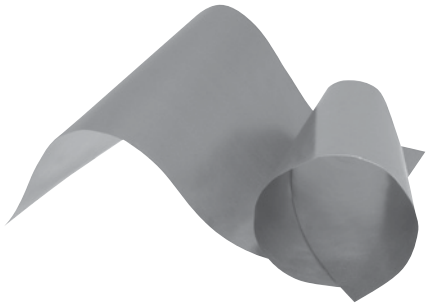
# "PGS" Graphite Sheets

## Type: EYG



"PGS (Pyrolytic Graphite Sheet)" is a thermal interface material which is very thin, synthetically made, has high thermal conductivity, and is made from a higly oriented graphite polymer film. It is ideal for providing thermal management/heat-sinking in limited spaces or to provide supplemental heat-sinking in addition to conventional means. This material is flexible and can be cut into customizable shapes.
"SSM(Semi-Sealing Material)" is the product which is copounding PGS Graphite sheet and High thermal conductive Elastomer resin. It has a function to absorb heat by resin and release the heat by utilizing high thermal conductivity of PGS Graphite sheet. It also enables taking better attachment to the component which has different height on the electronic board, reducing stress to the electronic board.

## Features

- Excellent thermal conductivity : 700 to 1950 W/(m·K)
  (2 to 5 times as high as copper, 3 to 8 time as high as aluminum)
- Lightweight: Specific gravity : 0.85 to 2.13 g/cm$^3$
  (1/4 to 1/10 of copper, 1/1.3 to 1/3 of aluminum in density)
- Flexible and easy to be cut or trimmed. (withstands repeated bending)
- Low thermal resistance
- Low heat resistance with flexible Graphite sheet (SSM)
- Low elasticity and easy to keep the product's shape after attaching (SSM)
- Siloxane Free(SSM)
- High dielectric voltage : 17 kVac/mm (SSM)
- RoHS compliant

## Recommended applications

- Smart phones, Mobile phones, DSC, DVC, Tablet PCs, PCs and peripherals, LED Devices
- Semiconductor manufacturing equipment (Sputtering, Dry etching, Steppers)
- Optical communications equipment

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

## Explanation of Part Numbers

● PGS only (EYGS✻✻✻✻✻✻)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| E | Y | G | S | 0 | 9 | 1 | 2 | 1 | 0 |

Product Code

| Style | |
|---|---|
| S | PGS only |

| Dimension | |
|---|---|
| 0912 | 90 mm × 115 mm |
| 1218 | 115 mm × 180 mm |
| 1823 | 180 mm × 230 mm |

| PGS thickness* | |
|---|---|
| 10 | 100 µm |
| 07 | 70 µm |
| 05 | 50 µm |
| 04 | 40 µm |
| 03 | 25 µm |

✻ PGS thickness of 17 µm, 10 µm does not support as single item.

● Taping (EYGA✻✻✻✻✻✻✻✻)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E | Y | G | A | 0 | 9 | 1 | 2 | 1 | 0 | D | M |

Product Code

| Style | |
|---|---|
| A | Taping |

| Dimension** | |
|---|---|
| 0912 | 90 mm × 115 mm |
| 1218 | 115 mm × 180 mm |

✻✻ Please contact us for other dimensions other than those above.

| PGS thickness | |
|---|---|
| 10 | 100 µm |
| 07 | 70 µm |
| 05 | 50 µm |
| 04 | 40 µm |
| 03 | 25 µm |
| 02 | 17 µm |
| 01 | 10 µm |

| Suffix | |
|---|---|
| A | Lamination type ✻Please refer to Composition example. |
| M | |
| F | |
| PA | |
| PM | |
| DM | |
| DF | |
| V | |
| RV | |
| KV | |

● Thermally conductive elastomer processing (EYGE✻✻✻✻✻✻✻✻)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E | Y | G | E | 0 | 9 | 1 | 2 | X | B | 6 | D |

Product Code

| Style | |
|---|---|
| E | Elastomer processing |

| Dimension** | |
|---|---|
| 0912 | 90 mm × 115 mm |

SSM type

✻✻ Please contact us for other dimensions other than those above.

