

FUJIPOLY[®]

SARCON[®] GR-d Series.

High Heat Conductive Flame Retardant Silicone Gap Filler Pad.

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ISO9001

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FUJIPOLY[®] DATA SHEET

FPDS 99-22 (Version 5)

1] Product Name :

Sarcon[®] GR-d material (Gap Filler pads.)

2] Features. :

Sarcon[®] GR-d is a highly conformable, thermally conductive material in areas where space between surfaces is uneven and surface textures vary. Sarcon[®] GR-d material conforms to irregular surfaces and fills air gaps.

Applications include.

- 1) Between a chassis wall and other surface.
- 2) Between a "CPU" and heat sinks.
- 3) Between a semiconductors and heat sinks.
- 4) Areas where heat needs to be transferred to some type of heat spreader.

3] Variety of Sarcon[®] GR-d products.

Table - 1

Series	Construction	Application Guidelines
Sarcon[®] GR-d	Silicone compound	Between a chassis wall and other surface. Between CPU and heat sink. Between a semiconductor and heat sink.
Sarcon[®] GR-Hd	Silicone compound with hardened top surface	Same as above, except hardened top surface facilitates handling and installation during complex assemblies.
Sarcon[®] GR-Fd	Silicone compound with mesh embedded overall	Same as Sarcon GR-d, except nylon mesh reinforcement prevent stretching, i.e. elongation of die-cut holes.
Sarcon[®] GR-HFd	Silicone compound with hardened top surface and mesh embedded overall	Same as Sarcon GR-d, except hardened top surface facilitates handling and installation during complex assemblies; nylon mesh reinforcement prevents stretching, i.e. elongation of die-cut holes.

*Available in thicknesses for 0.50mm (0.020") to 5.00mm (0.197").

*Can be designed for custom applications.

*Flame retardant silicone polymer filled with an special organic substance.

4] Types and Configuration.

Table - 2

Series	Product Description	Width x Length	Thickness
Sarcon® GR-d	Sarcon® 50G-d	Usable size 280mm x 180mm (11" x 7.1")	0.5mm ± 0.1mm
	Sarcon® 100G-d		1.0mm ± 0.2mm
	Sarcon® 150G-d		1.5mm ± 0.2mm
	Sarcon® 200G-d		2.0mm ± 0.3mm
	Sarcon® 250G-d		2.5mm ± 0.3mm
	Sarcon® 300G-d	Actual size 300mm x 200mm (11.8" x 7.8")	3.0mm ± 0.3mm
	Sarcon® 350G-d		3.5mm ± 0.3mm
	Sarcon® 400G-d		4.0mm ± 0.4mm
	Sarcon® 450G-d		4.5mm ± 0.4mm
	Sarcon® 500G-d		5.0mm ± 0.5mm
Sarcon® GR-Hd	Sarcon® 50G-Hd	Usable size 280mm x 180mm (11" x 7.1")	0.5mm ± 0.1mm
	Sarcon® 100G-Hd		1.0mm ± 0.2mm
	Sarcon® 150G-Hd		1.5mm ± 0.2mm
	Sarcon® 200G-Hd		2.0mm ± 0.3mm
	Sarcon® 250G-Hd		2.5mm ± 0.3mm
	Sarcon® 300G-Hd	Actual size 300mm x 200mm (11.8" x 7.8")	3.0mm ± 0.3mm
	Sarcon® 350G-Hd		3.5mm ± 0.3mm
	Sarcon® 400G-Hd		4.0mm ± 0.4mm
	Sarcon® 450G-Hd		4.5mm ± 0.4mm
	Sarcon® 500G-Hd		5.0mm ± 0.5mm
Sarcon® GR-Fd	Sarcon® 50G-Fd	Usable size 280mm x 180mm (11" x 7.1")	0.5mm ± 0.1mm
	Sarcon® 100G-Fd		1.0mm ± 0.2mm
	Sarcon® 150G-Fd		1.5mm ± 0.2mm
	Sarcon® 200G-Fd	Actual size 300mm x 200mm (11.8" x 7.8")	2.0mm ± 0.3mm
	Sarcon® 250G-Fd		2.5mm ± 0.3mm
	Sarcon® 300G-Fd		3.0mm ± 0.3mm
Sarcon® GR-HFd	Sarcon® 50G-HFd	Usable size 280mm x 180mm (11" x 7.1")	0.5mm ± 0.1mm
	Sarcon® 100G-HFd		1.0mm ± 0.2mm
	Sarcon® 150G-HFd		1.5mm ± 0.2mm
	Sarcon® 200G-HFd	Actual size 300mm x 200mm (11.8" x 7.8")	2.0mm ± 0.3mm
	Sarcon® 250G-HFd		2.5mm ± 0.3mm
	Sarcon® 300G-HFd		3.0mm ± 0.3mm

