



<http://www.taica.co.jp/gel-english/>

***αGEL***<sup>®</sup>  
*Discover Softness.*  
***Thermal Conductive GEL***

## Taica Corporation

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

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ISO9001



## Excellent Cushioning and Vibration Damping Performance

### Shock Absorption & Vibration Damping

*Alpha GEL*'s (Alpha GEL) softness allows for deflection required for shock absorption and vibration damping, providing excellent cushioning and vibration damping performance.

## Superior Durability

### Durability

*Alpha GEL* is highly resistant to ozone, UV rays and chemicals, making it possible to use in a variety of locations. In addition, its performance is maintained even after repeated compression.

## Stable Performance Even In a Harsh Environment

### Stability

*Alpha GEL*'s properties show little change in the -40°C ( -40 °F) to 200°C ( 392 °F) range, providing stable performance.

## Outstanding Platform for Additional Functions and Enhanced Performance

### Function

On top of the unique combination of excellent features, *Alpha GEL* also works as a reliable foundation for additional functions and for enhancing performance without compromising the merits softness brings.

## Extremely High Safety

### Safety

*Alpha GEL*'s composition makes it harmless to the human body and to the environment, causing no allergies when touched, and emitting no harmful gases when burned.



## Taica's Know-how

### Engineering & Know-How

You can count on us for enhanced cushioning, vibration damping, tender feel, and more.

Years of accumulated expertise and know-how, mastery of fine-tuning softness, designing and making optimum gel parts --- together all of these help cope with a variety of changing environments and needs of customers around the globe.

A raw egg dropped from a height of 18m(60')—equivalent to the sixth floor of a building—remains unbroken when caught by a sheet of *Alpha GEL* only 2 cm (0.8") thick.

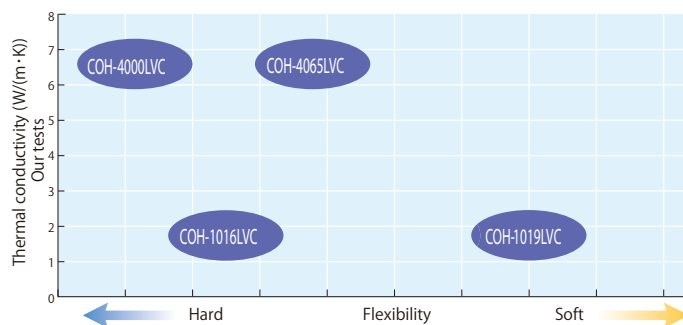


### Features

- Offers outstanding thermal conductivity and excellent heat dissipation.
- Adhere to rough surfaces and push out all air gaps.
- Good electrical insulators and flame retardant.

### General Properties

[Thermal Conductivity and Flexibility]



Grade		COH-1016 LVC	COH-1019 LVC	COH-4000LVC	COH-4065LVC	Remark
Item						
Characteristics		Few low molecular weight Siloxane	High damping	Few low molecular weight Siloxane	High thermal conductivity+High damping	
Thermal conductivity (W/(m・K))	Our tests	1.9	1.9	6.5	6.5	—
	Hot Wire Method <small>(※1)</small>	1.2	1.2	2.1	2.1	JIS R 2616
Hardness (Needle penetration・1/10mm)		60	90	45	65	JIS K 2207
Appearance		White	Blue	Gray	Reddish brown	—
Specific gravity		1.7	1.7	2.9	2.8	JIS K 6249
Tensile strength (MPa)		0.21	0.14	0.35	0.10	JIS K 6249
Volume resistivity (Ω・cm)		6.1×10 <sup>13</sup>	3.1×10 <sup>13</sup>	7.1×10 <sup>13</sup>	4.4×10 <sup>12</sup>	JIS K 6249
Dielectric breakdown voltage (kV/mm)		18.8	16.5	12.5	13.6	JIS K 6249
Elongation (%)		205	480	68	132	JIS K 6249
Compression set (%)		15	51	72	75	JIS K 6249
Dielectric constant	〈50Hz〉	4.8	4.6	5.6	6.8	JIS K 6249
	〈1kHz〉	4.3	4.2	5.0	6.5	JIS K 6249
	〈1MHz〉	4.0	3.9	5.5	6.0	JIS K 6249
Dielectric dissipation factor	〈50Hz〉	0.071	0.055	0.006	0.058	JIS K 6249
	〈1kHz〉	0.046	0.034	0.002	0.041	JIS K 6249
	〈1MHz〉	0.007	0.006	0.0004	0.011	JIS K 6249
RoHS controlled substances <small>(※2)</small>		Not detected	Not detected	Not detected	Not detected	—
Temperature range (°C)		-40～150	-40～150	-40～150	-40～150	—
One side non tacky type		○	○	○	○	