| PGS thickness | |
|---|---|
| A | 100 µm |
| B | 70 µm |
| C | 50 µm |
| G | 40 µm |
| D | 25 µm |
| E | 17 µm |
| F | 10 µm |

| Elastomer thickness | |
|---|---|
| 5 | 0.5 mm |
| 6 | 1.0 mm |
| 7 | 1.5 mm |
| 8 | 2.0 mm |
| 9 | 3.0 mm |

| Tape thickness | |
|---|---|
| Q | PET tape 8 µm |
| D | PET tape 10 µm |
| P | PET tape 30 µm |
| F | Acrylic adhesive tape 6 µm |
| M | Acrylic adhesive tape 10 µm |
| A | Acrylic adhesive tape 30 µm |

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## Characteristics of PGS Graphite Sheets

| Thickness | | 100 μm | 70 μm | 50 μm | 40 μm |
|---|---|---|---|---|---|
| | | 0.10±0.03 mm | 0.07±0.015 mm | 0.050±0 .015 mm | 0.040±0 .012 mm |
| Density | | 0.85 g/cm$^3$ | 1.21 g/cm$^3$ | 1.70 g/cm$^3$ | 1.80 g/cm$^3$ |
| Thermal conductivity | a-b plane | 700 W/(m·K) | 1000 W/(m·K) | 1300 W/(m·K) | 1350 W/(m·K) |
| Electrical conductivity | | 10000 S/cm | 10000 S/cm | 10000 S/cm | 10000 S/cm |
| Extensional strength | | 20.0 MPa | 20.0 MPa | 20.0 MPa | 25.0 MPa |
| Expansion coefficient | a-b plane | $9.3\times10^{-7}$ 1/K | $9.3\times10^{-7}$ 1/K | $9.3\times10^{-7}$ 1/K | $9.3\times10^{-7}$ 1/K |
| | c axis | $3.2\times10^{-5}$ 1/K | $3.2\times10^{-5}$ 1/K | $3.2\times10^{-5}$ 1/K | $3.2\times10^{-5}$ 1/K |
| Heat resistance* | | 400 °C | | | |
| Bending(angle 180,R5) | | 10000 cycles | | | |

| Thickness | | 25 μm | 17 μm | 10 μm |
|---|---|---|---|---|
| | | 0.025±0 .010 mm | 0.017±0 .005 mm | 0.010±0 .002 mm |
| Density | | 1.90 g/cm$^3$ | 2.10 g/cm$^3$ | 2.13 g/cm$^3$ |
| Thermal conductivity | a-b plane | 1600 W/(m·K) | 1850 W/(m·K) | 1950 W/(m·K) |
| Electrical conductivity | | 20000 S/cm | 20000 S/cm | 20000 S/cm |
| Extensional strength | | 30.0 MPa | 40.0 MPa | 40.0 MPa |
| Expansion coefficient | a-b plane | $9.3\times10^{-7}$ 1/K | $9.3\times10^{-7}$ 1/K | $9.3\times10^{-7}$ 1/K |
| | c axis | $3.2\times10^{-5}$ 1/K | $3.2\times10^{-5}$ 1/K | $3.2\times10^{-5}$ 1/K |
| Heat resistance* | | 400 °C | | |
| Bending(angle 180,R5) | | 10000 cycles | | |

* Withstand temperature refers to PGS only.
(Lamination material such as PET tape etc. is not included)
** Values are for reference, not guaranteed.

## Characteristics of SSM (Elastomer)

| Thickness | | 1 mm | 2 mm | 3 mm |
|---|---|---|---|---|
| Specific heat | | 1.4 J/(g·C) | | |
| Density | | 1.88 g/cm$^3$ | | |
| Thermal conductivity | | 1.6 W/(m·K) | | |
| Thermal resistance | 100 kPa | 7.53 (C·cm$^2$)/W | 14.82 (C·cm$^2$)/W | 19.48 (C·cm$^2$)/W |
| | 200 kPa | 6.71 (C·cm$^2$)/W | 13.17 (C·cm$^2$)/W | 16.01 (C·cm$^2$)/W |
| | 300 kPa | 5.90 (C·cm$^2$)/W | 10.73 (C·cm$^2$)/W | 11.38 (C·cm$^2$)/W |
| Compressibility | 100 kPa | 4.93 % | 4.05 % | 4.43 % |
| | 200 kPa | 9.58 % | 8.66 % | 14.04 % |
| | 300 kPa | 18.41 % | 22.13 % | 40.49 % |
| Resistivity | | > $10\times10^{14}\Omega$·cm | | |
| Withstanding Voltage | | > 17 kVac/mm | | |
| Hardness (Type E) | | 39 | | |
| Adhesive force | SUS | 39 mN/cm | | |
| | Aluminum | 31 mN/cm | | |
| | Glass | 38 mN/cm | | |

* Characteristics refer to Elastomer only.

