

Fujipoly Data Sheet

SARCON® GR45A series

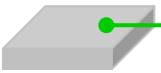

Gap Filler Type

FEATURES

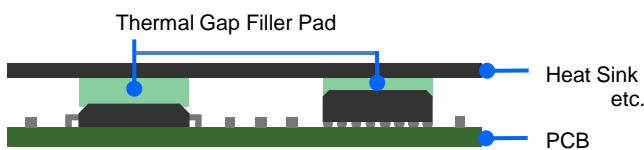
Highly Conformable, Non-Flammable, Isolation and High Heat Conducting Gel materials.

- 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.

CONSTRUCTION

Series	Characteristics	Constructions
SARCON® GR45A-00	Silicone compound with double sticky surfaces and Thermal Conductivity of GR45A material is 6.0W/m-K by using Hot Wire (4.5W/m-K by using Hot Disk)	 Plain Type
SARCON® GR45A-0H	Silicone compound as above GR45A-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

GR45A-00

Unit : K-cm²/W (K-in²/W)

Compression Force	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
100kPa(14.5psi)	1.8 (0.28)	2.4 (0.37)	2.9 (0.46)	3.6 (0.56)	4.4 (0.68)	5.1 (0.79)	6.2 (0.95)	7.4 (1.14)
300kPa(43.5psi)	1.5 (0.24)	2.1 (0.32)	2.7 (0.41)	3.1 (0.49)	3.6 (0.56)	4.1 (0.64)	4.5 (0.70)	4.5 (0.70)
500kPa(72.5psi)	1.3 (0.21)	1.9 (0.30)	2.4 (0.37)	2.7 (0.42)	2.7 (0.42)	3.2 (0.49)	3.4 (0.53)	3.5 (0.54)

GR45A-0H

Compression Force	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
100kPa(14.5psi)	1.4 (0.22)	2.3 (0.35)	2.9 (0.45)	3.6 (0.55)	4.0 (0.62)	4.7 (0.73)	6.0 (0.93)	6.9 (1.07)
300kPa(43.5psi)	1.2 (0.18)	2.0 (0.30)	2.6 (0.40)	3.1 (0.47)	3.3 (0.51)	3.7 (0.57)	4.3 (0.67)	4.9 (0.77)
500kPa(72.5psi)	1.1 (0.17)	1.8 (0.28)	2.3 (0.35)	2.7 (0.41)	2.6 (0.40)	2.6 (0.40)	3.2 (0.49)	3.7 (0.57)

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	GR45A-00	Test method	Specimen		
Physical Properties	Color	-	Gray	Visual	-	
	Specific Gravity	-	3.2	ASTM D 792	A	
	Hardness Highest Value	Shore OO (ASKER C)	60 (35) / less than 1.5mmT	ASTM D2240 (ISO 7619)	B	
			43 (20) / 1.5mmT or more			
	Tensile Strength	MPa (psi)	0.2 (29.0)	ASTM D 412	A	
	Elongation	%	50	ASTM D 412	A	
Tear Strength	N/mm (ppi)	0.5 (2.9)	ASTM D 624	A		
Electrical Properties	Volume Resistivity	Ohm-m	1.0x10 ¹¹	ASTM D 257	C	
	Breakdown Voltage	kV/mm (volts/mil)	17 (432)	ASTM D 149	C	
	Dielectric Strength	kV/mm (volts/mil)	14 (336)	ASTM D 149	C	
	Dielectric Constant	-	50Hz	8.98	ASTM D 150	A
			1kHz	8.63		
			1MHz	8.05		
	Dissipation Factor	-	50Hz	0.0249	ASTM D 150	A
1kHz			0.0219			
1MHz			0.0068			
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)	-40to+150 (-40to+302)		-	-
	Low molecular Siloxane	wt%	D ₄ to D ₂₀ Total	0.0046	Gas Chromatography	-
Flame Retardant	UL94	V-0		UL 94	-	

- Specimen A: 2mmT • Specimen B: 30mmW x 50mmL x 12mmT (3mmT x 4pcs) • Specimen C: 120mmW x 120mmL x 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**GR45A-00**Unit : N/6.4cm² (psi)

