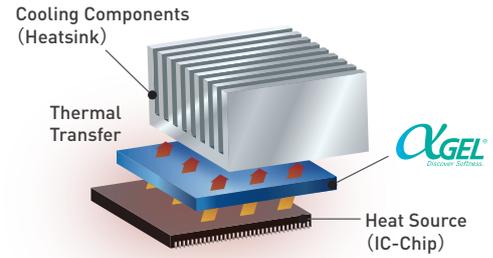




Heat Dissipation

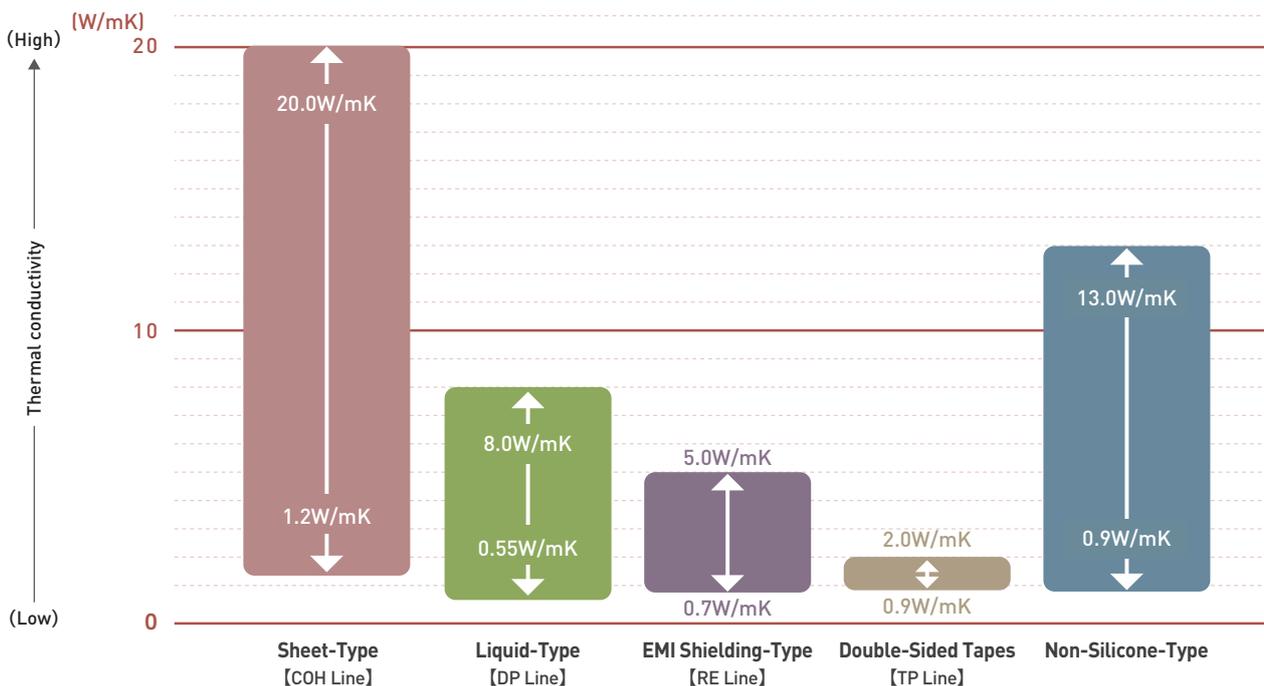
By adding thermal conductivity to an extremely soft version Alpha GEL, we created Alpha GEL Thermal Interface Material products, a highly thermally conductive material able to dissipate heat while also efficiently eliminating gaps between surfaces. Alpha GEL is nonflammable and electrically nonconductive, making it a perfect choice for reducing loads on PCBs. We recommend Alpha GEL as a heat dissipation solution for a wide variety of applications.



Product lineup

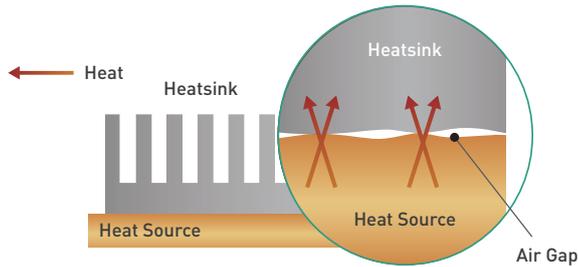
Sheet-Type [COH Line]	Liquid-Type [DP Line]	EMI Shielding-Type [RE Line]	Double-Sided Tapes [TP Line]	Non-Silicone-Type
<ul style="list-style-type: none"> Highly conductive products Standard products High electronic insulation products Non-silicone products 	<ul style="list-style-type: none"> Grease products Putty products 2 Component products Non-silicone products 	<ul style="list-style-type: none"> Electromagnetic wave absorption products Electromagnetic wave shielding products 	<ul style="list-style-type: none"> Silicone products Non-silicone products 	<ul style="list-style-type: none"> Sheet-Type Liquid-Type Double-Sided Tapes

Table of thermal conductivity (by product group)

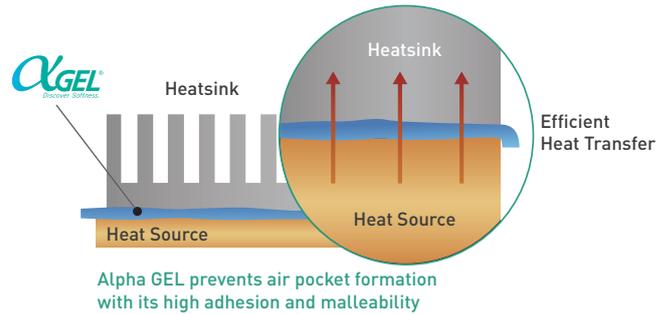


Mechanism

Without αGEL



With αGEL



Product Locator

Product Category	Product Line	Product Type (Characteristic)	Abbreviation	Thermal conductivity(W/mK) (MIN~MAX)	Hardness/Viscosity (Soft~Hard)	Thickness(mm) (MIN~MAX)	Characteristics	Delivery as
Sheet-Type	COH	Highly conductive products	VS (Very Soft)	8.0~20	Shore000 65~ Shore00 35	0.5~5.0	Extremely high thermal conductivity +High softness	Standard Sheet Custom cut part
Sheet-Type	COH	Standard products	G(Gel) LB(Low oil Bleed) S(Standard)	1.2~12	Shore00 10~ ShoreA 40	0.1~15.0	High Softness Little oil bleeding Added stiffeners	Standard Sheet Custom cut part
Sheet-Type	COH	High electronic insulation products	HI (High electronic Insulation)	1.5~3.0	ShoreA 80	0.15~0.35	High electric insulation	Standard Sheet Custom cut part
Sheet-Type	COH	Non-silicone products	N (Non-Silicone)	1.5~13	Shore00 50~ Shore00 60	0.5~5.0	Free of low molecular weight siloxane	Standard Sheet Custom cut part
Liquid-Type	DP	Grease products	GR (Grease)	1.1~6.0	16.5(PaS)~ 3,090(PaS)	-	Low viscosity	Bottle
Liquid-Type	DP	Putty products	PT (Putty)	3.5~8.0	3,500(PaS)~ 20,000(PaS)	-	High viscosity	Syringe Cartridge
Liquid-Type	DP	2 Component products	TC (Two-Component curing)	0.55~5.0	Shore00 50~ ShoreA 55	-	Room temp. Heat curing	Syringe Cartridge
Liquid-Type	DP	Non-silicone products	N (Non-Silicone)	1.3~4.5	43(PaS)~ 15,000(PaS)	-	Free of low molecular weight siloxane	Syringe Cartridge Bottle
EMI Shielding-Type	RE	Electromagnetic wave absorption products	EA (Electromagnetic Absorption)	0.7~4.0	Shore00 39~ Shore00 55	0.5~5.0	EMI Shielding +Heat Dissipation Electromagnetic wave absorption	Standard Sheet Custom cut part
EMI Shielding-Type	RE	Electromagnetic wave shielding products	ES (Electromagnetic Shield)	3.0~5.0	Shore00 50~ Shore00 55	0.5~5.0	EMI Shielding +Heat Dissipation Electromagnetic wave shielding	Standard Sheet Custom cut part
Double-Sided Tapes	TP	Silicone product	Si (Silicone)	1.2~1.8	-	0.15~0.25	High Adhesion +Heat Dissipation	Sheet Roll
Double-Sided Tapes	TP	Non-silicone products	N (Non-Silicone)	0.9~2.0	-	0.1~0.38	High Adhesion +Heat Dissipation Free of low molecular weight siloxane	Sheet Roll

