KØLEPROFILER

TERMISK LEDENDE MATERIALE

SARCON®
RUBBER TYPE

NEWTRONIC

SARCON®
RUBBER TYPE

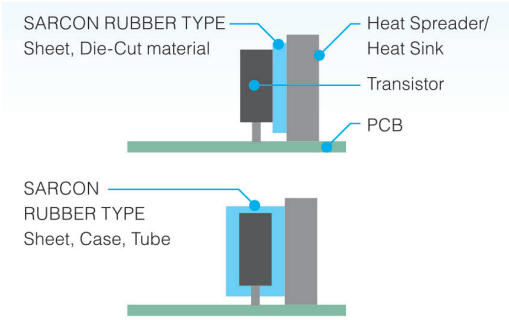
THIN FILM WITH HIGH HEAT CONDUCTING AND HIGH ELECTRIC INSULATION

SARCON® Rubber type developed by our original studies are the epoch-making silicone rubber products with high insulative and thermally conductive properties as well as a high flame resistant or non flammable property.

FEATURES:

- Has a thermal conductivity and excellent electrical insulation properties.
- Available for tubes, tapes, Cases and Die-cut Gaskets shapes to meet a various application (Shown on Page12 of Configuration).
- GTR, GHR, GSR, GAR; Heat conductive silicone rubber within Glass Fiber Cloth has excellent mechanical and physical characteristics.
- UL94 V-0 certified.
- Available with an Adhesive option.

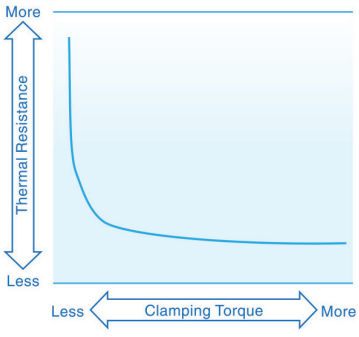
RECOMMENDED APPLICATION:

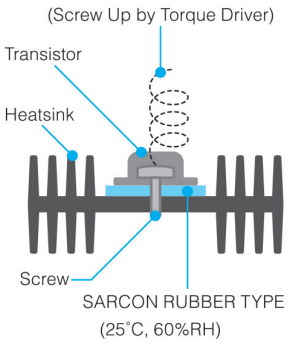


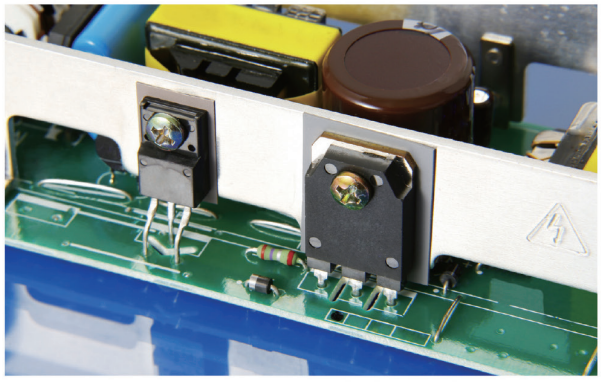
Attachment
- pressure sensitive adhesive
- silicone adhesive
- mechanical clamping
- hardware attchment - screw, rivets

CLAMPING TORQUE:

- Clamping torque of the installed SARCON Rubber : Thermal resistance decrease as the torque is increased.
- Test method : Fujipoly Test Method FTM P-3010 by TO-3 package







CONFIGURING A PART NUMBER OF RUBBER TYPE:

30 **GSR** **-AD** - Width(mm) × Length(mm)

Thickness	Series	Option
15 = 0.15mm 20 = 0.2mm 30 = 0.3mm 45 = 0.45mm 85 = 0.85mm	T = TR H = HR Y-a = YR-a Y-c = YR-c GTR = GTR GHR = GHR GSR = GSR GAR = GAR	blank = without -AD = Adhesive Coating

available to Adhesive Coating option : GTR,GHR,GSR,GAR

CONFIGURATION:

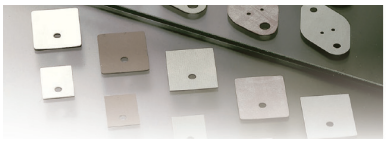
SARCON RUBBER TYPE's versatility in thermal management applications is doubly enhanced by way of the variety of end-use configurations possible, and the many standard material formulations available in each.
The silicone rubber based materials offer other useful elements such as electrical insulation, protective covering and gasketing as integral features in most designs.