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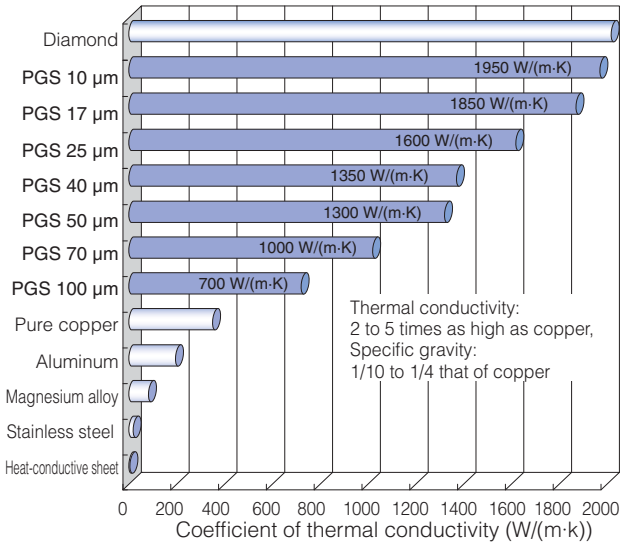
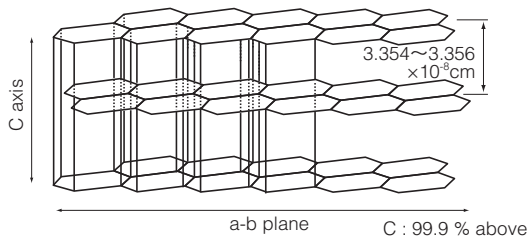
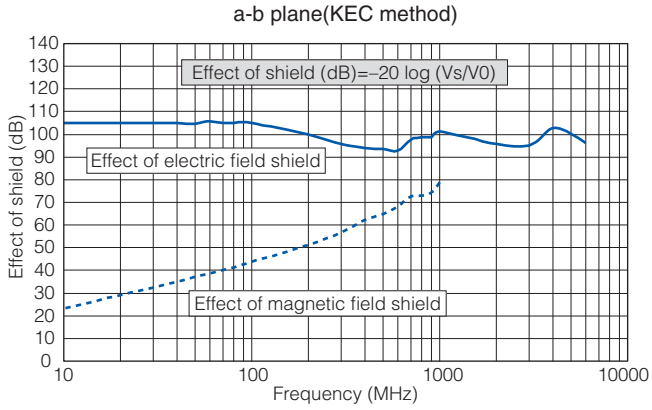
## Comparison of thermal conductivity (a-b plane)




## Layered structure of PGS

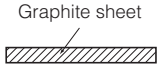
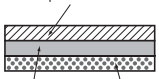
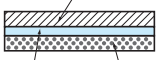
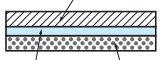


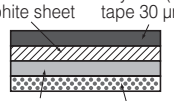
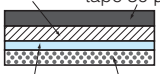
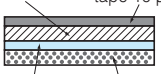
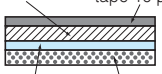

## Electric field shield performance



## Lamination type/Composition example

● Standard series ( PGS 100, 70, 50, 40, 25, 17, 10 μm)