Notice.

1) Standard Product Form.

Sarcon® GR-d series is placed between PET (polyester) Film and special polyethylene Film, Kisscut into the required shape.

5] Typical Properties.

Table - 3

Property	Unit	GR-d	GR-Hd	GR-Fd	GR-HFd	Test Method	Specimen
Color	–	Dark Gray	Dark Gray	Dark Gray	Dark Gray	Visual	–
Operating Temp. range	°C	–60~+200	–60~+200	–60~+200	–60~+200	–	–
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220 ASTM D-792	–
Hardness	ASKER-C (Shore 00)	18 (49)	18 (49)	18 (49)	18 (49)	JIS-K-7312 ASTM D-2240	B (–)
Tensile Strength	(MPa)	0.3	0.5	0.5	0.7	JIS-K-6251 (#2) ASTM D-412	A
Elongation	%	100	80	60	60	JIS-K-6251 (#2) ASTM D-412	A
Tear Resistance	(KN/m)	1	1	2	2	JIS-K-6252 (Angle) ASTM D-624	A
Volume Resistivity	(Mohms-m)	1 x 10 ⁶	1 x 10 ⁶	1 x 10 ⁶	1 x 10 ⁶	JIS-K-6249 ASTM D-257	C
Breakdown Voltage	(KV/mm)	18	17	12	10	JIS-K-6249 ASTM D-149	C
Withstand Voltage	(KV/mm)	14	13	9	8	JIS-K-6249 ASTM D-149	C

Remarks/ Specimen A 2.0mm Thickness.
 Specimen B 60mm Width x 120mm Length x 20mm Thickness.
 Specimen C 120mm Width x 120mm Length x 1.0mm Thickness.

6] Thermal Properties.

1) Thermal Resistance.

(Unit: °C·inch² /watt) Table - 4

Thickness	GR-d	GR-Hd	GR-Fd	GR-HFd
0.5mm	0.57	0.63	0.60	0.67
1.0mm	1.02	1.10	1.04	1.11
1.5mm	1.45	1.59	1.57	1.66
2.0mm	1.71	1.91	1.85	1.92
2.5mm	2.11	2.24	2.27	2.40
3.0mm	2.34	2.54	2.57	2.68
3.5mm	2.59	2.63		
4.0mm	2.79	2.88		
4.5mm	3.10	3.16		
5.0mm	3.30	3.32		

Test Method : Fujipoly test method FTM P-3020 which gives ASTM D5470 equivalent value.

2) Thermal Conductivity.

Table - 5

	Unit	GR-d	GR-Hd	GR-Fd	GR-HFd
Thermal Conductivity	watt / m-k	1.50	1.50	1.50	1.50

Test Method : Fujipoly test method FTM P-1620 (JIS R2618 / ASTM D2326 equivalent)

7] Heat Aging Test.

