Fujipoly New Product Technical Information

NEW PRODUCT : SARCON® 25G-Tac

Thermally Conductive Double Sided Pressure Sensitive Adhesion Silicone Tapes

1. Features:

Sarcon® 25G-Tac is a general type of thermal conductive gel material (Sarcon® GR-ac) with polyester cloth embedded overall, 1.5 Watt/m-K (no electricity conductive), and has high adhesiveness, in a versatile sheet form that easily fits and adheres to most of all shapes and sizes of components, and makes reliable and complete physical contact. The surface consistency of the pads is excellent for filling air gaps and uneven surfaces.

1) Low thermal resistance
2) High tackiness

2. Variety of Sarcon® GR-Tac Products:

Description	Construction	Application Guidelines
Sarcon® 25G-Tac (GR-Tac)	Silicone (gel) compound with both sides tacky with polyester cloth embedded overall	Between LED chips mounted Metal Substrate and heat sink. Between semiconductor and heat sink.

* Can be processed to custom designs. (cutting or punching)

3. Typical Product Properties:

3-1. Thermal Properties and Flame Retardancy: (Typical Value)

Item		25G-Tac			Test Method
Thermal Resistance	Force(kPa)	100	300	500	Fujipoly Test Method: TIM1300
(℃·cm^2/watt)		2.25	2.12	2.06	Tester based on ASTM D5470.
Flame Retardancy		VTM-0 equivalent			UL94 standard
Operating Temperature		-40 ～ +150 ℃			－

4. Typical Material Properties: (Typical Value)

Item	Unit	Sarcon® GR-Tac	Test method	Specimen *1)
Color	-	Dark Reddish Gray	Visual	-
Specific Gravity	-	2.6	JIS K 6220 / ASTM D 792	A
Hardness	ASKER-C	35	JIS K 7312	B
Thermal Conductivity	Watt/m·K	1.5	Hot Disk method tester (TPA-501) based on ASTM D2326	D
Tensile Strength	MPa	9	JIS K 6251(#2 Die)/ASTM D412	A
Elongation	%	25	JIS K 6251(#2 Die)/ASTM D412	A
Tear Strength	N/mm	14	JIS K 6252(Angle Die)/ASTM D624	A
Volume Resistivity	MΩ·m	$2x10^5$	JIS K 6249/ASTM D257	C
Breakdown Voltage	kV	4	JIS K 6249/ASTM D149	A
Withstand Voltage	kV	3.5	JIS K 6249/ASTM D149	A
Adhesion Strength	N	10.3	ASTM D1002	E
Low Molecular Weight Siloxane Content (D_{4-}	wt%	Less than 0.0029	Gas Chromatography method: Extraction solvent: Carbon Tetrachloride	C

Remark 1) Specimen A 0.25mmT (25G-Tac)
Specimen B 30mm width x 50mm length x 12mm thickness, 4 (300G-ac) sheets stacked
Specimen C 120mm width x 120mm length x 1mm thickness (100G-ac)
Specimen D 50mm width x 50mm length x 9mm thickness 3 (300G-ac) sheets stacked
Specimen E 25.4mm width x 14.5mm length x 0.25mm thickness (25G-Tac)

5. Configuration:

Type	Product Description	Width x Length	Thickness
Sarcon® GR-Tac	25G-Tac	Max. 300x200 mm	0.25±0.05mm

Alternative thicknesses are available on request.
Sarcon® 25G-Tac is supplied 50 meter rolls at 50mm width. Alternative widths (Max. 400mmW) are available on request.

6. Aging Test: (Typical Value)

6.1 Test Condition: +70℃ x 1000hrs. --- Sarcon® GR-Tac

Property	Unit	Initial	100hrs.	500hrs.	1000hrs.	Test method	Specimen*1)
Specific Gravity	-	2.6	2.6	2.7	2.7	JIS K 6220 / ASTM D 792	A
Tensile Strength	MPa	9	9	9	9	JIS K 6251(#2 Die)/ASTM D412	A
Elongation	%	25	25	20	15	JIS K 6251(#2 Die)/ASTM D412	A
Tear Strength	kN/m	14	15	15	14	JIS K 6252(Angle Die)/ASTM D624	A
Volume Resistivity	MΩ・m	$2x10^5$	$1x10^5$	$9x10^4$	$9x10^4$	JIS K 6249/ASTM D257	B
Thermal Conductivity	W/m・K	1.5	1.5	1.5	1.5	Hot Disk method tester (TPA-501) based on ASTM D2326 equivalent	C

6.2 Test Condition: +150℃ x 1000hrs. --- Sarcon® GR-Tac

Property	Unit	Initial	100hrs.	500hrs.	1000hrs.	Test method	Specimen*1)
Specific Gravity	-	2.6	2.7	2.7	2.7	JIS K 6220 / ASTM D 792	A
Tensile Strength	MPa	9	9	9	9	JIS K 6251(#2 Die)/ASTM D412	A
Elongation	%	25	20	20	15	JIS K 6251(#2 Die)/ASTM D412	A
Tear Strength	kN/m	14	15	18	19	JIS K 6252(Angle Die)/ASTM D624	A
Volume Resistivity	MΩ・m	$2x10^5$	$8x10^4$	$2x10^4$	$3x10^5$	JIS K 6249/ASTM D257	B
Thermal Conductivity	W/m・K	1.5	1.5	1.5	1.5	Hot Disk method tester (TPA-501) based on ASTM D2326 equivalent	C