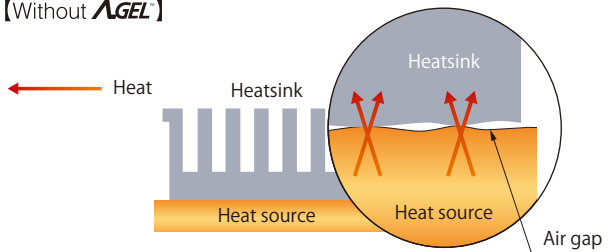
(※1) Hot Wire Method : Using the QTM-500 Quick Thermal Conductivity Meter, from Kyoto Electronics Manufacturing Co., LTD.  
 (※2) Temperature Range of Use: Range of measured stable thermal conductivity and hardness properties.

Please conduct appropriate reliability testing under actual usage conditions.

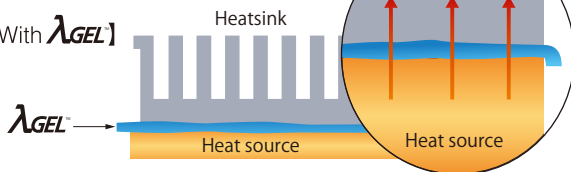
※Not Specified Values

## The flow of heat

【Without  $\lambda$ GEL<sup>™</sup>】

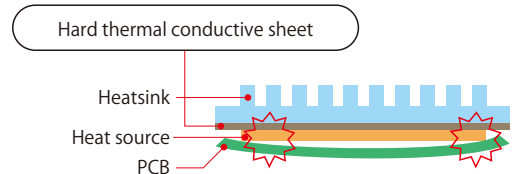


【With  $\lambda$ GEL<sup>™</sup>】

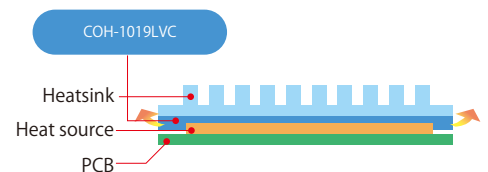


## $\lambda$ GEL<sup>™</sup> benefits

✗ Hard thermal conductive sheet stresses IC and PCB.



● Softness of  $\lambda$ GEL<sup>™</sup> releases stress and absorbs tolerance.



## Directions

- ◆ Slowly peel off one side of the protective film of  $\lambda$ GEL<sup>™</sup>.
- ◆ Carefully place  $\lambda$ GEL<sup>™</sup> sheet on the heat source or heatsink without air gap.
- ◆ Peel off the remaining layer from  $\lambda$ GEL<sup>™</sup> with no air gap in between the sheet and heat dissipating device or heat generating device.



## Delivery Format

### 【Basic Specifications】

Sheet size	400×400mm
Sheet thickness	0.5、1.0、2.0、3.0mm

※ COH-4065LVC 1.0、2.0、3.0mm

## Notes

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- The silicone-gel contains low molecular siloxane, which could be volatile.

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### Features

- Very soft paste-type (grease)GEL with thermal conducting properties.
- Cross-linked particles of **ΛGEL™ DP** eliminate running and vaporization problems seen with traditional grease and phase change materials.
- Good electrical insulators.