	Color	Form				Hardness (IRHD)	Thermal Conductivity (W/m-k) by using Hot Wire
		Tape	Sheet	Tube	Case		
TR	Greenish Gray	○	×	○	○	75	1.2
HR	Brown	○	×	○	○	85	1.7
GTR	Greenish Gray	○	○	×	×	87 (20GTR)	0.9
GHR	Brown	○	○	×	×	92 (20GHR)	1.4
GSR	White	×	○	×	×	90 (20GSR)	2.9
GAR	White	○	○	×	×	80 (20GAR)	3.0
YR-a	Dark Gray	○	×	○	×	85-89	2.2
YR-c	Light Gray	○	×	○	×	75-80	4.0

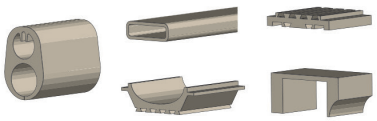
TUBE
Tube shapes available in three thicknesses. The flexible structures conform to most applications. All standard items in stock; custom lengths and diameters available.

TAPE
Flat stock in rolls or single sheets for your custom finishing. Can be diecut or trimmed to any proprietary shape on your finishing equipment.

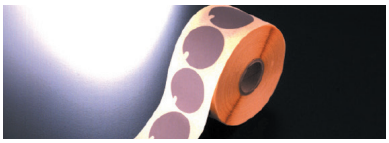
CASE
Box-shaped caps for transistors. High thermal dissipation rate. Open on one end; installs by just slipping over the desired components.



DIE-CUT GASKETS
Standard die-cut parts. Effective also as a mounting cushion to prevent deformation.
Customs designs available in unlimited sizes and shapes.



CUSTOM - RUBBER EXTRUSIONS
SARGON E Mold products are co-extruded products of highly thermally conductive and non-flammable silicone rubber, SARGON, and available in various shapes and designs.



AD SERIES
Available to Adhesive Coating option:
GTR, GHR, GSR, GAR

SARCON®

RUBBER TYPE

THERMAL MANAGEMENT COMPONENTS

TYPICAL PRODUCT PROPERTIES:

Test Properties		Unit		GTR			TR				GHR		
				15GTR	20GTR	30GTR	20T	30T	45T	85T	15GHR	20GHR	30GHR
Physical Properties	Adhesive Coating	–		Available			Request				Available		
	Reinforcement	–		Glass Fiber Cloth			None				Glass Fiber Cloth		
	Thickness	mm		0.15	0.2	0.3	0.2	0.3	0.45	0.85	0.15	0.2	0.3
	Specific Gravity	–		2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4
	Hardness	IRHD		87	87	92	74	75	75	75	92	92	95
	Color	–		Greenish Gray			Greenish Gray				Brown		
	Tensile Strength	MPa		71.9	53.9	30.8	4.7	4.8	5.0	4.8	52.3	39.2	22.4
		psi		10,426	7,816	4,466	682	696	725	696	7,584	5,684	3,248
	Elongation	%		2 or less	2 or less	2 or less	78	100	100	100	2 or less	2 or less	2 or less
Electrical Properties	Volume Resistivity	Ohm-m		$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$
	Breakdown Voltage	kV / Thickness		4	6	8	9	10	11	15	3	6	9
	Dielectric Strength	kV / Thickness		4	6	7	6	7	8	10	2	4	8
	Dielectric Constant	–	50Hz	2.5	3.2	3.5	–	4.4	4.5	4.9	3.0	3.3	3.9
			1kHz	2.5	3.2	3.5	–	4.4	4.5	4.9	3.0	3.3	3.9
			1MHz	2.5	3.2	3.5	–	4.4	4.5	4.9	3.0	3.3	3.9
	Dissipation Factor	–	50Hz	0.008	0.007	0.007	–	0.004	0.004	0.003	0.015	0.009	0.006
			1kHz	0.004	0.003	0.003	–	0.002	0.002	0.002	0.005	0.003	0.003
			1MHz	0.004	0.004	0.003	–	0.003	0.003	0.003	0.003	0.004	0.004
Thermal Properties	Thermal Conductivity	W/m-K		0.9			1.2				1.4		
	Recommended Operating Temp.	˚C		-40 to +150			-40 to +150				-40 to +150		
		˚F		-40 to +302			-40 to +302				-40 to +302		
	Flame Retardant	UL94		V-0			V-0				V-0		