6.3 Test Condition: +60℃ / 90% RH --- Sarcon® GR-Tac

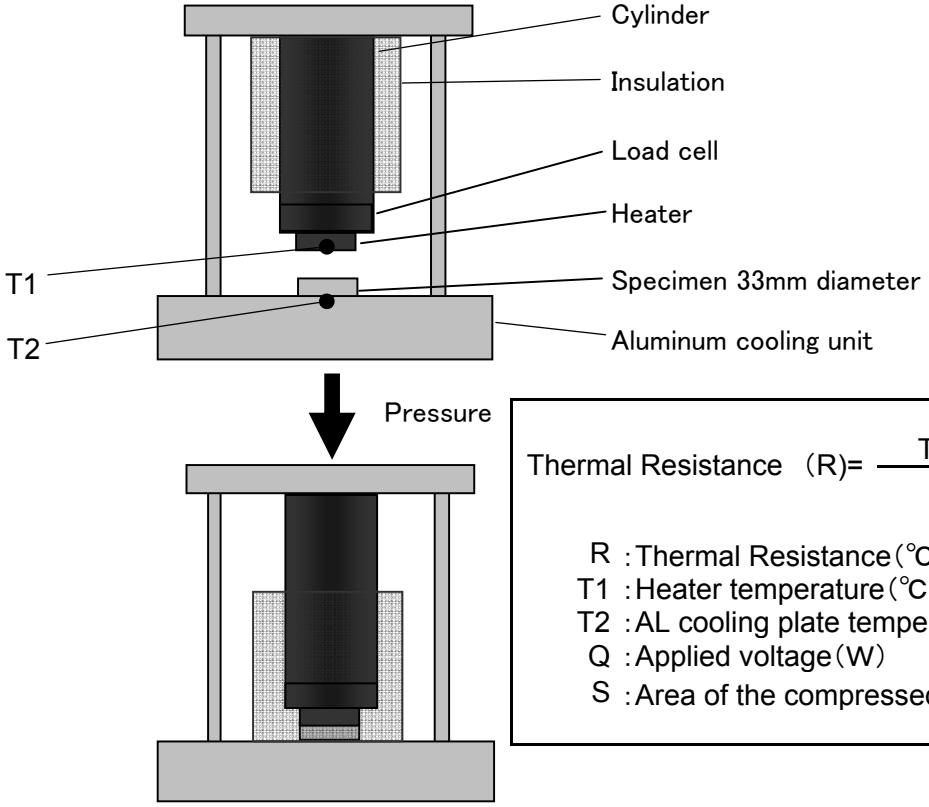
Property	Unit	Initial	100hrs.	500hrs.	1000hrs.	Test method	Specimen*1)
Specific Gravity	-	2.6	2.6	2.6	2.7	JIS K 6220 / ASTM D 792	A
Tensile Strength	MPa	9	9	9	9	JIS K 6251(#2 Die)/ASTM D412	A
Elongation	%	25	20	20	15	JIS K 6251(#2 Die)/ASTM D412	A
Tear Strength	kN/m	14	14	16	15	JIS K 6252(Angle Die)/ASTM D624	A
Volume Resistivity	MΩ・m	$2x10^5$	$9x10^4$	$6x10^4$	$5x10^4$	JIS K 6249/ASTM D257	B
Thermal Conductivity	W/m・K	1.5	1.5	1.5	1.5	Hot Disk method tester (TPA-501) based on ASTM D2326 equivalent	C

Remark 1) Specimen A 0.25mmT (25G-Tac)
Specimen B 30mm width x 50mm length x 12mm thickness, 4 (300G-ac) sheets stacked
Specimen C 120mm width x 120mm length x 1mm thickness (100G-ac)

Conversion of Unit

Thermal Resistance	1 ℃·cm^2/W = 0.155 ℃·inch^2/W
Tensile Strength:	1 kgf/cm^2 = 0.0981 MPa
Tear Strength:	1 kgf/cm = 0.981 N/mm
Thermal Conductivity:	1 cal/cm·sec·℃ = 419 W/m·K
Load:	1kgf = 9.8067 N

Test method of TIM tester



$$\text{Thermal Resistance } (R) = \frac{T1-T2}{Q} \times S$$

R : Thermal Resistance (℃·cm^2/W)
T1 : Heater temperature (℃)
T2 : AL cooling plate temperature (℃)
Q : Applied voltage (W)
S : Area of the compressed specimen (cm^2)

Test method of Thermal Conductivity

Thermal conductivity value is calculated the measured thermal resistance using above testing method and the specimen's thickness

Notes:

- Properties of the products may be revised due to some changes for improving performance.
- Properties values in this document are not specification or guaranteed.
- All Fujipoly test data in this document are based on Fujipoly test methods and are believe to be accurate and reliable. Nevertheless, any Fujipoly test data shows typical product properties and does not show the guaranteed product properties.
- Some silicone oil may exude from the product according to operating conditions.
- Some low molecular siloxane may vaporize from the product according to operating conditions.
- It is advisable to use the product under recommended operating condition. Some more silicone oil may exude from the product if it was used beyond the recommended condition.
- It is advisable to use the product under parallel and even compression. Some more silicone oil may exude from the product if it was used under excessive or partial stress.
- Products testing by the purchaser is recommended in order to meet expected results such as performance and application.
- The products in the document are low hardness ones. The products may deform to some extend when taking the sheets off the liner. Customer are advised to test the handling performance before use.

Statement of Lieu of Warranty:

All technical information and data in this document is based on tests and is believed to be accurate and reliable. Nevertheless, since the products described herein are not provided to conform with mutually accepted specifications and the use thereof is unknown, the manufacturer and seller of the product do not guarantee results, freedom from patent infringement, or suitability of the product for any application thereof. The manufacturer and seller of the product described in this document will provide all possible technical assistance and will replace any products proven defective. No statement or recommendation made by the manufacturer or seller not contained herein shall have any force of effect unless in conformity with an agreement signed by an officer of the seller or manufacturer. Product testing by the purchaser is recommended in order to confirm expected results.

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