### General Properties

Item		Grade	DP-100	DP-200	DP-300	Remark
Thermal conductivity (W/(m·K))	Our tests		6.5	4.8	4.8	—
	Hot Wire Method <small>(※1)</small>		2.0	1.6	1.6	JIS R 2616
Hardness (Cone penetration 1/10mm, not mixed)			51	55	60	JIS K 6249(1/4cone)
Appearance			Gray	Gray	White	—
Specific gravity			2.8	2.6	2.7	JIS K 6249
Volume resistivity (Ω·cm)			$5.9 \times 10^{13}$	$7.2 \times 10^{14}$	$1.4 \times 10^{14}$	JIS K 6249
Dielectric breakdown voltage (kV/mm)			5.0	5.6	9.6	JIS K 6249
Dielectric constant	<50Hz>		8.9	7.6	4.4	JIS K 6249
	<1kHz>		7.8	6.7	4.2	JIS K 6249
	<1MHz>		7.0	6.6	4.0	JIS K 6249
Dielectric dissipation factor	<50Hz>		0.234	0.017	0.005	JIS K 6249
	<1kHz>		0.061	0.007	0.004	JIS K 6249
	<1MHz>		0.015	0.005	0.0004	JIS K 6249
Low molecular weight Siloxane level Σ D4-10 (ppm)	Solvent Extraction Method		Less than 700	Less than 900	Less than 300	—
	Head Space Method <small>(※2)</small>		Less than 1	Less than 3	Less than 1	—
RoHS controlled substances			Not detected	Not detected	Not detected	—
Temperature range (°C)			-40~200	-40~150	-40~120	—

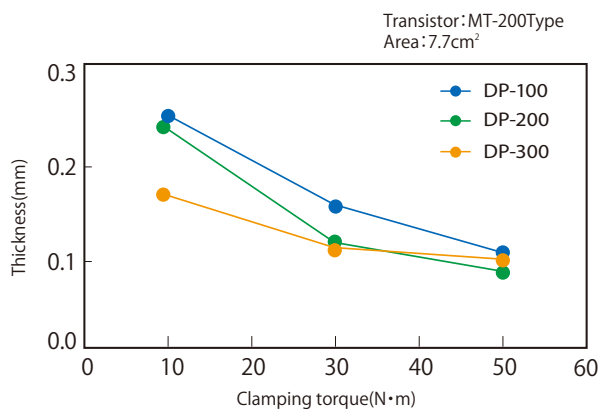




(※1) Hot Wire Method : Using the QTM-500 Quick Thermal Conductivity Meter, from Kyoto Electronics Manufacturing Co.,LTD.

