FUJIPOLY

Fujipoly Data Sheet

SARCON YR-d series

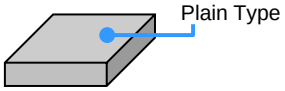
Highest Performance Rubber Type

FEATURES

Thin Film with Higher Thermal Conductivity , Electric Isolation and Non-Flammable.

- SARCON YR-d comes by a sheet and available with a custom shape through die-cut process.
- SARCON YR-d made from Silicone rubber so has good reliability through long term use.

CONSTRUCTIONS

Series	Characteristics	Constructions
SARCON YR-d	Fine heat conductive particles are mixed with insulative silicone rubber to produce this excellent insulative, high heat conductive silicone material : 3.4W/m-K (by Hot Disk)	 Plain Type

THERMAL RESISTANCE

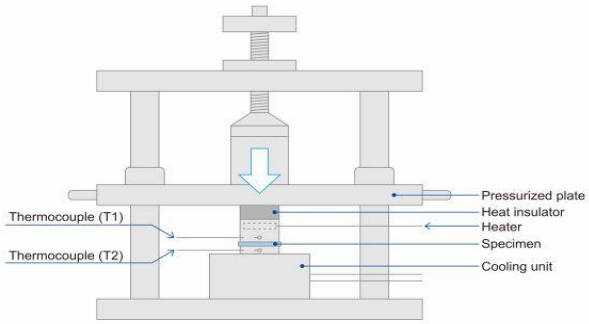
Unit: K-cm^2/W (K-in^2/W)

Compression Force	20Y-d (0.2mmT)	30Y-d (0.3mmT)	45Y-d (0.45mmT)
1.5Mpa	1.00 (0.15)	1.44 (0.22)	1.70 (0.26)
2.5MPa	1.00 (0.15)	1.46 (0.22)	1.62 (0.25)
3.6MPa	0.94 (0.14)	1.38 (0.21)	1.56 (0.24)

1.Test Method by FTM P-3070

Fujipoly test method FTM P-3070 which gives ASTM D5470 equivalent value. The sample is sandwiched between aluminum blocks with thermocouples installed, screwed with a specified torque, constant power is applied to the heater to generate constant heat, and the thermal resistance value is measured from the temperature difference between the upper and lower thermocouples.

●Measurement diagram



2.Principle

A thermal impedance is given by the equation below.

Rt=(TC-Tf) x S/P0 Rt : Thermal resistance (K-cm^2/W)

Tc : T1 temperature(K)

Tf : T2 temperature(K)

S : Sample installation area(cm^2)

P0 : Electric power(W)

TYPICAL PROPERTIES

Properties		unit		YR-d			Test method
				20Y-d	30Y-d	45Y-d	
Physical Properties	Color	-		Gray			Visual
	Thickness	mm		0.2 ±0.05	0.3 +0.1/-0	0.45 ±0.05	ISO 463:2006
	Specific Gravity	-		2.7			ASTM D792
	Hardness Highest Value	IRHD		70	76	74	ISO 7619
	Tensile Strength	MPa		2.4	2.4	2.4	ASTM D412
		psi		354	354	345	
	Elongation	%		73	76	75	ASTM D412
Electrical Properties	Volume Resistivity	Ohm-m		$3x10^{11}$	$3x10^{11}$	$1x10^{11}$	ASTM D257
	Breakdown Voltage	kV(AC)		6	11	13	ASTM D149
	Dielectric Strength	kV(AC)		6	9	11	ASTM D149
	Dielectric Constant	-	50Hz	11.8			ASTM D150
			1kHz	10.4			
			1MHz	9.2			
	Dissipation Factor	-	50Hz	0.061			ASTM D150
			1kHz	0.047			
			1MHz	0.027			
Thermal Properties	Thermal Conductivity	W/m-K		3.4			ISO 22007-2 (Hot Disk)
	Recommended Operating Temp.	℃		-40 to +150			-
		°F		-40 to +302			
	Flame Retardant	-		V-0			UL 94

DURABILITY

Heat Aging Test : 150℃(300°F)