Notes

- To the best of our knowledge, the information and statements on this brochure are believed to be true and reliable; however, the PRODUCTS described herein are sold WITHOUT ANY GUARANTEE OR WARRANTY INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES since the application and conditions of each use vary and change, and are beyond the control of manufacturer and seller(s). The customers and users of the PRODUCTS shall assume the responsibility for determining the suitability of the PRODUCTS based on their tests and for whatever risks and liability associated with the use of the PRODUCTS. NEITHER MANUFACTURER NOR SELLER(S) SHALL BE LIABLE EITHER IN TORT OR CONTRACT OR ANY OTHER CAUSE FOR ANY KIND OF LOSS OF PROFITS OR DAMAGE, INCIDENTAL, DIRECT, OR CONSEQUENTIAL, ARISING OUT OF OR IN CONNECTION WITH THE USE OF OR THE INABILITY TO USE THE PRODUCTS.
- It is highly recommended that users would not use the products shown in the brochure in medical applications, particularly for implantation use.
- The users shall be aware of the fact that silicone oil could bleed from alpha-gel. It is therefore that any user should be responsible for conducting reliability test in advance before delivering the products in the market.
- The Silicone-gel contains low molecular siloxane, which could be volatile.
- The seller or manufacturer shall not be responsible for any defects to the supplied product, unless it is proven that

- the supplied product has defects attributed to the intent or negligence of the manufacturer. If that is the case a replacement product shall be provided.
- The seller or manufacturer shall not be responsible for any recommendations, proposals and suggestions or matters not stated in this catalogue, unless otherwise agreed in writing and signed by duly authorized representatives of the seller or manufacturer.
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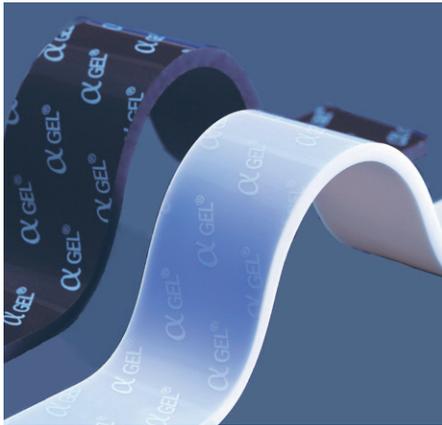
Taica

Taica Corporation Multifunctional Materials Division

Takanawa Sengakuji-ekimae Bldg. 3F, 2-18-10 Takanawa, Minato-ku, Tokyo 108-0074 Japan
TEL. +81-3-6367-6624 FAX. +81-3-6367-6620

<https://taica.co.jp/gel/en/>

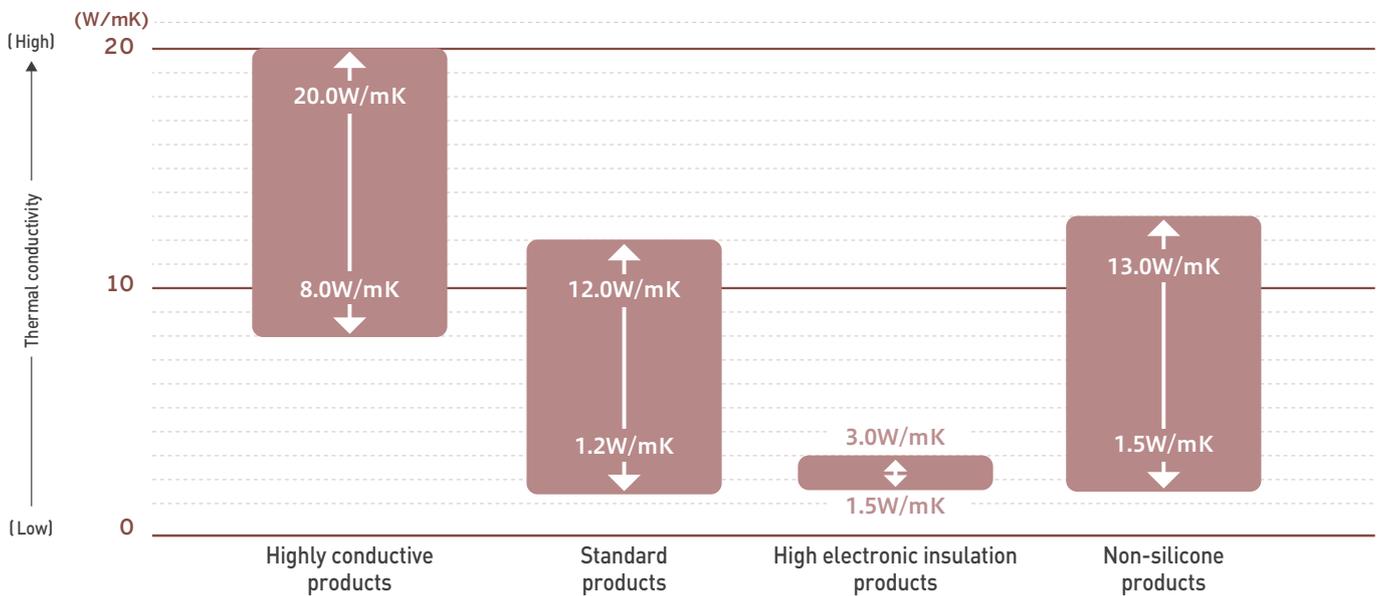




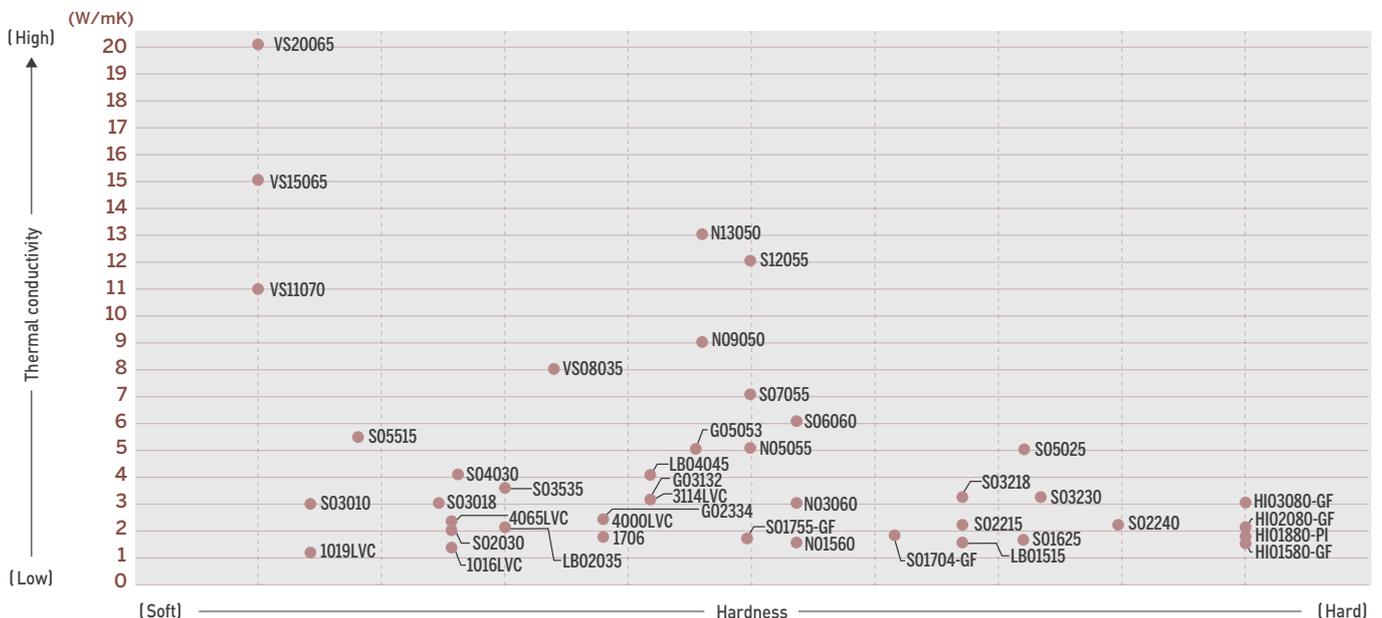
- Alpha GEL's flexibility and high thermal conductivity of up to 20W / mK make for excellent heat dissipation capabilities.
- Adheres to rough surfaces and pushes out all air gaps.
- Provides good electrical insulation and is flame retardant.
- Low rebound and compressive stress.
- We offer customization according to your needs, e.g. with reinforcing material, non-adhesive sides, or adhesive characteristics. Shapes are also customizable.