a) Some details of thickness →See P.33
b) Hardness : The highest value by using IRHD.
c) Thermal Conductivity : Measured by using Hot Wire method, refer to Fujipoly Test method "FTM P-1620". →See P.35
d) Tensile Strength / Elongation on TR , HR , YR-a , YR-c , according to ASTM D412.
e) Tensile Strength / Elongation on GTR , GHR , GSR , GAR according to ASTM D1458, Fully Cured Silicone Rubber - Coated Glass Fiber Cloth.

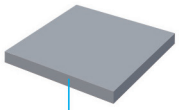
CLAMPING TORQUE VERSUS THERMAL RESISTANCE:

Clamping Torque	Calculated Pressure	GTR			TR				GHR			HR		
		15GTR	20GTR	30GTR	20T	30T	45T	85T	15GHR	20GHR	30GHR	30H	45H	85H
0.29N-m /0.22lbf-ft	1.14MPa /165.3psi	3.7 (0.58)	3.9 (0.60)	4.4 (0.68)	2.6 (0.40)	4.2 (0.65)	4.9 (0.76)	8.8 (1.37)	3.7 (0.58)	3.9 (0.61)	4.3 (0.67)	2.8 (0.44)	3.5 (0.54)	4.9 (0.76)
0.49N-m /0.36lbf-ft	1.90MPa /275.5psi	3.3 (0.51)	3.6 (0.56)	4.3 (0.66)	2.5 (0.38)	4.0 (0.62)	4.7 (0.73)	8.7 (1.35)	3.6 (0.55)	3.7 (0.57)	3.9 (0.61)	2.7 (0.42)	3.4 (0.52)	4.8 (0.74)
0.69N-m /0.51lbf-ft	2.66MPa /385.7psi	3.2 (0.50)	3.5 (0.54)	4.1 (0.64)	2.3 (0.36)	3.8 (0.59)	4.6 (0.71)	8.5 (1.32)	3.4 (0.53)	3.5 (0.54)	3.8 (0.59)	2.5 (0.39)	3.3 (0.51)	4.7 (0.73)

f) Measured by using Fujipoly Original (TO-3 package), refer to Fujipoly Test method "FTM P-3010". →See P.37

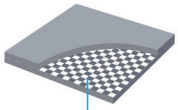
CONSTRUCTION:

TR YR-a
HR YR-c



Plain Type

GTR
GHR
GSR
GAR



with Glass Fiber Cloth

HR			YR-a				GSR				GAR			YR-c		
30H	45H	85H	20Y-a	30Y-a	45Y-a	85Y-a	20GSR	30GSR	45GSR	85GSR	20GAR	30GAR	45GAR	20Y-c	30Y-c	45Y-c
Request			Request				Available				Available			Request		
None			None				Glass Fiber Cloth				Glass Fiber Cloth			None		
0.3	0.45	0.85	0.2	0.3	0.45	0.85	0.2	0.3	0.45	0.85	0.2	0.3	0.45	0.2	0.3	0.45
2.4	2.4	2.4	2.6	2.6	2.6	2.6	1.7	1.7	1.7	1.7	2.9	2.9	2.9	2.8	2.8	2.8
85	85	85	85	86	89	87	90	90	90	88	80	87	87	75	80	80
Brown			Dark Gray				White				White			Light Gray		
4.8	5.0	5.0	14.2	4.5	4.6	4.0	68.6	42.0	39.2	17.3	47.5	23.2	21.8	2.0	2.1	2.1
696	725	725	2,059	652	667	580	9,947	6,090	5,684	2,508	6,888	3,364	3,161	290	305	305
60	60	60	50	73	80	80	3 or less	3 or less	3 or less	3 or less	3 or less	3 or less	3 or less	50	67	74
$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{12}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$	$2x10^{15}$	$2x10^{15}$	$2x10^{15}$	$1x10^{13}$	$1x10^{13}$	$1x10^{13}$
9	10	14	6	10	11	14	6	10	15	20	10	11	12	7	12	13
6	7	10	3	7	8	10	3	5	7	10	9	9	9	5	9	9
4.9	4.6	5.4	–	6.2	6.3	6.0	2.6	3.0	3.2	3.7	2.4	3.4	4.0	9.6		
4.9	4.5	5.7	–	5.8	5.9	5.7	2.6	3.0	3.2	3.7	2.4	3.3	3.9	8.5		
4.8	4.5	5.4	–	5.6	5.7	5.4	2.6	3.0	3.2	3.7	2.4	3.3	3.9	7.6		
0.008	0.007	0.004	–	0.030	0.030	0.028	0.003	0.002	0.002	0.001	0.032	0.026	0.021	0.061		
0.004	0.004	0.002	–	0.025	0.025	0.023	0.0007	0.0005	0.0001	0.0004	0.007	0.007	0.006	0.054		
0.003	0.003	0.002	–	0.010	0.010	0.010	0.0004	0.0003	0.0002	0.0009	0.003	0.004	0.003	0.021		
1.7			2.2				2.9				3.0			4.0		
-40 to +150			-40 to +150				-40 to +150				-40 to +150			-40 to +150		
-40 to +302			-40 to +302				-40 to +302				-40 to +302			-40 to +302		
V-0			V-0				V-0				V-0			V-0		