1) Test Condition : 70°C (158°F) x 1,000hrs (42 days)

Sarcon® GR-d

Table - 6

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	—
Hardness	ASKER-C	(18)	(20)	(21)	(22)	JIS-K-7312	B
Tensile Strength	(MPa)	0.3	0.3	0.2	0.3	JIS-K-6251 (#2)	A
Elongation	%	100	100	80	70	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	1	1	1	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	3.1 x 10 ⁶	2.4 x 10 ⁶	2.9 x 10 ⁶	1.1 x 10 ⁷	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	18	18	20	20	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-Hd

Table - 7

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	—
Hardness	ASKER-C	(18)	(20)	(21)	(22)	JIS-K-7312	B
Tensile Strength	(MPa)	0.5	0.6	0.5	0.6	JIS-K-6251 (#2)	A
Elongation	%	80	70	70	60	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	1	1	1	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.7 x 10 ⁶	9.8 x 10 ⁶	9.8 x 10 ⁶	1.3 x 10 ⁷	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	17	20	22	22	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-Fd

Table - 8

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.8	2.6	JIS-K-6220	—
Hardness	ASKER-C	(18)	(20)	(21)	(22)	JIS-K-7312	B
Tensile Strength	(MPa)	0.5	0.6	0.7	0.9	JIS-K-6251 (#2)	A
Elongation	%	60	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	2	2	2	2	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.0 x 10 ⁶	9.8 x 10 ⁶	5.9 x 10 ⁶	7.4 x 10 ⁷	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	12	13	15	15	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-HFd

Table - 9

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	—
Hardness	ASKER-C	(18)	(20)	(21)	(22)	JIS-K-7312	B
Tensile Strength	(MPa)	0.7	0.9	1.1	1.5	JIS-K-6251 (#2)	A
Elongation	%	60	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	2	2	2	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.4 x 10 ⁶	4.9 x 10 ⁶	5.9 x 10 ⁶	9.3 x 10 ⁶	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	10	11	12	12	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Remarks / Specimen A : 2.0mT

Specimen B : 60mm Width x 120mm Length x 20mm Thickness.(GR-d for all products)

Specimen C : 120mm Width x 120mm Length x 1.0mm Thickness.

2) Test Condition : 150°C (302°F) x 1,000hrs (42 days)

Sarcon® GR-d

Table - 10

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(23)	(28)	(29)	JIS-K-7312	B
Tensile Strength	(MPa)	0.3	0.3	0.3	0.3	JIS-K-6251 (#2)	A
Elongation	%	100	100	100	80	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	1	1	1	1	JIS-K-6252(Angle)	A
Volume Resistivity	(Mohms-m)	3.1 x 10 ⁶	2.2 x 10 ⁶	2.0 x 10 ⁷	2.6 x 10 ⁷	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	18	19	21	21	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-Hd

Table - 11

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(23)	(28)	(29)	JIS-K-7312	B
Tensile Strength	(MPa)	0.5	0.7	0.6	0.6	JIS-K-6251 (#2)	A
Elongation	%	80	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	1	1	1	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.7 x 10 ⁶	2.7 x 10 ⁷	2.0 x 10 ⁷	2.2 x 10 ⁷	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	17	19	22	22	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-Fd

Table - 12

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(23)	(28)	(29)	JIS-K-7312	B
Tensile Strength	(MPa)	0.5	0.4	0.3	0.3	JIS-K-6251 (#2)	A
Elongation	%	60	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	3	2	1	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.0 x 10 ⁶	4.9 x 10 ⁷	5.9 x 10 ⁶	1.1 x 10 ⁷	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	12	12	15	13	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-HFd

Table - 13

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(23)	(28)	(29)	JIS-K-7312	B
Tensile Strength	(MPa)	0.7	0.7	0.5	0.5	JIS-K-6251 (#2)	A
Elongation	%	60	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	2	2	2	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.4 x 10 ⁶	3.5 x 10 ⁶	5.9 x 10 ⁶	6.8 x 10 ⁶	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	10	12	14	14	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Remarks / Specimen A : 2.0mT

Specimen B : 60mm Width x 120mm Length x 20mm Thickness.(GR-d for all products)

Specimen C : 120mm Width x 120mm Length x 1.0mm Thickness.

