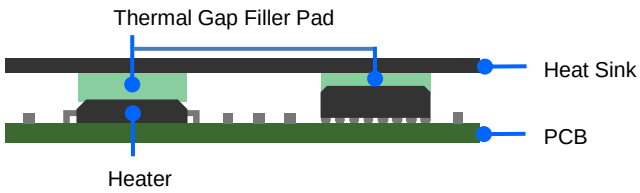
Highly Conformable, Non-Flammable, Isolation and High Heat Conducting Gel materials.

- Gap filler materials are supplied in a fully cured state and remain pliable, easy conforming to minute surface irregularities.
- The basic Gap Filler Pad series can be further enhanced for special handling and die-cutting requirements.

CONSTRUCTIONS

Series	Characteristics	Constructions
SARCON® GR14A-00	Silicone compound with double sticky surfaces and Thermal Conductivity of GR14A material is 1.6W/m-K by using Hot Wire (1.4W/m-K by using Hot Disk)	 Plain Type
SARCON® GR14A-0H	Silicone compound as above GR14A-00 plus additional hardening of the top surface to facilitate handling and installation during complex assemblies	 Hardened Surface

RECOMMENDED APPLICATION



In areas where space between surface is uneven or varies and where surface textures are a concern regarding efficient thermal transfer, the supple consistency of Gap Filler Pad is excellent for filling air gaps and uneven surfaces.

THERMAL RESISTANCE

GR14A-00

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

Compression Force	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
100kPa /14.5psi	3.9 (0.61)	6.3 (0.97)	8.4 (1.31)	9.9 (1.53)	11.1 (1.72)	12.5 (1.94)	15.9 (2.46)	18.4 (2.84)
300kPa /43.5psi	3.3 (0.51)	5.2 (0.81)	6.7 (1.04)	8.0 (1.24)	9.3 (1.44)	10.1 (1.56)	12.2 (1.89)	14.3 (2.21)
500kPa /72.5psi	3.0 (0.46)	4.7 (0.72)	5.9 (0.92)	7.1 (1.10)	8.1 (1.25)	8.7 (1.35)	10.4 (1.62)	12.2 (1.89)

GR14A-0H

Compression Force	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
100kPa /14.5psi	4.2 (0.65)	6.3 (0.97)	8.7 (1.34)	11.1 (1.71)	13.1 (2.03)	14.8 (2.29)	18.1 (2.81)	20.8 (3.23)
300kPa /43.5psi	3.6 (0.56)	5.3 (0.81)	7.3 (1.13)	9.3 (1.44)	10.7 (1.66)	11.9 (1.85)	14.5 (2.25)	16.8 (2.60)
500kPa /72.5psi	3.4 (0.52)	4.8 (0.74)	6.5 (1.00)	8.2 (1.27)	9.4 (1.46)	10.5 (1.63)	12.5 (1.93)	14.3 (2.21)

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		GR14A-00	Test method	Specimen
Physical Properties	Color	-		Gray	Visual	-
	Specific Gravity	-		2.0	ASTM D792	A
	Hardness Highest Value	Shore OO		25	ASTM D2240	B
	Tensile Strength	MPa (psi)		0.1 (14.5)	ASTM D412	A
	Elongation	%		225	ASTM D412	A
	Tear Strength	N/mm (ppi)		0.5 (2.9)	ASTM D624	A
Electrical Properties	Volume Resistivity	Ohm-m		$1.0x10^{11}$	ASTM D257	C
	Breakdown Voltage	kV/mm (volts/mil)		14 (356)	ASTM D149	C
	Dielectric Strength	kV/mm (volts/mil)		11 (279)	ASTM D149	C
	Dielectric Constant	-	50Hz	4.82	ASTM D150	A
			1kHz	4.31		
			1MHz	4.04		
	Dissipation Factor	-	50Hz	0.0916	ASTM D150	A
			1kHz	0.0421		
			1MHz	0.0060		
Thermal Properties	Thermal Conductivity	W/m-K		1.6 by Hot Wire	ASTM D2326	-
				1.4 by Hot Disk	ISO/CD 22007-2	
	Useful Temperature	℃ (°F)		-40 to +150 (-40 to +302)	-	-
	Low molecular Siloxane	wt%		D_4 to D_{20} Total 0.0034	Gas Chromatography	-
	Flame Retardant	-		V-0	UL 94	-

• Specimen A: 2mmT • Specimen B: 30mmW x 50mmL x 12mmT (3mmT x 4pcs) • Specimen C: 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 FORCE

GR14A-00

Unit : N/6.4cm^2 (psi)

