

“Soft-PGS (Compressible Type)” PGS with low thermal resistance

Type: **EYGS**



Soft-PGS (Compressible Type) is a graphite sheet that is dedicated for use as a thermal interface material.

The Soft-PGS (Compressible Type) has very high compressibility compared to standard PGS, which enables reducing the thermal resistance by following gap, warpage, and distortion of targets/substrates.

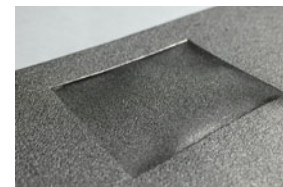
Excellent heat resistance and reliability of the Soft-PGS help obtaining longer service life and higher performance of various components, such as power modules.

The Soft-PGS (Compressible Type) is cost-saving, because it may allow you to reduce your existing processes. Unlike grease, there is no necessity for printing process, since it is a sheet-type product.

There are no problems that are found in grease and phase change materials in the Soft-PGS, which makes it excellent TIM.

Features

- Thermal resistance : 0.2K·cm²/W (600 kPa)
To draw a good thermal resistance from sheet, pressure the Soft-PGS. A close adherence would make the product fit into the uneven part and enhance the performance.
- Thermal conductivity : X-Y direction 400W/m·K, Z direction (28W/m·K)
- Compressibility : 40 % (600k Pa)
- High and long term reliability : operating temperature range -55 to 400 °C
- RoHs compliant



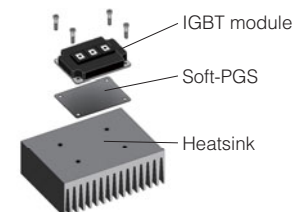
After pressure

Recommended applications

For cooling/heat transfer of electronic devices that generates heat, such as power modules.

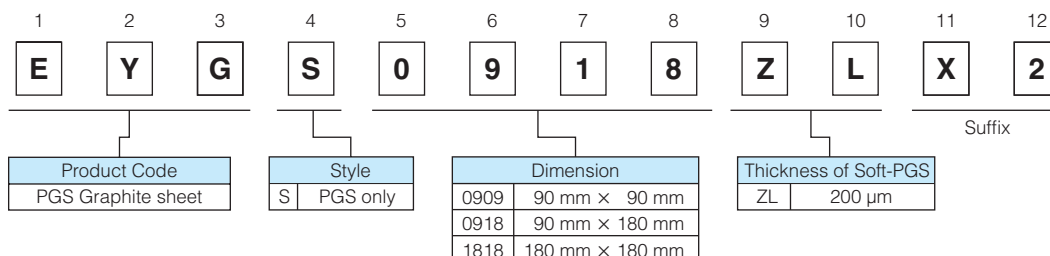
- Inverters and converters
- Car-mounted camera, motor control unit, automotive LED, luminous source of laser HUD, medical equipment
- Base station, Server

Install in IGBT module



Explanation of Part Numbers

- Soft-PGS(EYGS****ZL**)



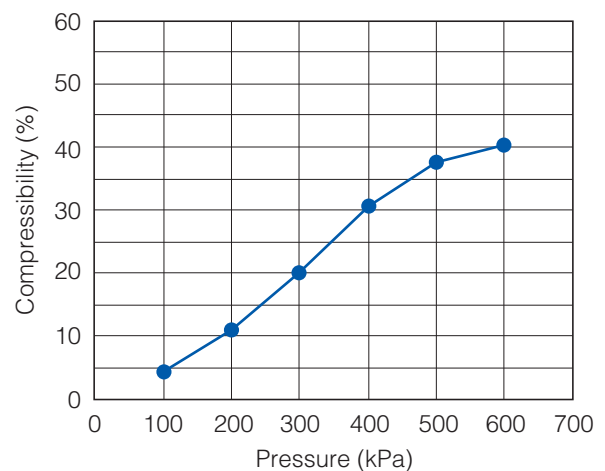
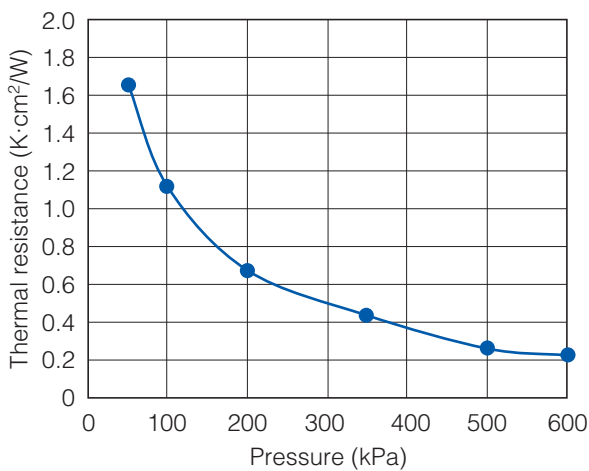
* Please contact us for custom-made products.