Table of thermal conductivity (By product)



Product lineup (By product / By hardness) (Sheet-Type)



[COH Line / Highly Heat Conductive Products Physical Characteristics]

Property	Unit	Product				Remarks
		COH-VS08035	COH-VS11070	COH-VS15065	COH-VS20065	
Thermal conductivity	W/mK	8.0	11.0	15.0	20.0	ASTM D5470
Hardness	Shore00	35	-	-	-	ASTM D2240
	Shore000	-	70	65	65	ASTM D2240
Thickness	mm	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	-
Temperature range	°C	-60~150	-60~150	-60~150	-60~150	-
Color	-	Purple	Gray Green	Purple	Brown	-
Material	-	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	-	-	-	-	-
Density	-	3.4	3.4	3.3	3.3	ASTM D792
Flame retardance	-	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	UL94
Dielectric breakdown strength	kV/mm	8	8	8	8	ASTM D149
Volume resistivity	Ω -m	$>10^{10}$	$>10^{10}$	$>10^{10}$	$>10^{10}$	ASTM D257
Surface resistivity	Ω	$>10^{11}$	$>10^{11}$	$>10^{11}$	$>10^{11}$	ASTM D257

[COH Line / Standard-Type (GEL) Products Physical Characteristics]

Property	Unit	Product						Remarks
		COH-1016LVC	COH-1019LVC	COH-1706	COH-4000LVC	COH-4065LVC	COH-3114LVC	
Thermal conductivity	W/mK	1.3	1.2	-	2.3	2.2	3.1	ASTM D5470
		1.2	1.2	1.7	2.1	2.1	3.1	JIS R 2616 (Hot wire method)
Hardness	Asker C	-	-	27	-	-	40	JIS K 7312
	Needle penetration (1/10mm)	60	90	-	45	65	-	JIS K 2207
	Shore00	43	8	59	62	33	71	ASTM D2240
Thickness	mm	0.5~3.0	0.5~5.0	0.5~3.0	0.5~3.0	1.0~3.0	1.0~3.0	-
Temperature range	°C	-40~150	-40~150	-40~150	-40~150	-40~150	-40~150	-
Color	-	White	Blue	Gray	Gray	Reddish Brown	Gray	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	-	-	-	-	-	-	-
Density	-	1.7	1.7	-	2.9	2.8	3	ASTM D792 JIS K 6249
Flame retardance	-	t0.5:V-1 >t1.0:V-0	t0.5:V-1 >t1.0:V-0	V-0	V-0	V-0	V-0	UL94
Dielectric breakdown strength	kV/mm	12	10	-	10	11	8	ASTM D149
Volume resistivity	Ω -m	9.3×10^{11}	1.4×10^{12}	-	3.1×10^{12}	2.0×10^{11}	1.4×10^{10}	ASTM D257
Surface resistivity	Ω	1.7×10^{12}	2.1×10^{12}	-	3.2×10^{12}	4.2×10^{11}	8.0×10^9	ASTM D257

※Silicone oil may bleed depending upon conditions. ※Low molecular siloxane is included in this product which basically composed of silicone. ※Above data are measured data, not guaranteed specifications.

【COH Line / Standard-Type (GEL & Low Oil Bleed Type) Products Physical Characteristics】

Property	Unit	Product						Remarks
		COH-G02334	COH-G03132	COH-G05053	COH-LB01515	COH-LB02035	COH-LB04045	
Thermal conductivity	W/mK	-	3.0	-	1.5	2.0	4.0	ASTM D5470
		2.3	3.1	5.0	-	-	-	JIS R 2616 (Hot wire method)
Hardness	Asker C	34	32	53	-	-	-	JIS K 7312
	ShoreA	-	-	-	15	-	-	ASTM D2240
	Shore00	59	57	79	-	35	45	ASTM D2240
Thickness	mm	0.36, 0.5	0.36, 0.5	0.36, 0.5	0.5~12	0.5~5.0	0.5~5.0	-
Temperature range	°C	-60~200	-40~200	-40~200	-60~200	-60~180	-60~180	-
Color	-	Gray	Gray	Gray	Yellow	Gray	Blue	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	-	-	-	-	-	-	-
Density	-	-	-	-	2.1	2.2	2.6	ASTM D792 JIS K 6249
Flame retardance	-	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	UL94
Dielectric breakdown strength	kV/mm	-	9	-	>16	11	11	ASTM D149
Volume resistivity	Ω -m	-	1.2×10^{11}	-	$>10^{11}$	$>10^{11}$	$>10^{11}$	ASTM D257
Surface resistivity	Ω	-	2.9×10^{11}	-	$>10^{10}$	$>10^{10}$	$>10^{10}$	ASTM D257

【COH Line / Standard-Type (Less than 3W/mK) Products Physical Characteristics】

Property	Unit	Product						Remarks
		COH-S01625	COH-S01704-GF	COH-S01755-GF	COH-S02030	COH-S02240	COH-S02215	
Thermal conductivity	W/mK	1.6	1.7	1.7	2.0	2.2	2.2	ASTM D5470
Hardness	ShoreA	25	4	-	-	40	15	ASTM D2240
	Shore00	-	-	55	30	-	-	ASTM D2240
Thickness	mm	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	0.1~0.3	0.3~15	-
Temperature range	°C	-60~180	-60~180	-60~180	-60~180	-60~200	-60~200	-
Color	-	Gray	Pink	Yellow	White	Dark Red	Light Green	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	-	Glass Fiber	Glass Fiber	-	-	-	-
Density	-	2.4	2.1	2.1	2.1	2.4	2.4	ASTM D792
Flame retardance	-	V-0 Equivalent	UL94					
Dielectric breakdown strength	kV/mm	10	15	10	8	1.5 (0.1mm)	10	ASTM D149
Volume resistivity	Ω -m	$>10^{12}$	$>10^{11}$	$>10^{11}$	$>10^{10}$	$>10^{14}$	$>10^{11}$	ASTM D257
Surface resistivity	Ω	$>10^{11}$	$>10^{10}$	$>10^{10}$	$>10^{10}$	$>10^{12}$	$>10^{10}$	ASTM D257

【COH Line / Standard-Type (Less than 5W/mK) Products Physical Characteristics】

Property	Unit	Product						Remarks
		COH-S03018	COH-S03010	COH-S03230	COH-S03218	COH-S03535	COH-S04030	
Thermal conductivity	W/mK	3.0	3.0	3.2	3.2	3.5	4.0	ASTM D5470
Hardness	ShoreA	-	-	30	18	-	-	ASTM D2240
	Shore00	18	10	-	-	35	30	ASTM D2240
Thickness	mm	0.5~12	0.5~5.0	0.5~5.0	0.5~12	0.5~5.0	0.5~5.0	-
Temperature range	°C	-60~180	-60~180	-60~180	-60~200	-60~180	-60~180	-
Color	-	Dark Gray	Gray	Gray	Brown	Dark Gray	Blue	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	-	-	-	-	-	-	-
Density	-	2.5	2.8	2.4	2.5	2.7	2.8	ASTM D792
Flame retardance	-	V-0 Equivalent	UL94					
Dielectric breakdown strength	kV/mm	8	8	2	>12	8	8	ASTM D149
Volume resistivity	Ω -m	$>10^{11}$	$>10^{10}$	$>10^{11}$	$>10^{11}$	$>10^{11}$	$>10^{10}$	ASTM D257
Surface resistivity	Ω	$>10^{10}$	$>10^{11}$	$>10^{12}$	$>10^{14}$	$>10^{10}$	$>10^{10}$	ASTM D257

※Silicone oil may bleed depending upon conditions. ※Low molecular siloxane is included in this product which basically composed of silicone. ※Above data are measured data, not guaranteed specifications.