(※2) Head Space Method : at 70°C

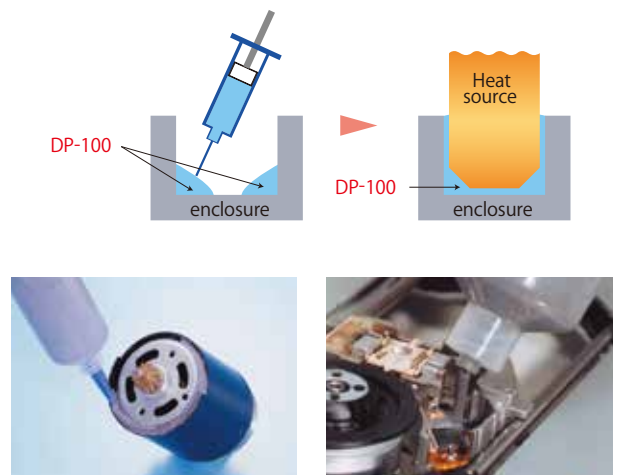
※Not Specified Values

## 【Clamping Torque Dependency】



## 【Filling Example】

DP-100



## 【Thermal Resistance】

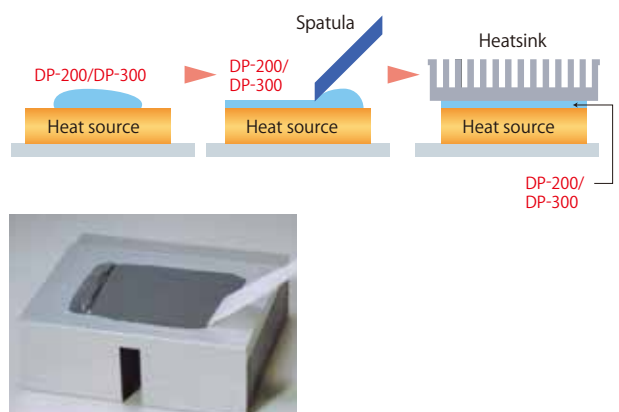
Transistor: MT-200 type  
Heat input: 20W

Thickness (mm)	0.10	0.15	0.20	0.30
DP-100	—	0.13	0.15	0.18
DP-200	0.13	—	0.17	0.22
DP-300	0.09	—	0.17	0.25

(°C/W)

## 【Coating Example】

DP-200/DP-300



## Delivery Format

## 【Basic Specifications】

DP-100/DP-200	Syringe	30mL
DP-300	Bottle	30mL

## Notes

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### Features

- Electromagnetic noise absorbent and thermal conductive characteristics.
- Adhere to rough surfaces with softness and show excellent heat dissipation and electromagnetic absorbing performance.
- Good electrical insulators and flame retardant.
- Usable over a wide range of temperature.

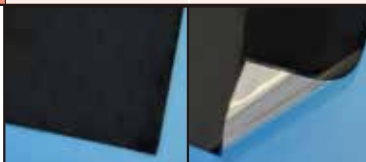
### General Properties

Item		Grade	RE-100	RE-100H	Remark
Thermal conductivity (W/(m·K))	Our tests		2.0		—
	Hot Wire Method (※1)		1.0		JIS R 2616
Hardness (Needle penetration・1/10mm)			60		JIS K 2207
Appearance			Black		—
Specific gravity			2.9		JIS K 6249
Volume resistivity (Ω・cm)			2.0×10 <sup>11</sup>		JIS K 6249
Dielectric breakdown voltage (kV/mm)			4.5	10.0	JIS K 6249
Low molecular weight Siloxane level Σ D4-10 (ppm)	Solvent Extraction Method		Less than 300		—
	Head Space Method (※2)		Less than 1		—
Flame retardance			V-1 (0.5~2mmt) V-0 (3.0mmt)	—	UL94
RoHS controlled substances			Not detected		—
Temperature range (°C)			-40~150		—
Other Specification			—	w/Adhesive reflective layer	—

(※1) Hot Wire Method : Using the QTM-500 Quick Thermal Conductivity Meter, from Kyoto Electronics Manufacturing Co.,LTD.