8] Humidity Test.

Test Condition : 60°C (140°F) x 1,000hrs (42 days) x 90%RH

Sarcon® GR-d

Table - 14

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(19)	(20)	(20)	JIS-K-7312	B
Tensile Strength	(MPa)	0.3	0.3	0.3	0.3	JIS-K-6251 (#2)	A
Elongation	%	100	100	100	100	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	1	1	1	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	3.1 x 10 ⁶	1.8 x 10 ⁶	5.9 x 10 ⁵	7.4 x 10 ⁵	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	18	18	20	20	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-Hd

Table - 15

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(19)	(20)	(20)	JIS-K-7312	B
Tensile Strength	(MPa)	0.5	0.6	0.7	0.6	JIS-K-6251 (#2)	A
Elongation	%	80	70	70	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	1	1	1	1	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.7 x 10 ⁶	3.9 x 10 ⁶	1.5 x 10 ⁶	1.1 x 10 ⁶	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	17	19	20	20	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-Fd

Table - 16

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(19)	(20)	(20)	JIS-K-7312	B
Tensile Strength	(MPa)	0.5	0.8	0.6	0.6	JIS-K-6251 (#2)	A
Elongation	%	60	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	2	2	2	2	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.0 x 10 ⁶	0.8 x 10 ⁶	0.8 x 10 ⁶	1.1 x 10 ⁵	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	12	13	20	20	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Sarcon® GR-HFd

Table - 17

Property	Unit	Initial	100Hrs	500Hrs	1,000Hrs	Test Method	Specimen
Specific Gravity	gr/cm ³	2.6	2.6	2.6	2.6	JIS-K-6220	–
Hardness	ASKER-C	(18)	(19)	(20)	(20)	JIS-K-7312	B
Tensile Strength	(MPa)	0.7	0.9	0.9	0.9	JIS-K-6251 (#2)	A
Elongation	%	60	50	50	50	JIS-K-6251 (#2)	A
Tear Resistance	(KN/m)	2	2	2	3	JIS-K-6252 (Angle)	A
Volume Resistivity	(Mohms-m)	2.4 x 10 ⁶	1.2 x 10 ⁶	1.8 x 10 ⁶	0.8 x 10 ⁶	JIS-K-6249	C
Breakdown Voltage	(KV/mm)	10	12	14	13	JIS-K-6249	C
Thermal Conductivity	W/m-k	(1.5)	(1.5)	(1.5)	(1.5)	JIS-R-2618 equivalent	B

Remarks / Specimen A : 2.0mT

Specimen B : 60mm Width x 120mm Length x 20mm Thickness. (GR-d for all products)

Specimen C : 120mm Width x 120mm Length x 1.0mm Thickness.

9] Mechanical Property / Compression VS Compression Load

Sarcon® GR-d

(Unit : Kgf/inch²) **Table - 18**

	50G	100G	150G	200G	250G	300G	350G	400G	450G	500G
10%	13.0	12.5	11.5	10.2	7.70	6.10	5.60	4.90	4.60	4.20
20%	27.5	26.5	19.1	18.5	14.1	12.5	11.3	10.5	10.1	9.30
30%	50.9	40.9	31.6	30.5	25.1	20.2	20.1	18.8	18.5	15.3
40%	68.2	57.0	47.3	45.7	35.8	30.5	30.0	27.7	25.4	23.5
50%	86.1	76.8	67.7	64.6	58.8	45.2	43.1	40.8	35.4	35.1
sustain 50%	40.2	39.2	33.1	30.9	27.2	24.7	23.5	20.3	17.6	15.8