【COH Line / Standard-Type (More than 5W/mK) Products Physical Characteristics】

Property	Unit	Product					Remarks
		COH-S05025-GF	COH-S05515	COH-S06060	COH-S07055	COH-S12055	
Thermal conductivity	W/mK	5.0	5.5	6.0	7.0	12.0	ASTM D5470
Hardness	ShoreA	25	-	-	-	-	ASTM D2240
	Shore00	-	15	60	55	55	ASTM D2240
Thickness	mm	0.3	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	-
Temperature range	°C	-55~200	-60~180	-60~180	-60~180	-60~180	-
Color	-	Gray	Gray	Red	Gray	Gray	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	Glass Fiber	-	-	-	-	-
Density	-	2.5	3.0	3.2	3.3	3.3	ASTM D792
Flame retardance	-	V-0 Equivalent	UL94				
Dielectric breakdown strength	kV/mm	>10	8	8	8	8	ASTM D149
Volume resistivity	Ω -m	>10 ¹¹	>10 ¹⁰	>10 ¹⁰	>10 ¹⁰	>10 ¹²	ASTM D257
Surface resistivity	Ω	>10 ¹¹	ASTM D257				

【COH Line / High Electronic Insulation Products Physical Characteristics】

Property	Unit	Product				Remarks
		COH-HI01580-GF	COH-HI01880-PI	COH-HI02080-GF	COH-HI03080-GF	
Thermal conductivity	W/mK	1.5	1.8	2.0	3.0	ASTM D5470
Hardness	ShoreA	80	80	80	80	ASTM D2240
Thickness	mm	0.23	0.15	0.3	0.35	-
Temperature range	°C	-60~180	-60~180	-60~180	-60~180	-
Color	-	Yellow	Gray	Green	Pink	-
Material	-	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	Glass Fiber	Polyimide	Glass Fiber	Glass Fiber	-
Density	-	2.3	1.5	2.6	2.8	ASTM D792
Flame retardance	-	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	UL94
Dielectric strength	kV	4	8	5	5.5	ASTM D149
Volume resistivity	Ω -m	>10 ¹²	>10 ¹²	>10 ¹²	>10 ¹⁰	ASTM D257
Surface resistivity	Ω	>10 ¹²	>10 ¹³	>10 ¹²	>10 ¹²	ASTM D257

【COH Line / Non-Silicone Type Products Physical Characteristics】

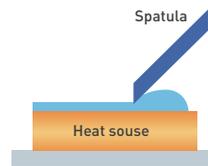
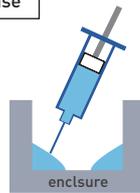
Property	Unit	Product					Remarks
		COH-N01560	COH-N03060	COH-N05055	COH-N09050	COH-N13050	
Thermal conductivity	W/mK	1.5	3.0	5.0	9.0	13.0	ASTM D5470
Hardness	Shore00	60	60	55	50	50	ASTM D2240
Thickness	mm	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	-
Temperature range	°C	-60~125	-60~125	-60~125	-60~125	-60~125	-
Color	-	Gray	Red	Gray	Pink	Gray	-
Material	-	Non-Silicone	Non-Silicone	Non-Silicone	Non-Silicone	Non-Silicone	-
Reinforced layer	-	-	-	-	-	-	-
Density	-	2.2	2.6	3.2	3.4	3.3	ASTM D792
Flame retardance	-	V-0 Equivalent	V-0 Equivalent	-	-	-	UL94
Dielectric breakdown strength	kV/mm	10	10	8	8	8	ASTM D149
Volume resistivity	Ω -m	>10 ¹⁰	ASTM D257				
Surface resistivity	Ω	>10 ¹¹	ASTM D257				

※Silicone oil may bleed depending upon conditions. ※Low molecular siloxane is included in this product which basically composed of silicone. ※Above data are measured data, not guaranteed specifications.



- Extremely low thermal resistance and exhibits excellent heat dissipation performance.
- By using filling equipment, it is possible to automate the dispensing process making it easy to handle.
- The two-component material cures after mixing for high reliability and great dispensing flow. It retains its flexibility even after curing, reducing the load.
- Cross-linked particles of Alpha GEL DP Line eliminate running and vaporization problems seen with traditional grease and phase change materials.
- Good electrical insulation.
- Even the smallest cracks and crevices can be filled with Alpha GEL DP Line, eliminating air gaps and ensuring the most efficient heat transfer possible.

Putty · Grease



2 Component

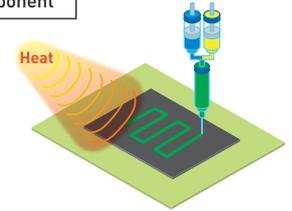
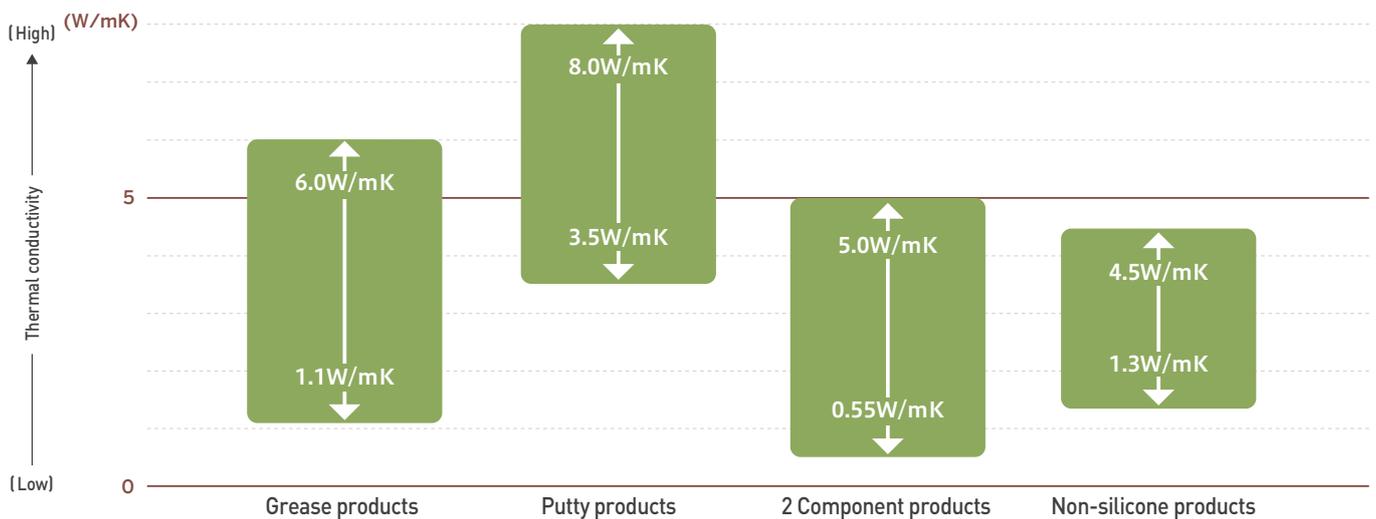
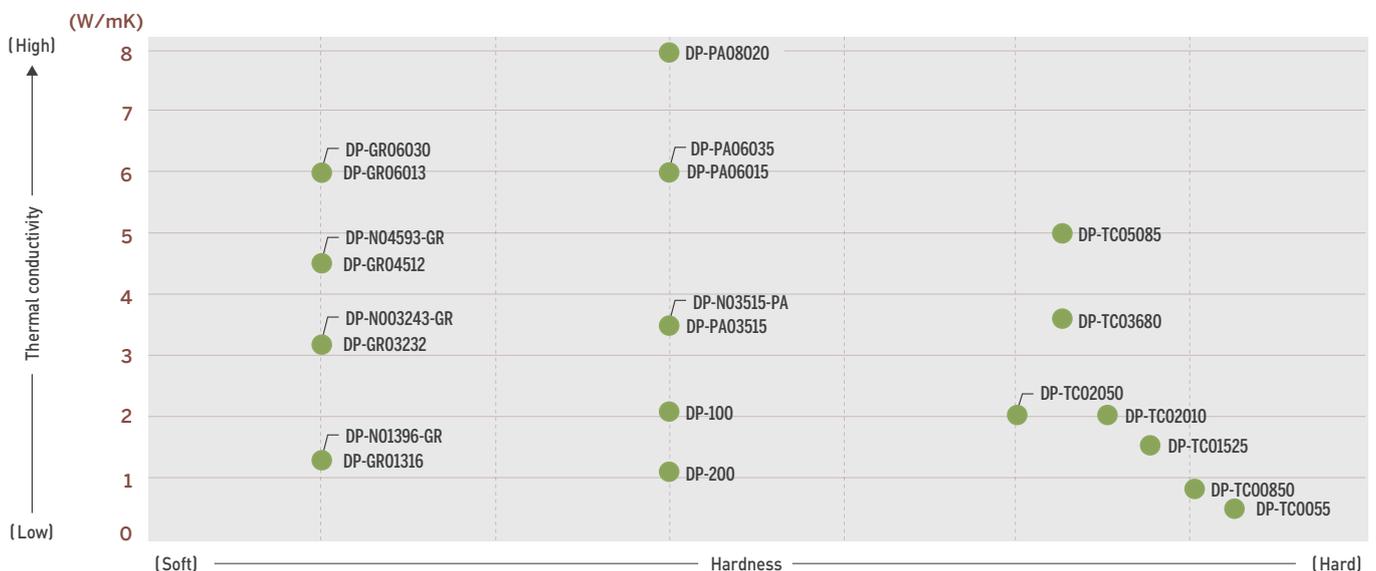