| Type | | PGS Only | Adhesive Type | | |
|---|---|---|---|---|---|
| | | S type | A-A type | A -M type | A -F type |
| Front face | | – | – | – | – |
| Rear face | | – | Insulative adhesion type 30 μm | Insulative thin adhesion type 10 μm | Insulative thin adhesion type 6 μm |
| Structure | |   |   |   |   |
| Features | | · High Thermal Conductivity High Flexibility<br>· Low Thermal Resistance<br>· Available up to 400 °C<br>· Conductive Material | · With insulation material on one side<br>· With strong adhesive tape for putting chassis<br>· Withstanding Voltage : 2 kV | · With insulation material on one side<br>· Low thermal resistance comparison with A-A type<br>· Withstanding Voltage : 1 kV | · With insulation material on one side<br>· Low thermal resistance comparison with A-A type |
| Withstand temperature | | 400 °C | 100 °C | 100 °C | 100 °C |
| Standard Size | | 115 × 180 mm | 90 × 115 mm | 90 × 115 mm | 90 × 115 mm |
| Maximam size | | 180 × 230 mm (25 μm to) | 115 × 180 mm | 115 × 180 mm | 115 × 180 mm |
| 100 μm | Part No. | EYGS121810 | EYGA091210A | EYGA091210M | EYGA091210F |
| | Thickness | 100 μm | 130 μm | 110 μm | 106 μm |
| 70 μm | Part No. | EYGS121807 | EYGA091207A | EYGA091207M | EYGA091207F |
| | Thickness | 70 μm | 100 μm | 80 μm | 76 μm |
| 50 μm | Part No. | EYGS121805 | EYGA091205A | EYGA091205M | EYGA091205F |
| | Thickness | 50 μm | 80 μm | 60 μm | 56 μm |
| 40 μm | Part No. | EYGS121804 | EYGA091204A | EYGA091204M | EYGA091204F |
| | Thickness | 40 μm | 70 μm | 50 μm | 46 μm |
| 25 μm | Part No. | EYGS121803 | EYGA091203A | EYGA091203M | EYGA091203F |
| | Thickness | 25 μm | 55 μm | 35 μm | 31 μm |
| 17 μm | Part No. | – | EYGA091202A | EYGA091202M | EYGA091202F |
| | Thickness | – | 47 μm | 27 μm | 23 μm |
| 10 μm | Part No. | – | EYGA091201A | EYGA091201M | EYGA091201F |
| | Thickness | – | 40 μm | 20 μm | 16 μm |

| Type | | Laminated type (Insulation & Adhesive) | | | |
|---|---|---|---|---|---|
| | | A-PA type | A-PM type | A-DM type | A-DF type |
| Front face | | Polyester tape standard type 30 μm | Polyester tape standard type 30 μm | Polyester tape thin type 10 μm | Polyester tape thin type 10 μm |
| Rear face | | Insulative adhesion type 30 μm | Insulative thin adhesion type 10 μm | Insulative thin adhesion type 10 μm | Insulative thin adhesion type 6 μm |
| Structure | |   |   |   |   |
| Features | | · With insulation material on both side<br>· Withstanding Voltage<br>PET tape : 4 kV<br>Adhesive Tape : 2 kV | · With insulation material on both side<br>· Withstanding Voltage<br>PET tape : 4 kV<br>Adhesive Tape : 1 kV | · With insulation material on both side<br>· Withstanding Voltage<br>PET tape : 1 kV<br>Adhesive Tape : 1 kV | · With insulation material on both side<br>· Withstanding Voltage<br>PET tape : 1 kV |
| Withstand temperature | | 100 °C | 100 °C | 100 °C | 100 °C |
| Standard Size | | 90 × 115 mm | 90 × 115 mm | 90 × 115 mm | 90 × 115 mm |
| Maximam size | | 115 × 180 mm | 115 × 180 mm | 115 × 180 mm | 115 × 180 mm |
| 100 μm | Part No. | EYGA091210PA | EYGA091210PM | EYGA091210DM | EYGA091210DF |
| | Thickness | 160 μm | 140 μm | 120 μm | 116 μm |
| 70 μm | Part No. | EYGA091207PA | EYGA091207PM | EYGA091207DM | EYGA091207DF |
| | Thickness | 130 μm | 110 μm | 90 μm | 86 μm |
| 50 μm | Part No. | EYGA091205PA | EYGA091205PM | EYGA091205DM | EYGA091205DF |
| | Thickness | 110 μm | 90 μm | 70 μm | 66 μm |
| 40 μm | Part No. | EYGA091204PA | EYGA091204PM | EYGA091204DM | EYGA091204DF |
| | Thickness | 100 μm | 80 μm | 60 μm | 56 μm |
| 25 μm | Part No. | EYGA091203PA | EYGA091203PM | EYGA091203DM | EYGA091203DF |
| | Thickness | 85 μm | 65 μm | 45 μm | 41 μm |
| 17 μm | Part No. | EYGA091202PA | EYGA091202PM | EYGA091202DM | EYGA091202DF |
| | Thickness | 77 μm | 57 μm | 37 μm | 33 μm |
| 10 μm | Part No. | EYGA091201PA | EYGA091201PM | EYGA091201DM | EYGA091201DF |
| | Thickness | 70 μm | 50 μm | 30 μm | 26 μm |

✻ Please contact us for other lamination type product.
✻✻ Withstanding Voltages are for reference, not guaranteed.