Sarcon® GR-Hd

(Unit : Kgf/inch²) **Table - 19**

	50G	100G	150G	200G	250G	300G	350G	400G	450G	500G
10%	20.9	19.8	15.2	12.3	10.9	8.00	6.90	5.70	5.30	5.00
20%	46.1	39.9	26.2	26.2	20.4	17.7	13.2	11.5	11.0	10.7
30%	77.7	63.1	49.0	44.3	32.3	30.4	28.2	22.7	22.0	21.8
40%	106.2	90.3	78.0	67.9	54.0	49.6	44.6	42.8	42.0	39.4
50%	135.6	121.7	115.0	98.1	83.0	68.1	65.2	60.1	58.7	52.1
sustain 50%	106.9	91.6	59.8	33.4	28.1	25.2	24.7	23.1	20.8	20.1

Sarcon® GR-Fd

(Unit : Kgf/inch²) **Table - 20**

	50G	100G	150G	200G	250G	300G
10%	17.0	15.5	15.4	11.2	8.20	7.30
20%	47.0	31.2	26.7	26.0	17.0	16.2
30%	80.1	46.9	45.9	39.4	28.7	24.9
40%	100.8	63.8	63.2	57.1	42.8	37.2
50%	112.9	101.9	82.6	67.5	62.2	50.1
sustain 50%	96.4	71.6	49.9	31.2	25.8	20.0

Sarcon® GR-HFd

(Unit : Kgf/inch²) **Table - 21**

	50G	100G	150G	200G	250G	300G
10%	22.5	20.7	20.1	15.7	14.8	12.1
20%	54.1	48.9	40.1	37.2	24.3	17.8
30%	89.3	80.5	68.5	48.9	37.9	29.7
40%	113.7	110.8	80.2	71.2	59.8	47.2
50%	137.6	130.9	117.8	108.9	87.4	70.8
sustain 50%	119.8	102.9	78.2	50.8	41.7	38.9

Remarks / Test Method : Fujipoly Test Method

Compression Velocity 5.0mm / minute with 200Kgf load

Compression Area 6.25cm² (25mm x 25mm)

Sustain 50% at One minute after

10] Extractable Volatiles.

Table - 22

D _n	Sarcon® GR-d
total D ₂₀ or less	0.0099wt %
Test Method : Gas Chromatographic Analysis	
Bellcore Test	Passed Bellcore Specification TR-NWT000930

11] Flame Retardancy.