Compression Ratio	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
10%	74 (16.8)	61 (13.8)	55 (12.5)	44 (10.0)	37 (8.4)	29 (6.6)	22 (5.0)	13 (3.0)
20%	195 (44.2)	135 (30.6)	117 (26.5)	98 (22.2)	75 (17.1)	63 (14.3)	45 (10.2)	29 (6.6)
30%	337 (76.4)	244 (55.3)	201 (45.5)	166 (37.6)	135 (30.6)	121 (27.4)	88 (19.9)	62 (14.0)
40%	512 (116.0)	405 (91.8)	339 (76.8)	286 (64.8)	241 (54.5)	198 (44.9)	162 (36.8)	121 (27.5)
50%	673 (152.5)	568 (128.7)	516 (116.9)	467 (105.8)	399 (90.4)	332 (75.2)	281 (63.7)	220 (49.8)
Sustain 50%	301 (68.1)	296 (67.1)	275 (62.3)	247 (56.0)	209 (47.4)	173 (39.2)	147 (33.3)	114 (25.9)

GR14A-0H

Compression Rate	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
10%	313 (70.9)	227 (51.4)	141 (31.9)	92 (20.8)	54 (12.2)	46 (10.4)	34 (7.7)	22 (5.0)
20%	531 (120.3)	397 (90.0)	262 (59.4)	177 (40.1)	115 (26.1)	98 (22.2)	72 (16.3)	49 (11.1)
30%	758 (171.7)	602 (136.4)	446 (101.0)	328 (74.3)	221 (50.1)	194 (44.0)	147 (33.3)	104 (23.6)
40%	969 (219.5)	830 (188.0)	690 (156.3)	539 (122.1)	383 (86.8)	344 (77.9)	265 (60.0)	196 (44.4)
50%	1227 (278.0)	1121 (254.0)	1014 (229.7)	823 (186.5)	618 (140.0)	567 (128.5)	445 (100.8)	341 (77.3)
Sustain 50%	1025 (232.2)	857 (194.2)	689 (156.1)	522 (118.3)	355 (80.4)	322 (73.0)	240 (54.4)	182 (41.2)

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

DURABILITY

Test Property	Unit	70℃		150℃	
		Initial	After 1,000hrs	Initial	After 1,000hrs
Specific Gravity	-	2.0	2.0	2.0	2.0
Hardness	Shore OO	25	28	25	30
Breakdown Voltage	kV/mm	14	14	14	17
Thermal Conductivity	W/m-K	1.4	1.4	1.4	1.4

Test Property	Unit	60℃/95%RH		-40℃	
		Initial	After 1,000hrs	Initial	After 1,000hrs
Specific Gravity	-	2.0	2.0	2.0	2.0
Hardness	Shore OO	25	27	25	27
Breakdown Voltage	kV/mm	14	14	14	14
Thermal Conductivity	W/m-K	1.4	1.4	1.4	1.4

Test Property	Unit	-40℃(30min)⇔+125℃(30min)	
		Initial	After 1,000hrs
Specific Gravity	-	2.0	2.0
Hardness	Shore OO	25	30
Breakdown Voltage	kV/mm	14	17
Thermal Conductivity	W/m-K	1.4	1.3

•Specimen : GR14A-00 • Test methods of Thermal Conductivity base on Fujipoly Test Method, FTM P-1612 by Hot Disk.

reduced temperature

-40℃ = -40°F 60℃ = 140°F 70℃ = 158°F

125℃ = 257°F 150℃ = 302°F

TYPES AND CONFIGURATION

Series	Product Name	Thickness	Sheet Size
SARCON® GR14A-00	GR14A-00-50GY	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	GR14A-00-100GY	1.0mm ± 0.20mm	
	GR14A-00-150GY	1.5mm ± 0.20mm	
	GR14A-00-200GY	2.0mm ± 0.30mm	
	GR14A-00-250GY	2.5mm ± 0.30mm	
	GR14A-00-300GY	3.0mm ± 0.30mm	
	GR14A-00-350GY	3.5mm ± 0.35mm	
	GR14A-00-400GY	4.0mm ± 0.40mm	
	GR14A-00-450GY	4.5mm ± 0.45mm	
	GR14A-00-500GY	5.0mm ± 0.50mm	
SARCON® GR14A-0H	GR14A-0H-50GY	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	GR14A-0H-100GY	1.0mm ± 0.20mm	
	GR14A-0H-150GY	1.5mm ± 0.20mm	
	GR14A-0H-200GY	2.0mm ± 0.30mm	
	GR14A-0H-250GY	2.5mm ± 0.30mm	
	GR14A-0H-300GY	3.0mm ± 0.30mm	
	GR14A-0H-350GY	3.5mm ± 0.35mm	
	GR14A-0H-400GY	4.0mm ± 0.40mm	
	GR14A-0H-450GY	4.5mm ± 0.45mm	
	GR14A-0H-500GY	5.0mm ± 0.50mm	

HANDLING NOTES

- It is recommended to use the material in up to 30% of compression ratio. Using the material beyond the recommended compression rate may result in excessive silicone oil exudation.
- 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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