Table of thermal conductivity (By product)



Product lineup (By product / By hardness) (Liquid-Type)



[DP Line / Grease Products Physical Characteristics]

Property	Unit	Product							Remarks
		DP-100	DP-200	DP-GR01316	DP-GR03232	DP-GR04512	DP-GR06013	DP-GR06030	
Thermal conductivity	W/mK	2.1	1.1	1.3	3.2	4.5	6.0	6.0	ASTM D5470
Viscosity	PaS	3,090	2,214	-	-	-	-	300	ISO 3219
		-	-	16.5	322	126	136	-	ASTM D2196
Temperature range	°C	-40~200	-40~150	-60~180	-60~180	-60~180	-60~180	-60~160	-
Color	-	Gray	Gray	White	Gray	Gray	Gray	White	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Density	-	2.8	2.6	2.2	2.7	2.0	2.0	3.3	ASTM D792
Dielectric breakdown strength	V/mil	130	130	350	280	-	-	200	ASTM D149
Volume resistivity	Ω-m	4.2*10 ¹⁰	4.5*10 ¹²	>10 ¹¹	>10 ¹¹	-	-	>10 ¹²	ASTM D257

[DP Line / Putty Products Physical Characteristics]

Property	Unit	Product				Remarks
		DP-PA03515	DP-PA06015	DP-PA06035	DP-PA08020	
Thermal conductivity	W/mK	3.5	6.0	6.0	8.0	ASTM D5470
Viscosity	PaS	-	-	3,500	-	ISO 3219
		15,000	15,000	-	20,000	DIN 53018
Temperature range	°C	-60~180	-60~180	-60~180	-60~180	-
Color	-	Blue	Blue	Blue	Gray	-
Material	-	Silicone	Silicone	Silicone	Silicone	-
Density	-	3.0	3.3	3.3	3.4	ASTM D792
Flame retardance	-	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	UL94
Dielectric breakdown strength	V/mil	300	300	300	300	ASTM D149
Volume resistivity	Ω-m	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	ASTM D257

[DP Line / 2 Components Products Physical Characteristics]

Property	Unit	Product							Remarks
		DP-TC00555	DP-TC00850	DP-TC01525	DP-TC02010	DP-TC02050	DP-TC03680	DP-TC05085	
Thermal conductivity	W/mK	0.55	0.8	1.5	2.0	2.0	3.6	5.0	ASTM D5470
Viscosity(Initial)	PaS	A/B=5000/10(cP)	A+B=5	A+B=20	A+B=15	A/B=120/110	A/B=47/48	A/B=110/80	ISO 3219
Hardness (After curing)	ShoreA	55	50	25	10	-	-	-	ASTMD2240
	Shore00	-	-	-	-	50	80	85	ASTMD2240
Temperature range	°C	-60~160	-60~180	-60~180	-60~180	-60~200	-55~205	-55~200	-
Color	A/B	White/Translucent	White/White	White/Pink	White/Gray	White/Gray	Blue/White	Red/White	-
Material	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Density	-	1.35	1.8	2.0	2.1	2.2	3.0	3.3	ASTM D792
Flame retardance	-	-	-	-	-	-	V-0 Equivalent	V-0 Equivalent	UL94
Dielectric breakdown strength	V/mil	25	350	350	350	-	-	-	ASTM D149
Volume resistivity	Ω-m	>10 ¹³	>10 ¹¹	>10 ¹²	>10 ¹³	>10 ¹⁰	>10 ¹²	>10 ¹²	ASTM D257
Mixing ratio	A/B	100/10	100/3	1/1	1/1	1/1	1/1	1/1	-
Curing Conditions	Min	25°C:48	25°C:7(days)	25°C:300 100°C:5	25°C:300 100°C:5	25°C:30~35 100°C:1.2	25°C:169 100°C:3	25°C:108 100°C:2	ASTM D1644 By Taica

[DP Line / Non-Silicone Type Products Physical Characteristics]

Property	Unit	Product				Remarks
		DP-N01396-GR	DP-N03243-GR	DP-N04593-GR	DP-N03515-PA	
Thermal conductivity	W/mK	1.3	3.2	4.5	3.5	ASTM D5470
Viscosity	PaS	96	43	93	-	ISO 3219
		-	-	-	15,000	DIN 53018
Temperature range	°C	-60~150	-60~150	-60~150	-60~150	-
Color	-	White	Gray	Gray	Gray	-
Material	-	Non-Silicone	Non-Silicone	Non-Silicone	Non-Silicone	-
Density	-	2.2	1.9	2.1	3.0	ASTM D792
Dielectric breakdown strength	V/mil	350	-	-	300	ASTM D149
Volume resistivity	Ω-m	>10 ¹¹	-	-	>10 ¹³	ASTM D257

※Silicone oil may bleed depending upon conditions. ※Low molecular siloxane is included in this product which basically composed of silicone. ※Above data are measured data, not guaranteed specifications.



- Combining thermal conductivity and electromagnetic wave absorption.
- Just paste it on the target part for electromagnetic wave absorption and shielding.
- Excellent flexibility and adhesiveness making it adhere to even and uneven surfaces alike showing highly efficient heat dissipation and electromagnetic wave absorption capabilities.
- Excellent in electrical insulation and flame retardancy.
- Usable in a wide temperature range with excellent durability.

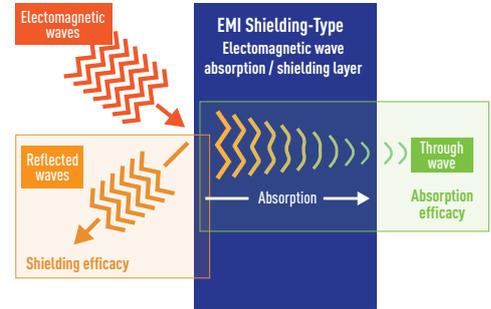
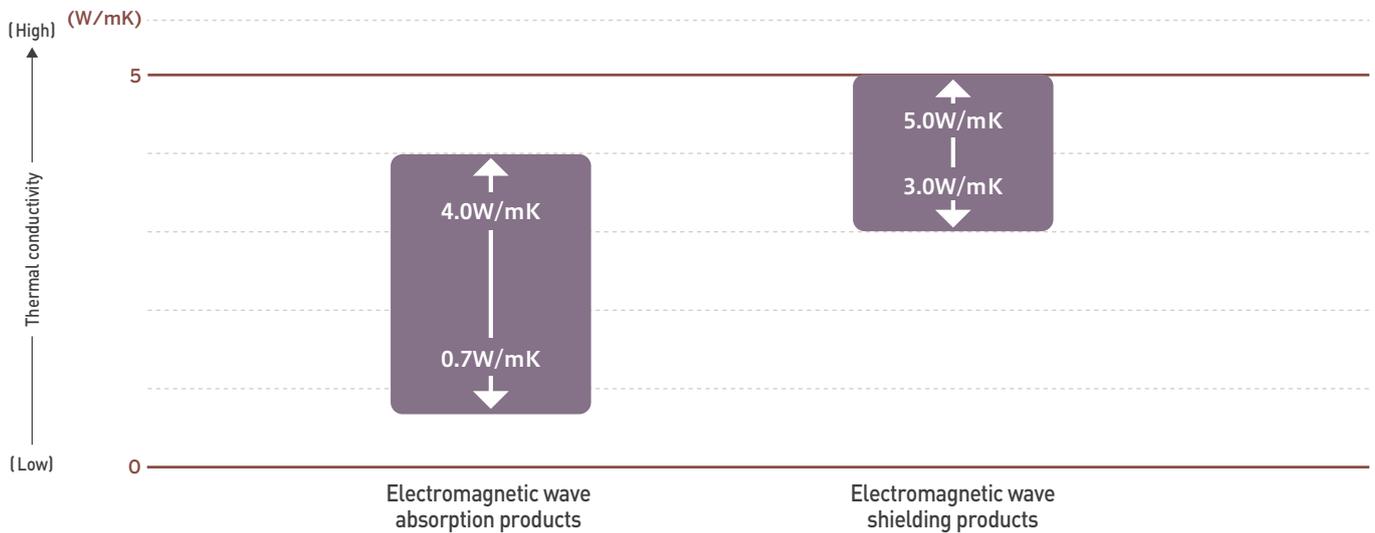
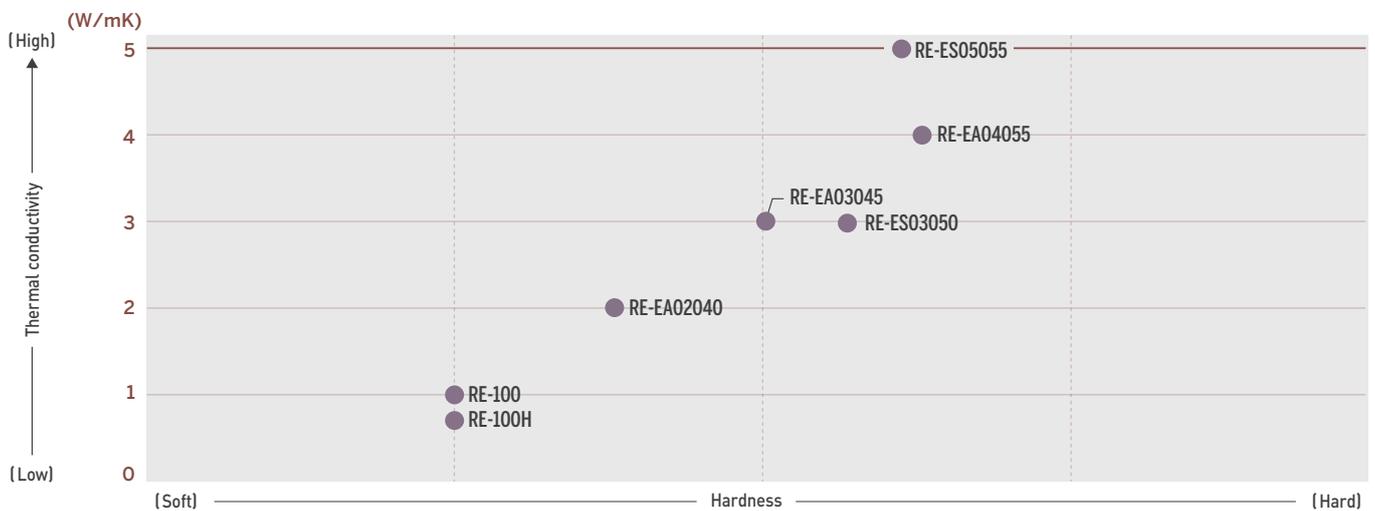