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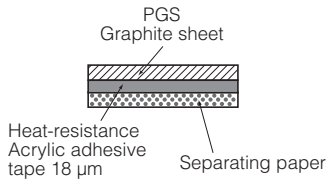
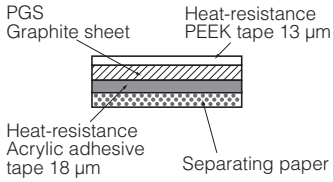
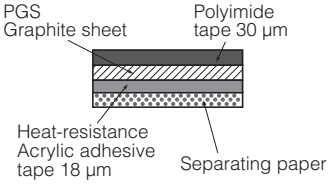
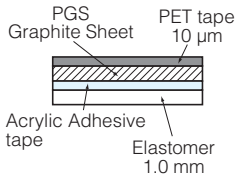
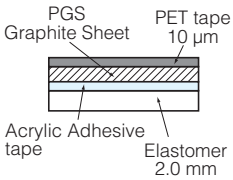
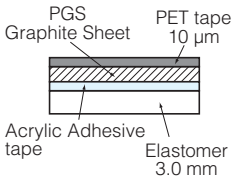
## Lamination type/Composition example

● High heat resistance series ( PGS 100, 70, 50, 40, 25, 17, 10 μm)

| Type | | High heat resistance type | | |
|---|---|---|---|---|
| | | A-V type | A-RV type | A-KV type |
| Front face | | – | High heat resistance and insulation type 13 μm | High heat resistance and insulation type 30 μm |
| Rear face | | High heat resistance and insulation adhesion type 18 μm | High heat resistance and insulation adhesion type 18 μm | High heat resistance and insulation adhesion type 18 μm |
| Structure | |  |  |  |
| Features | | ·With high heat resistance and insulation tape on one side<br>·Withstanding Voltage Adhesive tape : 2 kV | ·With high heat resistance and insulation tape on both side<br>·Withstanding Voltage PEEK tape : 2 kV Adhesive tape : 2 kV | ·With high heat resistance and more insulated tape on both side<br>·Withstanding Voltage PI tape : 5 kV Adhesive tape : 2 kV |
| Withstand temperature | | 150 °C | 150 °C | 150 °C (Polyimide : 180 °C) |
| Standard Size | | 90 × 115 mm | 90 × 115 mm | 90 × 115 mm |
| Maximam size | | 115 × 180 mm | 115 × 180 mm | 115 × 180 mm |
| 100 μm | Part No. | EYGA091210V | EYGA091210RV | EYGA091210KV |
| | Thickness | 118 μm | 131 μm | 148 μm |
| 70 μm | Part No. | EYGA091207V | EYGA091207RV | EYGA091207KV |
| | Thickness | 88 μm | 101 μm | 118 μm |
| 50 μm | Part No. | EYGA091205V | EYGA091205RV | EYGA091205KV |
| | Thickness | 68 μm | 81 μm | 98 μm |
| 40 μm | Part No. | EYGA091204V | EYGA091204RV | EYGA091204KV |
| | Thickness | 58 μm | 71 μm | 88 μm |
| 25 μm | Part No. | EYGA091203V | EYGA091203RV | EYGA091203KV |
| | Thickness | 43 μm | 56 μm | 73 μm |
| 17 μm | Part No. | EYGA091202V | EYGA091202RV | EYGA091202KV |
| | Thickness | 35 μm | 48 μm | 65 μm |
| 10 μm | Part No. | EYGA091201V | EYGA091201RV | EYGA091201KV |
| | Thickness | 28 μm | 41 μm | 58 μm |

✻ Please contact us for other lamination type product.
✻✻ Withstanding Voltages are for reference, not guaranteed.