Compression Ratio	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
10%	70 (15.9)	72 (16.3)	69 (15.6)	52 (11.8)	46 (10.4)	36 (8.2)	31 (7.0)	27 (6.1)
20%	243 (55.1)	291 (65.9)	201 (45.5)	160 (36.3)	141 (31.9)	116 (26.3)	95 (21.5)	81 (18.4)
30%	470 (106.5)	551 (124.8)	372 (84.3)	300 (68.0)	259 (58.7)	216 (48.9)	169 (38.3)	139 (31.5)
40%	703 (159.3)	859 (194.6)	545 (123.5)	441 (99.9)	373 (84.5)	308 (69.8)	239 (54.1)	195 (44.2)
50%	913 (206.9)	1135 (257.2)	720 (163.1)	582 (131.9)	490 (111.0)	410 (92.9)	315 (71.4)	257 (58.2)
Sustain 50%	649 (147.0)	667 (151.1)	282 (63.9)	219 (49.6)	182 (41.2)	152 (34.4)	117 (26.5)	93 (21.1)

GR45A-0H

Compression Ratio	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
10%	90 (20.4)	103 (23.3)	102 (23.1)	76 (17.2)	69 (15.6)	52 (11.8)	43 (9.7)	33 (7.5)
20%	264 (59.8)	317 (71.8)	266 (60.3)	217 (49.2)	185 (41.9)	164 (37.2)	137 (31.0)	106 (24.0)
30%	475 (107.6)	564 (127.8)	506 (114.6)	417 (94.5)	360 (81.6)	297 (67.3)	226 (51.2)	189 (42.8)
40%	705 (159.7)	871 (197.3)	750 (169.9)	607 (137.5)	523 (118.5)	446 (101.0)	340 (77.0)	263 (59.6)
50%	956 (216.6)	1157 (262.1)	986 (223.4)	841 (190.5)	716 (162.2)	589 (133.5)	443 (100.4)	339 (76.8)
Sustain 50%	715 (162.0)	724 (164.0)	510 (115.6)	391 (88.6)	307 (69.6)	241 (54.6)	188 (42.6)	145 (32.9)

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°C		150°C	
			Initial	After 1,000hrs	Initial	After 1,000hrs
Specific Gravity		-	3.2	3.2	3.2	3.2
Hardness	less than 1.5mmT	Shore OO (ASKER C)	60 (35)	64 (42)	60 (35)	85 (78)
	1.5mmT or more		45 (20)	44 (25)	45 (20)	85 (78)
Breakdown Voltage		kV/mm	17	18	17	20
Thermal conductivity		W/m-K	4.5	4.6	4.5	4.8

Test Property		Unit	60°C/95%RH		-40°C	
			Initial	After 1,000hrs	Initial	After 1,000hrs
Specific Gravity		-	3.2	3.2	3.2	3.2
Hardness	less than 1.5mmT	Shore OO (ASKER C)	60 (35)	61 (36)	60 (35)	60 (35)
	1.5mmT or more		45 (20)	50 (25)	45 (20)	45 (20)
Breakdown Voltage		kV/mm	17	17	17	16
Thermal conductivity		W/m-K	4.5	4.6	4.5	4.8

Test Property		Unit	-40°C(30min)↔+125°C(30min)	
			Initial	After 1,000hrs
Specific Gravity		-	3.2	3.2
Hardness	less than 1.5mmT	Shore OO (ASKER C)	60 (35)	69 (45)
	1.5mmT or more		45 (20)	54 (29)
Breakdown Voltage		kV/mm	17	19
Thermal Conductivity		W/m-K	4.5	4.6

• Specimen : GR45A-00 • Test methods of Thermal Conductivity base on Fujipoly Test Method, FTM P-1612 by Hot Disk.

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® GR45A-00	GR45A-00-50GY	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 280mm×190mm)
	GR45A-00-100GY	1.0mm ± 0.20mm	
	GR45A-00-150GY	1.5mm ± 0.20mm	
	GR45A-00-200GY	2.0mm ± 0.30mm	
	GR45A-00-250GY	2.5mm ± 0.30mm	
	GR45A-00-300GY	3.0mm ± 0.30mm	
	GR45A-00-350GY	3.5mm ± 0.35mm	
	GR45A-00-400GY	4.0mm ± 0.40mm	
	GR45A-00-450GY	4.5mm ± 0.45mm	
SARCON® GR45A-0H	GR45A-0H-50GY	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 280mm×190mm)
	GR45A-0H-100GY	1.0mm ± 0.20mm	
	GR45A-0H-150GY	1.5mm ± 0.20mm	
	GR45A-0H-200GY	2.0mm ± 0.30mm	
	GR45A-0H-250GY	2.5mm ± 0.30mm	
	GR45A-0H-300GY	3.0mm ± 0.30mm	
	GR45A-0H-350GY	3.5mm ± 0.35mm	
	GR45A-0H-400GY	4.0mm ± 0.40mm	
	GR45A-0H-450GY	4.5mm ± 0.45mm	
GR45A-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.
- Copyright © 2014 Fujipoly®