Table of thermal conductivity (By product)



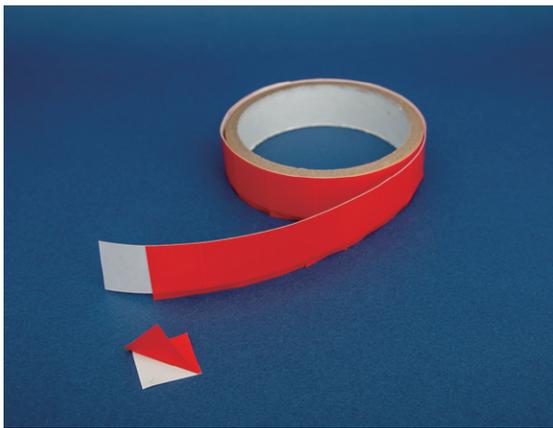
Product lineup (By product / By hardness) (EMI Shielding-Type)



【Electromagnetic Wave Absorption & Electromagnetic Wave Shielding Products Physical Characteristics】

Property	Unit	Conditions	Product							Remarks
			RE-100	RE-100H	RE-EA02040	RE-EA03045	RE-EA04055	RE-ES03050	RE-ES05055	
Thermal conductivity	W/mK	-	1.0	0.7	2.0	3.0	4.0	3.0	5.0	ASTM D5470
Hardness	Needle penetration (1/10mm)	-	60	60	-	-	-	-	-	JIS K 2207
	Shore00	-	39	39	40	45	55	50	55	ASTM D2240
Thickness	mm	-	0.5~3.0	0.5~3.0	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	ASTM D2196
Temperature range	°C	-	-40~150	-40~150	-60~180	-60~180	-60~180	-60~180	-60~180	DIN 53018
Color	-	-	Black	Black	Dark Gray	Dark Gray	Dark Gray	Blue	Red	-
Material	-	-	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	-
Reinforced layer	-	-	-	Reflective layer with adhesive	-	-	-	-	-	-
Density	-	-	2.9	2.9	4.4	3.9	3.6	2.2	2.1	ASTM D792
Flame retardance	-	-	t0.5-2.0:V-1 t3.0:V-0	-	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	V-0 Equivalent	UL94
Dielectric breakdown strength	kV/mm	-	3	5	-	-	-	8	7	ASTM D149
Volume resistivity	Ω -m	-	1.2×10^8	1.8×10^{12}	$>10^{12}$	$>10^{12}$	$>10^{12}$	$>10^{10}$	$>10^{13}$	ASTM D257
Surface resistivity	Ω	-	-	-	-	-	-	$>10^{10}$	$>10^{12}$	ASTM D257
EMI Attenuation	dB/cm	5GHz	-	-	21	17	11	-	-	-
		7GHz	-	-	27	26	17	-	-	-

※Silicone oil may bleed depending upon conditions. ※Low molecular siloxane is included in this product which basically composed of silicone. ※Above data are measured data, not guaranteed specifications.



- Strong adhesive strength and high thermal conductivity.
- Excellent adhesive reliability that does not require fixing with screws.
- We offer customization according to your needs using various types of adhesives and base materials.

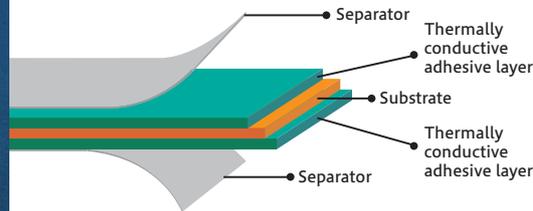
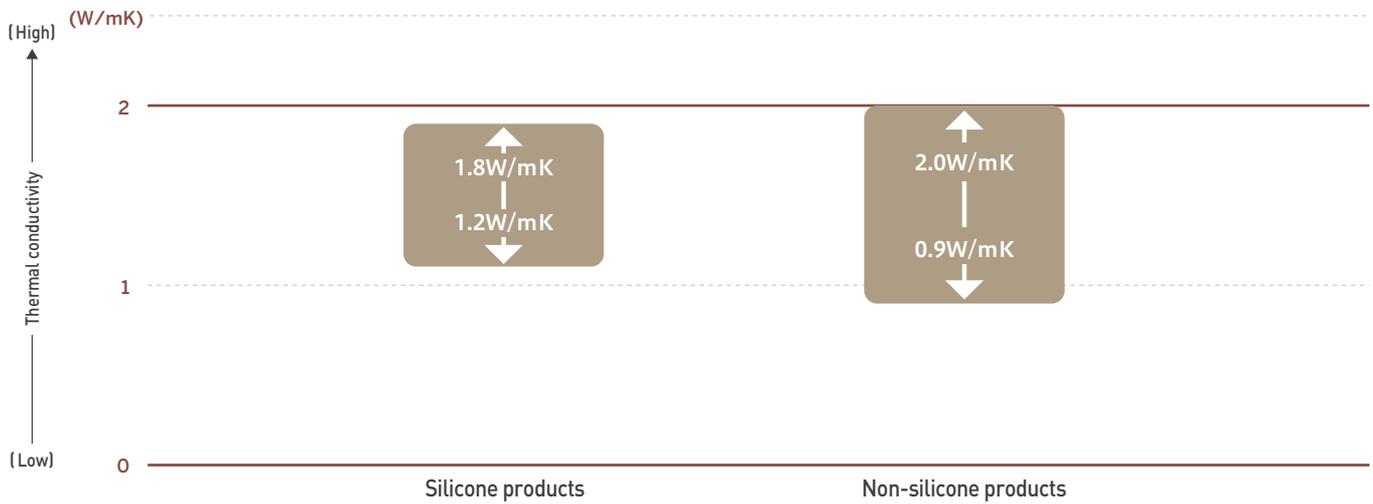
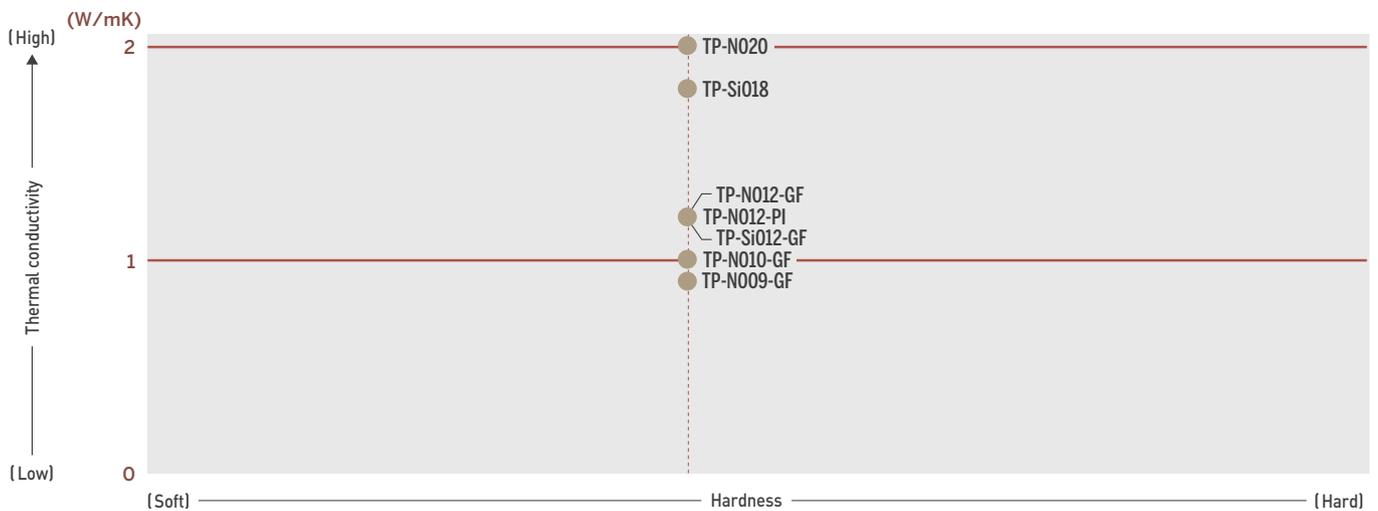