Table - 23

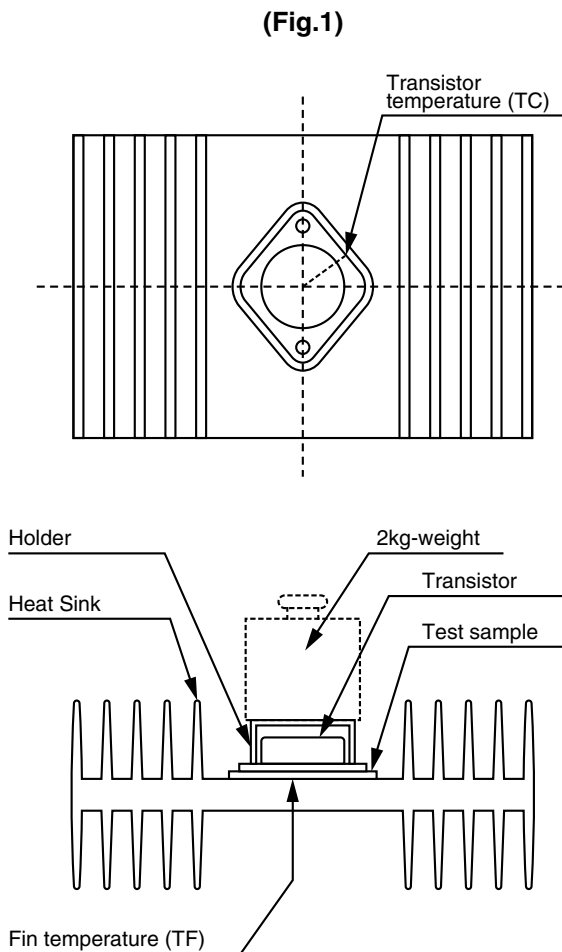
Series	Product Description	UL94	Series	Product Description	UL94
Sarcon® GR-d	Sarcon 50G-d	94V - 0	Sarcon® GR-Hd	Sarcon 50G-Hd	94V - 0
	Sarcon 100G-d	94V - 0		Sarcon 100G-Hd	94V - 0
	Sarcon 150G-d	94V - 0		Sarcon 150G-Hd	94V - 0
	Sarcon 200G-d	94V - 0		Sarcon 200G-Hd	94V - 0
	Sarcon 250G-d	94V - 0		Sarcon 250G-Hd	94V - 0
	Sarcon 300G-d	94V - 0		Sarcon 300G-Hd	94V - 0
	Sarcon 350G-d	94V - 0		Sarcon 350G-Hd	94V - 0
	Sarcon 400G-d	94V - 0		Sarcon 400G-Hd	94V - 0
	Sarcon 500G-d	94V - 0		Sarcon 500G-Hd	94V - 0
Sarcon® GR-Fd	Sarcon 50G-Fd	94V - 1	Sarcon® GR-HFd	Sarcon 50G-HFd	94V - 1
	Sarcon 100G-Fd	94V - 1		Sarcon 100G-HFd	94V - 1
	Sarcon 150G-Fd	94V - 1		Sarcon 150G-HFd	94V - 1
	Sarcon 200G-Fd	94V - 1		Sarcon 200G-HFd	94V - 1
	Sarcon 250G-Fd	94V - 1		Sarcon 250G-HFd	94V - 1
	Sarcon 300G-Fd	94V - 0		Sarcon 300G-HFd	94V - 0

12] Test Method for Sarcon® GR-d products.

1) Thermal Resistance.

Test method : Fujipoly test method FTM P-3020 which gives ASTM D5470 equivalent value.

- 1) Punched-out specimen in TO-3 package is located between a transistor and heat sink.
(Fig.1)
- 2) The transistor is covered with resin holder and added 2kg -weight as a load.
- 3) DC 10V, 2A (20W) current is applied to the transistor.
- 4) After three minutes, the thermal resistance is calculated based on the following formula.



Test Apparatus

Transistor : 2SC2245

Heat Sink : 40CH104L-90-K
(manufactured by Ryosan Co., Ltd)

Heat Sensor : 2SC1-OHK300 x 532W x JOO2Y
(manufactured by Chino Co., Ltd)

Condition : 25°C 60%RH

Formula for Thermal resistance calculation.

$$R_t = (T_c - T_f) / P_C$$

R_t : Thermal resistance ($^{\circ}\text{C}\cdot\text{inch}^2 / \text{watt}$)
 T_c : Transistor temperature $^{\circ}\text{C}$
 T_f : Heat sink temperature $^{\circ}\text{C}$
 P_C : Power applied to transistor

2) Gas Chromatography Analysis.

[Test method]

[The preprocessing]

(sample) It measures 1-g weight.

Extraction solvent : Carbon tetrachloride 10ml.
(The inner standard material.)

The immersion and leaving 16Hrs ≤.

It measures extracts by gas chromatography analysis.

[The measurement condition]

model : SHIMAZU SEISAKUSHO Co., Ltd. GC-12A

detector : FID (The hydrogen flame ionization detector.)

column : OV-17 (3m)

column temperature : 60°C · 2min temperature-programmed 16°C / min maintenance 300°C

ventage temperature : 280°C

carrier gas flow rate : 40ml / min

inculcating quantity : 2μl

13] Other Technical Information and Design Guide.

Fuji Poly website <http://www.fujipoly.com>

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