Note; YR-c : replacement for YR-b

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

YR-a				GSR				GAR			YR-c		
20Y-a	30Y-a	45Y-a	85Y-a	20GSR	30GSR	45GSR	85GSR	20GAR	30GAR	45GAR	20Y-c	30Y-c	45Y-c
1.8 (0.28)	2.2 (0.34)	2.5 (0.39)	4.0 (0.62)	2.0 (0.31)	2.4 (0.37)	2.6 (0.40)	3.4 (0.52)	1.3 (0.20)	1.8 (0.28)	2.1 (0.33)	0.8 (0.12)	1.4 (0.21)	1.4 (0.22)
1.7 (0.27)	1.9 (0.30)	2.3 (0.35)	3.6 (0.56)	1.9 (0.30)	2.2 (0.34)	2.5 (0.39)	3.3 (0.51)	1.1 (0.17)	1.7 (0.26)	1.9 (0.30)	0.6 (0.09)	1.0 (0.15)	1.1 (0.17)
1.7 (0.26)	1.8 (0.28)	2.1 (0.33)	3.4 (0.53)	1.9 (0.30)	2.1 (0.33)	2.4 (0.37)	3.3 (0.50)	1.1 (0.17)	1.7 (0.26)	1.9 (0.30)	0.5 (0.08)	0.9 (0.14)	1.0 (0.15)

Test Properties	Test Method
Thickness	ASTM D374
Specific Gravity	ASTM D792
Hardness	IRHD / ISO 7619
Color	Visual
Tensile Strength	ASTM D412 / 1458
Elongation	ASTM D412 / 1458
Volume Resistivity	ASTM D257
Breakdown Voltage	ASTM D149
Dielectric Strength	ASTM D149
Dielectric Constant	ASTM D150
Dielectric Factor	ASTM D150
Thermal Conductivity	ASTM D2326 (Hot Wire)
Recommended Operating Temp.	(Recommended Temp.)
Flame Retardant	UL94

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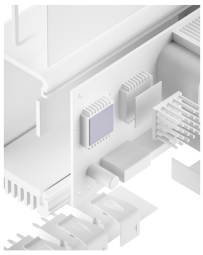
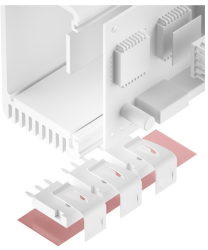
VORES PRODUKTSORTIMENT INKLUDERER:

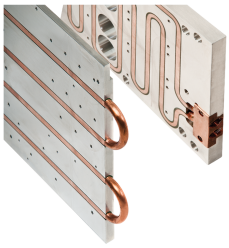


PHASE CHANGE MATERIAL

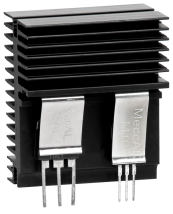


FOILS & FILMS

TIM OVERSIGT



VÆSKE KØLEDE PROFILER



CLIPS

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VI FØRER PRODUKTER INDENFOR KATEGORIERNE:

AUTOMATIK

HVAC & BYGNINGS-AUTOMATIK

ELVARME

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