Table of thermal conductivity (By product)



Product lineup (By product / By hardness) (Double-Sided Tapes)



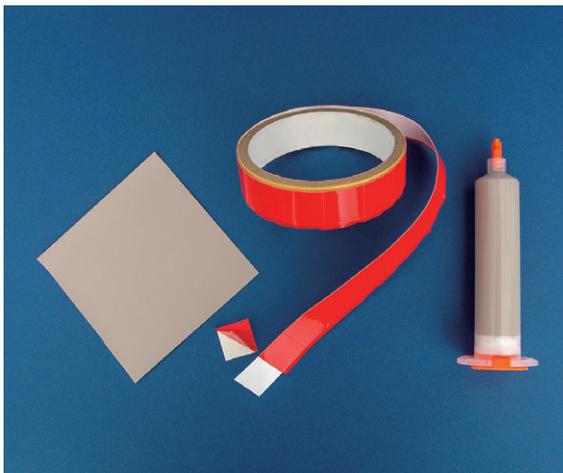
[TP Line / Silicone-Type Products Physical Characteristics]

Property	Unit	Conditions	Product		Remarks	
			TP-Si012-GF	TP-Si018		
Thermal conductivity	W/mK	-	1.2		1.8	ASTM D5470
Thickness	mm	-	0.15	0.25	0.2	ASTM D2196
Temperature range	°C	-	-60~170		-60~170	DIN 53018
Color	-	-	White		White	-
Material	-	-	Silicone		Silicone	-
Reinforced layer	-	-	Glass Fiber		-	-
Density	-	-	1.6		2.3	ASTM D792
Flame retardance	-	-	V-0 Equivalent		V-0 Equivalent	UL94
Dielectric strength	kV	DCV	4	5	4.5	ASTM D149
		ACV	3	4	3.5	ASTM D149
Volume resistivity	Ω -m	-	$>10^{12}$		$>10^9$	ASTM D257
Surface resistivity	Ω	-	$>10^{11}$		$>10^9$	ASTM D257
Initial tack	cm	-	-		-	PSTC-6
Lap shear strength	N/cm ²	-	74	76	35	ASTM D1002
90° Peeling strength	N/inch	25°C 72h	>11	>12	>8	ASTM D3330
		80°C 1000h	>7	>10	>7	
		85°C/85%RH 1000h	>7	>13	>10	
		-40°C ⇄ 120°C 500 cycle	>7	>10	>9.5	
Die shear strength	N/cm ²	25°C	113	126	50	-
		80°C	80	85	50	
Holding power	Min	1kg 25°C	>10000		>10000	PSTC-7
		1kg 80°C	>10000		>10000	

[TP Line / Non-Silicone-Type Products Physical Characteristics]

Property	Unit	Conditions	Product								Remarks		
			TP-N009-GF		TP-N010-GF		TP-N012-GF		TP-N012-PI			TP-N020	
Thermal conductivity	W/mK	-	0.9		1.0		1.2		1.2		2.0	ASTM D5470	
Thickness	mm	-	0.15	0.25	0.15	0.25	0.15	0.25	0.1	0.14	0.25	0.38	ASTM D2196
Temperature range	°C	-	-60~120		-60~120		-60~120		-60~120		-60~120		DIN 53018
Color	-	-	White		White		White		Brown		White		-
Material	-	-	acrylic		acrylic		acrylic		acrylic		acrylic		-
Reinforced layer	-	-	Glass Fiber		Glass Fiber		Glass Fiber		Polyimide		-		-
Density	-	-	1.6		1.8		1.7		1.6		1.8		ASTM D792
Flame retardance	-	-	-		V-0 Equivalent		-		-		-		UL94
Dielectric strength	kV	DCV	3	4	3	4	4	5	5	6	5	7	ASTM D149
		ACV	2	3	2	3	3	4	4	5	4	6	
Volume resistivity	Ω -m	-	$>10^{10}$		$>10^{11}$		$>10^{11}$		$>10^{12}$		$>10^9$		ASTM D257
Surface resistivity	Ω	-	$>10^{10}$		$>10^{11}$		$>10^{11}$		$>10^{12}$		$>10^{10}$		ASTM D257
Initial tack	cm	-	10	8	11	8	14	12	13	13	10	8	PSTC-6
Lap shear strength	N/cm ²	-	60	60	50	50	55	60	60	60	45	60	ASTM D1002
90° Peeling strength	N/inch	25°C 72h	>10	>12	>5	>6	>6	>8	>10	>10	>9	>11	ASTM D3330
		80°C 1000h	>14	>20	>14	>20	>10	>15	>14	>15	>16	>20	
		85°C/85%RH 1000h	>20	>25	>20	>24	>18	>22	>16	>18	>22	>25	
		-40°C ⇄ 120°C 500 cycle	>15	>20	>27	>28	>13	>19	>14	>14	>14	>17	
Die shear strength	N/cm ²	25°C	107	94	100	100	100	100	100	100	100	100	-
		80°C	70	70	70	70	65	65	50	50	50	70	
Holding power	Min	1kg 25°C	>10000		>10000		>10000		>10000		>10000		PSTC-7
		1kg 80°C	>10000		>10000		>10000		>10000		>10000		

※Silicone oil may bleed depending upon conditions. ※Low molecular siloxane is included in this product which basically composed of silicone. ※Above data are measured data, not guaranteed specifications.



- Does not contain low molecular weight siloxane.
- No low molecular weight siloxane gas is generated, making it usable near contacts or switches preventing problems such as contact failure etc.
- Despite being a non-silicone material, it achieves high thermal conductivity and a wide temperature range (-60°C to 150°C).
- We offer various product types such as liquids (grease, putty), double-sided tapes and sheets.