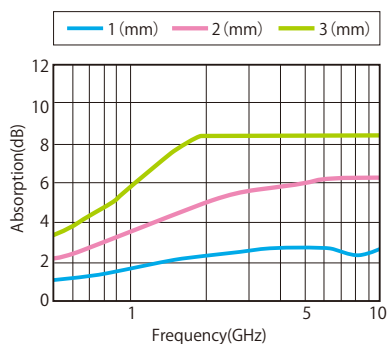
(※2) Head Space Method : at 70°C

※ Not Specified Values



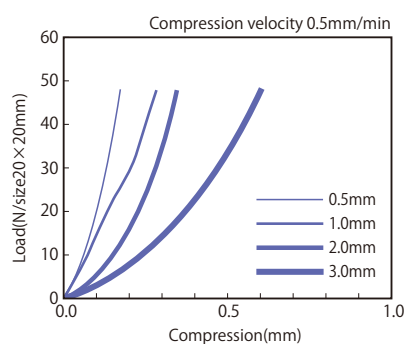
### 【Return Loss】

RE-100



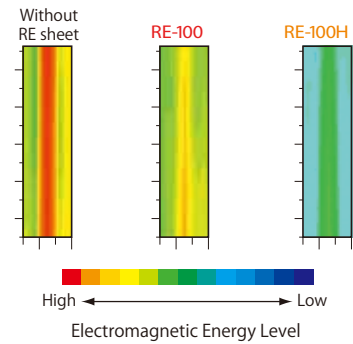
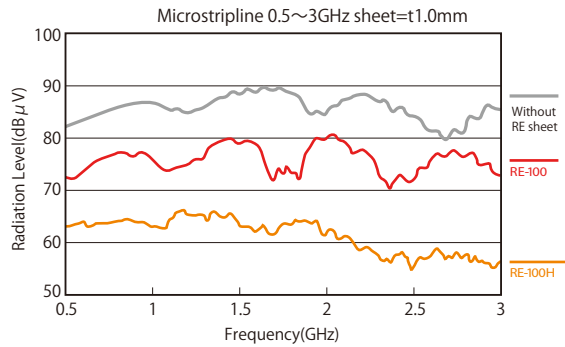
### 【Compression】

RE-100 RE-100H

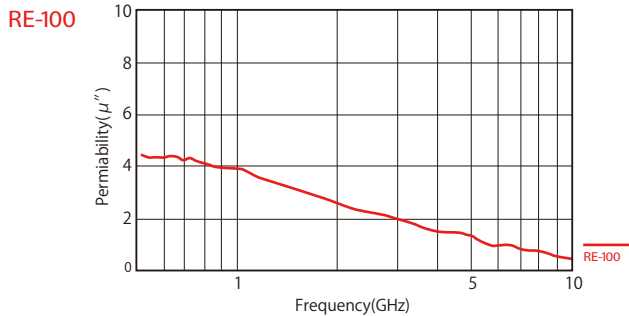




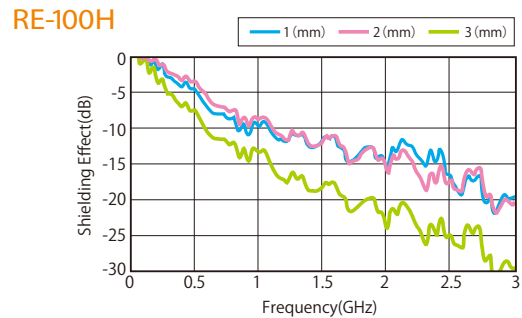
## 【Electromagnetic Noise Absorption】



## 【Electromagnetic Noise Absorption】



## 【Shielding Effect】



### Directions

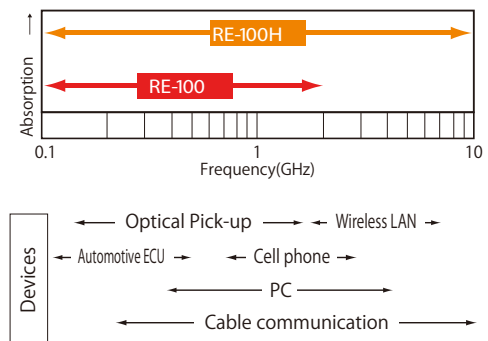
- ◆ RE-100 is protected by films on both sides.
  - Slowly peel off one side of the protective film of RE-100.
  - Carefully place RE-100 sheet on the heat source or heatsink without air gap.
  - Peel off the other film from RE-100. Place heat dissipating device or heat generating device on RE-100 without air gap.
- ◆ RE-100H has logo-film on one side and an adhesive layer on the other side.
  - Peel off the film on the adhesive side and fix RE-100H on the enclosure.
  - Peel off the logo-film, and place RE-100H on heat source or heatsink without air gap.

### Delivery Format

## 【Basic Specifications】

Sheet thickness      0.5、1.0、2.0、3.0mm

## 【Frequency Range】



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