Typical characteristics

| Items | Test method | Condition | Data |
|--|-------------|-----------|------------------|
| Thickness (μm) | | | 200 |
| Thermal resistance ($\text{K}\cdot\text{cm}^2/\text{W}$) | TIM Tester | 600 kPa | 0.2 |
| Compressibility (%) | TIM Tester | 600 kPa | 40 |
| Thermal conductivity ($\text{W}/\text{m}\cdot\text{K}$) | Laser PIT | X-Y | 400 (300 to 600) |
| | | Z | (28) |
| Operating temperature range ($^{\circ}\text{C}$) | | | -55 to 400 |

Typical values, not guaranteed.

Thermal resistance and compressibility



Lamination type/Composition example

- Soft-PGS (Compressible Type) standard form

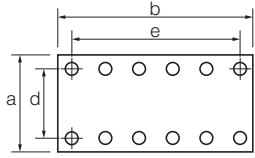

| | | |
|-----------------------------|--------------|-------------------------------|
| Type | | Sheet only |
| | | S Type |
| Process for IGBT mounting | | - |
| Structure | Front | |
| | Side | |
| Operating Temperature Range | | -55 to 400 $^{\circ}\text{C}$ |
| Thickness: c | | 200 μm |
| Standard Part No. | 90 × 90 mm | EYGS0909ZLX2 |
| | 90 × 180 mm | EYGS0918ZLX2 |
| | 180 × 180 mm | EYGS1818ZLX2 |

* Part numbers listed above are all standard samples for your consideration.

** Contact us for custom-made samples.

We can make samples in various forms and/or dimensions other than standard samples.

● PGS in IGBT forms

| | | |
|-----------------------------|-------|--|
| Type | | Sheet only |
| | | S Type |
| Process for IGBT mounting | | Lamination |
| Structure | Front |  <p>* This shape is an example, please contact us for detailed shape of each part no.</p> |
| | Side |  |
| Operating Temperature Range | | -55 to 400 °C |
| Thickness: c | | 200 μm |

| No. | Standard Part No. | a : Lateral size (mm) | b : Longitudinal size (mm) | Hole number | Hole diameter (φmm) | d : Lateral hole pitch (mm) | e : Longitudinal hole pitch (mm) |
|-----|-------------------|-----------------------|----------------------------|-------------|---------------------|-----------------------------|----------------------------------|
| 1 | EYGS1431ZLAA | 140 | 308 | 12 | 6 | 126 | 290 |
| 2 | EYGS0925ZLWA | 85 | 246 | 14 | 6 | 73 | 234 |
| 3 | EYGS1419ZLWB | 136 | 186 | 8 | 7.5 | 124 | 171 |
| 4 | EYGS0917ZLWC | 85 | 168 | 10 | 6 | 73 | 156 |
| 5 | EYGS1316ZLAC | 125 | 163 | 8 | 6.1 | 110 | 150 |
| 6 | EYGS1216ZLWD | 120 | 160 | 8 | 6 | 110 | 150 |
| 7 | EYGS1116ZLMA | 108.8 | 158 | 8 | 6 | 92.75 | 144 |
| 8 | EYGS1315ZLGA | 129.5 | 150 | 8 | 7 | 118.5 | 137.5 |
| 9 | EYGS1314ZLWE | 126 | 136 | 6 | 7.5 | 114 | 124 |
| 10 | EYGS1014ZLAD | 97.8 | 138 | 4 | 6.8 | 86 | 127 |
| 11 | EYGS0714ZLAE | 70 | 138 | 4 | 5.7 | 57 | 128 |
| 12 | EYGS0714ZLAF | 69 | 136 | 4 | 7.2 | 57 | 124 |
| 13 | EYGS1113ZLMB | 106 | 132 | 4 | 5.7 | 95 | 121 |
| 14 | EYGS1313ZLGB | 128 | 128 | 4 | 6.7 | 110 | 110 |
| 15 | EYGS0713ZLAG | 66 | 126 | 4 | 5.7 | 50 | 116 |
| 16 | EYGS0813ZLMD | 71 | 123 | 2 | 4.7 | Center | 116 |
| 17 | EYGS1212ZLGC | 120 | 120 | 4 | 5.7 | 110 | 110 |
| 18 | EYGS0912ZLGD | 88 | 120 | 4 | 5.7 | 78 | 110 |
| 19 | EYGS0612ZLWF | 60 | 120 | 4 | 5.7 | 50 | 110 |
| 20 | EYGS0512ZLGE | 53 | 118 | 2 | 5.7 | Center | 106 |
| 21 | EYGS0811ZLGH | 80 | 113 | 4 | 5.7 | 70 | 103 |
| 22 | EYGS0811ZLWG | 78 | 108 | 4 | 6.7 | 62 | 93 |
| 23 | EYGS0611ZLWH | 60 | 106 | 4 | 6.7 | 48 | 93 |
| 24 | EYGS0411ZLWJ | 43 | 105.5 | 2 | 5.7 | Center | 93 |
| 25 | EYGS0610ZLAH | 59.4 | 104.4 | 4 | 6.7 | 48 | 93 |
| 26 | EYGS0410ZLAJ | 43 | 102.8 | 2 | 5.7 | Center | 93 |
| 27 | EYGS1010ZLME | 98 | 98 | 4 | 6.7 | 87 | 87 |