Properties	unit	20Y-d			30Y-d			45Y-d		
		Before	500hrs	1,000hrs	Before	500hrs	1,000hrs	Before	500hrs	1,000hrs
Hardness	IRHD	70	78	85	76	83	87	74	81	86
Tensile Strength	MPa	2.4	2.9	3.1	2.4	3.4	3.4	2.4	3.3	3.3
Elongation	%	73	50	46	76	56	50	75	60	52
Volume Resistivity	Ohm-m	$3x10^{11}$	$3x10^{11}$	$1x10^{11}$	$3x10^{11}$	$6x10^{11}$	$1x10^{11}$	$1x10^{11}$	$1x10^{12}$	$8x10^{11}$
Breakdown Voltage	kV	6	7	7	11	12	12	13	13	13

Heat Aging Test : 200℃(390°F)

Properties	unit	20Y-d			30Y-d			45Y-d		
		Before	500hrs	1,000hrs	Before	500hrs	1,000hrs	Before	500hrs	1,000hrs
Hardness	IRHD	70	90	94	76	94	96	74	96	95
Tensile Strength	MPa	2.4	3.7	3.9	2.4	3.4	3.4	2.4	3.3	3.3
Elongation	%	73	35	20	76	36	21	75	36	23
Volume Resistivity	Ohm-m	$3x10^{11}$	$3x10^{12}$	$3x10^{12}$	$3x10^{11}$	$5x10^{12}$	$3x10^{12}$	$1x10^{11}$	$6x10^{12}$	$3x10^{12}$
Breakdown Voltage	kV	6	7	7	11	12	12	13	13	14

Cold Test : -40℃ (-40°F)

Properties	unit	20Y-d			30Y-d			45Y-d		
		Before	500hrs	1,000hrs	Before	500hrs	1,000hrs	Before	500hrs	1,000hrs
Hardness	IRHD	70	69	68	76	74	74	74	74	74
Tensile Strength	MPa	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4
Elongation	%	73	68	67	76	76	76	75	80	83
Volume Resistivity	Ohm-m	$3x10^{11}$	$2x10^{11}$	$3x10^{11}$	$3x10^{11}$	$4x10^{11}$	$2x10^{11}$	$1x10^{11}$	$4x10^{11}$	$1x10^{11}$
Breakdown Voltage	kV	6	7	7	11	11	12	13	13	14

Humidity Test : 60℃(140°F) / 95%RH

Properties	unit	20Y-d			30Y-d			45Y-d		
		Before	500hrs	1,000hrs	Before	500hrs	1,000hrs	Before	500hrs	1,000hrs
Hardness	IRHD	70	68	66	76	71	71	74	72	71
Tensile Strength	MPa	2.4	2.2	2.1	2.4	2.1	2.0	2.4	2.1	2.0
Elongation	%	73	68	68	76	76	76	75	81	82
Volume Resistivity	Ohm-m	$3x10^{11}$	$1x10^{11}$	$4x10^{10}$	$3x10^{11}$	$7x10^{10}$	$4x10^{10}$	$1x10^{11}$	$7x10^{10}$	$3x10^{10}$
Breakdown Voltage	kV	6	7	7	11	11	12	13	13	13

Heat Shock Test : -40℃ (-40°F)/30min ⇔ 125℃ (257°F)/30min

Properties	unit	20Y-d			30Y-d			45Y-d		
		Before	500hrs	1,000hrs	Before	500hrs	1,000hrs	Before	500hrs	1,000hrs
Hardness	IRHD	70	72	75	76	77	80	74	76	80
Tensile Strength	MPa	2.4	2.5	2.8	2.4	2.5	2.6	2.4	2.4	2.5
Elongation	%	73	61	57	76	66	61	75	69	63
Volume Resistivity	Ohm-m	$3x10^{11}$	$1x10^{11}$	$2x10^{10}$	$3x10^{11}$	$2x10^{11}$	$5x10^{10}$	$1x10^{11}$	$5x10^{11}$	$1x10^{11}$
Breakdown Voltage	kV	6	7	7	11	12	11	13	13	13

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.
- This product may contain discoloration, but it does not affect the performance.

WARRANTY STATEMENT

- 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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