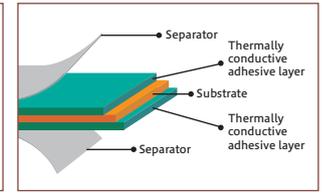
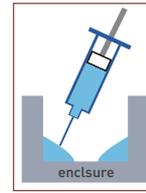
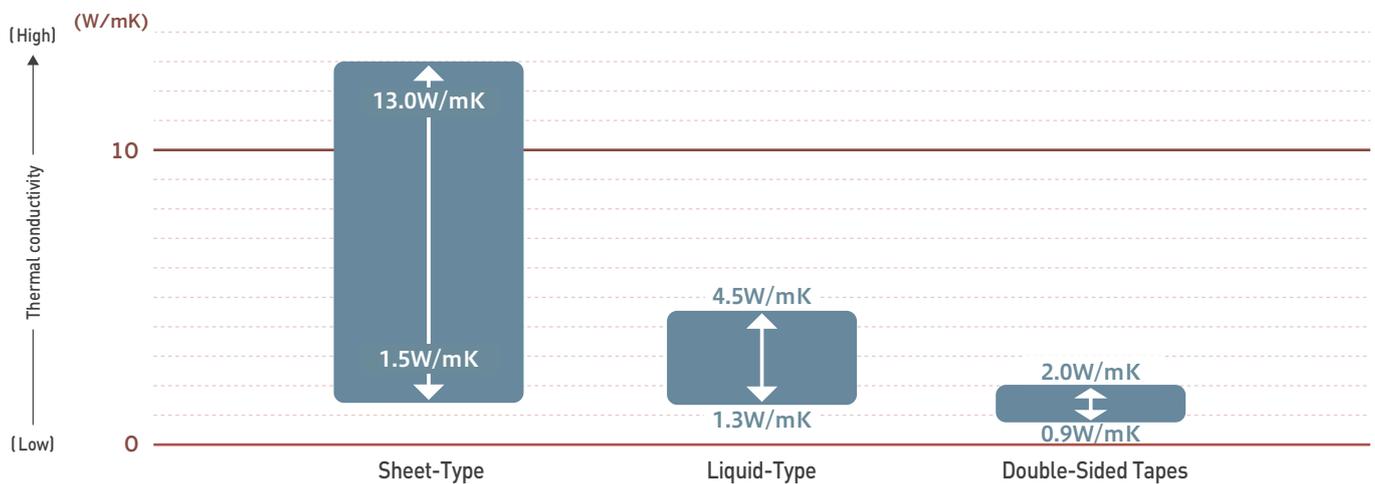
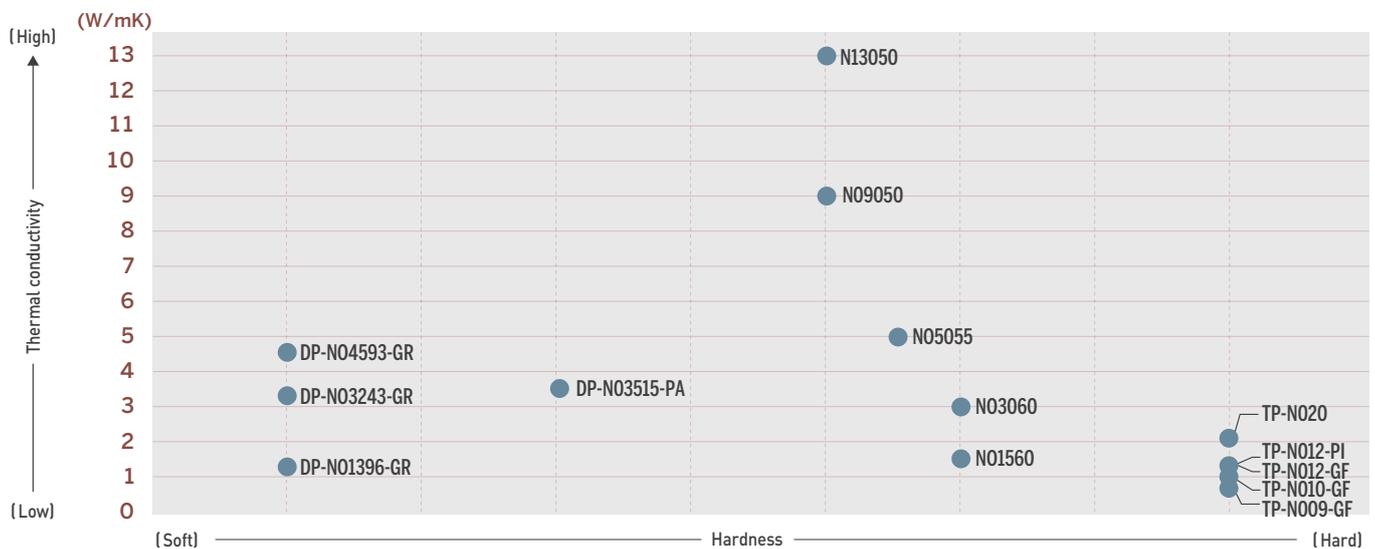


Table of thermal conductivity (By product)



Product lineup (By product / By hardness) (Non-Silicone-Type)



[Sheet-Type Products Physical Characteristics]

Property	Unit	Product					Remarks
		COH-N01560	COH-N03060	COH-N05055	COH-N09050	COH-N13050	
Thermal conductivity	W/mK	1.5	3.0	5.0	9.0	13.0	ASTM D5470
Hardness	Shore00	60	60	55	50	50	ASTM D2240
Thickness	mm	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	0.5~5.0	-
Temperature range	°C	-60~125	-60~125	-60~125	-60~125	-60~125	-
Color	-	Gray	Red	Gray	Pink	Gray	-
Material	-	Non-Silicone	Non-Silicone	Non-Silicone	Non-Silicone	Non-Silicone	-
Reinforced layer	-	-	-	-	-	-	-
Density	-	2.2	2.6	3.2	3.4	3.3	ASTM D792
Flame retardance	-	V-0 Equivalent	V-0 Equivalent	-	-	-	UL94
Dielectric breakdown strength	kV/mm	10	10	8	8	8	ASTM D149
Volume resistivity	Ω-m	>10 ¹⁰	ASTM D257				
Surface resistivity	Ω	>10 ¹¹	ASTM D257				

[Liquid-Type Products Physical Characteristics]

Property	Unit	Product				Remarks
		DP-N01396-GR	DP-N03243-GR	DP-N04593-GR	DP-N03515-PA	
Thermal conductivity	W/mK	1.3	3.2	4.5	3.5	ASTM D5470
Viscosity	PaS	96	43	93	-	ISO 3219
		-	-	-	15,000	DIN 53018
Temperature range	°C	-60~150	-60~150	-60~150	-60~150	-
Color	-	White	Gray	Gray	Gray	-
Material	-	Non-Silicone	Non-Silicone	Non-Silicone	Non-Silicone	-
Density	-	2.2	1.9	2.1	3.0	ASTM D792
Dielectric breakdown strength	V/mil	350	-	-	300	ASTM D149
Volume resistivity	Ω-m	>10 ¹¹	-	-	>10 ¹³	ASTM D257

[Double Sided Tape Products Physical Characteristics]

Property	Unit	Conditions	Product										Remarks
			TP-N009-GF		TP-N010-GF		TP-N012-GF		TP-N012-PI		TP-N020		
Thermal conductivity	W/mK	-	0.9		1.0		1.2		1.2		2.0		ASTM D5470
Thickness	mm	-	0.15	0.25	0.15	0.25	0.15	0.25	0.1	0.14	0.25	0.38	ASTM D2196
Temperature range	°C	-	-60~120		-60~120		-60~120		-60~120		-60~120		DIN 53018
Color	-	-	White		White		White		Brown		White		-
Material	-	-	acrylic		-								
Reinforced layer	-	-	Glass Fiber		Glass Fiber		Glass Fiber		Polyimide		-		-
Density	-	-	1.6		1.8		1.7		1.6		1.8		ASTM D792
Flame retardance	-	-	-		V-0 Equivalent		-		-		-		UL94
Dielectric strength	kV	DCV	3	4	3	4	4	5	5	6	5	7	ASTM D149
		ACV	2	3	2	3	3	4	4	5	4	6	
Volume resistivity	Ω-m	-	>10 ¹⁰		>10 ¹¹		>10 ¹¹		>10 ¹²		>10 ⁹		ASTM D257
Surface resistivity	Ω	-	>10 ¹⁰		>10 ¹¹		>10 ¹¹		>10 ¹²		>10 ¹⁰		ASTM D257
Initial tack	cm	-	10	8	11	8	14	12	13	13	10	8	PSTC-6
Lap shear strength	N/cm ²	-	60	60	50	50	55	60	60	60	45	60	ASTM D1002
90° Peeling strength	N/inch	25°C 72h	>10	>12	>5	>6	>6	>8	>10	>10	>9	>11	ASTM D3330
		80°C 1000h	>14	>20	>14	>20	>10	>15	>14	>15	>16	>20	
		85°C/85%RH 1000h	>20	>25	>20	>24	>18	>22	>16	>18	>22	>25	
		-40°C ⇄ 120°C 500 cycle	>15	>20	>27	>28	>13	>19	>14	>14	>14	>17	
Die shear strength	N/cm ²	25°C	107	94	100	100	100	100	100	100	100	100	-
		80°C	70	70	70	70	65	65	50	50	50	70	
Holding power	Min	1kg 25°C	>10000		>10000		>10000		>10000		>10000		PSTC-7
		1kg 80°C	>10000		>10000		>10000		>10000		>10000		

※Above data are measured data, not guaranteed specifications.