| No. | Standard Part No. | a : Lateral size (mm) | b : Longitudinal size (mm) | Hole number | Hole diameter (φmm) | d : Lateral hole pitch (mm) | e : Longitudinal hole pitch (mm) |
|-----|-------------------|-----------------------|----------------------------|-------------|---------------------|-----------------------------|----------------------------------|
| 28 | EYGS0409ZLGJ | 44 | 93 | 2 | 6.7 | Center | 80 |
| 29 | EYGS0509ZLGK | 46 | 92 | 2 | 6.7 | Center | 80 |
| 30 | EYGS0309ZLMF | 32 | 92 | 2 | 6.7 | Center | 80 |
| 31 | EYGS0409ZLMG | 41 | 88 | 2 | 5.7 | Center | 80 |
| 32 | EYGS0309ZLAK | 29.5 | 89.5 | 2 | 6.6 | Center | 80 |
| 33 | EYGS0509ZLMH | 51 | 86 | 2 | 4.7 | – | 80 |
| 34 | EYGS0508ZLMJ | 46.2 | 83 | 2 | 4.7 | – | 77 |
| 35 | EYGS0608ZLMK | 55 | 78 | 2 | 4.5 | Center | 40 |
| 36 | EYGS0607ZLGL | 58 | 69.7 | 4 | 5.7 | 50 | 62 |
| 37 | EYGS0507ZLML | 45.3 | 66 | 2 | 4.7 | – | 60 |
| 38 | EYGS0407ZLAL | 40 | 65.5 | 1 | 7.7 | Center | Center |
| 39 | EYGS0506ZLMM | 48 | 55 | 1 | 4.5 | Center | Center |
| 40 | EYGS0404ZLMP | 36 | 38 | 1 | 4.5 | Center | Center |
| 41 | EYGS1018ZLSA | 104.5 | 182.5 | 8 | 7 | 93 | 171 |
| 42 | EYGS1516ZLSB | 148 | 158 | 8 | 5 | 137 | 150 |
| 43 | EYGS1116ZLSC | 112 | 158 | 8 | 5 | 101 | 150 |
| 44 | EYGS0715ZLSD | 67 | 153 | 4 | 5.6 | 57 | 143 |
| 45 | EYGS0613ZLSE | 61 | 127.5 | 4 | 5.6 | 50 | 116 |
| 46 | EYGS0612ZLSF | 63.3 | 124 | 4 | 5.6 | 50 | 110 |
| 47 | EYGS0612ZLSG | 61.5 | 124 | 4 | 5.6 | 50 | 110 |
| 48 | EYGS1012ZLSH | 104.5 | 121 | 4 | 6.7 | 93 | 109.5 |
| 49 | EYGS0410ZLSJ | 43 | 103 | 2 | 5.7 | Center | 93 |
| 50 | EYGS0609ZLSK | 61.5 | 91 | 4 | 5.6 | 50 | 77 |
| 51 | EYGS0606ZLSL | 58 | 61.5 | 2 | 5.6 | 44 | 50 |
| 52 | EYGS0305ZLSM | 27 | 51 | 1 | 4.6 | Center | Center |
| 53 | EYGS0204ZLSN | 24 | 36.5 | 1 | 4.6 | Center | Center |
| 54 | EYGS0303ZLSP | 29 | 32 | 1 | 4.5 | Center | Center |
| 55 | EYGS0911ZLDA | 92 | 109 | 4 | 6 | 78 | 93 |
| 56 | EYGS1014ZLDB | 98 | 138 | 4 | 6.7 | 86 | 127 |