● Standard series (SSM)

| Type | | E-6 type | E-8 type | E-9 type |
|---|---|---|---|---|
| Elastomer thickness | | 1.0 mm | 2.0 mm | 3.0 mm |
| Structure | |  |  |  |
| Features | | ·Soft and low thermal resistance (Elastomer)<br>·Low repulsion<br>·Withstanding Voltage : 1.7 kV | ·Soft and low thermal resistance (Elastomer)<br>·Low repulsion<br>·Withstanding Voltage : 1.7 kV | ·Soft and low thermal resistance (Elastomer)<br>·Low repulsion<br>·Withstanding Voltage : 1.7 kV |
| Withstand temperature | | 100 °C | 100 °C | 100 °C |
| Standard Size | | 90 × 115 mm | 90 × 115 mm | 90 × 115 mm |
| 70 μm | Part No. | EYGE0912XB6D | EYGE0912XB8D | EYGE0912XB9D |
| | Thickness | 1.09 mm | 2.09 mm | 3.09 mm |
| 25 μm | Part No. | EYGE0912XD6D | EYGE0912XD8D | EYGE0912XD9D |
| | Thickness | 1.05 mm | 2.05 mm | 3.05 mm |

## Minimum order

| Item | Type | Part No. | Size | Minimum order |
|---|---|---|---|---|
| PGS Graphite Sheet Only | S type 100 µm | EYGS091210 | 90×115 mm | 20 |
| | | EYGS121810 | 115×180 mm | 10 |
| | | EYGS182310 | 180×230 mm | 10 |
| | S type 70 µm | EYGS091207 | 90×115 mm | 20 |
| | | EYGS121807 | 115×180 mm | 10 |
| | | EYGS182307 | 180×230 mm | 10 |
| | S type 50 µm | EYGS091205 | 90×115 mm | 20 |
| | | EYGS121805 | 115×180 mm | 10 |
| | | EYGS182305 | 180×230 mm | 10 |
| | S type 40 µm | EYGS091204 | 90×115 mm | 20 |
| | | EYGS121804 | 115×180 mm | 10 |
| | | EYGS182304 | 180×230 mm | 10 |
| | S type 25 µm | EYGS091203 | 90×115 mm | 20 |
| | | EYGS121803 | 115×180 mm | 10 |
| | | EYGS182303 | 180×230 mm | 10 |
| PGS 70, 25, 17 µm Adhesive Type [Standard series] | A-A type 70 µm | EYGA091207A | 90×115 mm | 20 |
| | | EYGA121807A | 115×180 mm | 10 |
| | A-A type 25 µm | EYGA091203A | 90×115 mm | 20 |
| | | EYGA121803A | 115×180 mm | 10 |
| | A-A type 17 µm | EYGA091202A | 90×115 mm | 20 |
| | | EYGA121802A | 115×180 mm | 10 |
| | A-M type 70 µm | EYGA091207M | 90×115 mm | 20 |
| | | EYGA121807M | 115×180 mm | 10 |
| | A-M type 25 µm | EYGA091203M | 90×115 mm | 20 |
| | | EYGA121803M | 115×180 mm | 10 |
| | A-M type 17 µm | EYGA091202M | 90×115 mm | 20 |
| | | EYGA121802M | 115×180 mm | 10 |
| PGS 70, 25, 17 µm Laminated Type (Insulation & Adhesive) [Standard series] | A-PA type 70 µm | EYGA091207PA | 90×115 mm | 20 |
| | | EYGA121807PA | 115×180 mm | 10 |
| | A-PA type 25 µm | EYGA091203PA | 90×115 mm | 20 |
| | | EYGA121803PA | 115×180 mm | 10 |
| | A-PA type 17 µm | EYGA091202PA | 90×115 mm | 20 |
| | | EYGA121802PA | 115×180 mm | 10 |
| | A-PM type 70 µm | EYGA091207PM | 90×115 mm | 20 |
| | | EYGA121807PM | 115×180 mm | 10 |
| | A-PM type 25 µm | EYGA091203PM | 90×115 mm | 20 |
| | | EYGA121803PM | 115×180 mm | 10 |
| | A-PM type 17 µm | EYGA091202PM | 90×115 mm | 20 |
| | | EYGA121802PM | 115×180 mm | 10 |
| | A-DM type 70 µm | EYGA091207DM | 90×115 mm | 20 |
| | | EYGA121807DM | 115×180 mm | 10 |
| | A-DM type 25 µm | EYGA091203DM | 90×115 mm | 20 |
| | | EYGA121803DM | 115×180 mm | 10 |
| | A-DM type 17 µm | EYGA091202DM | 90×115 mm | 20 |
| | | EYGA121802DM | 115×180 mm | 10 |

* Only S type supports 180×230 mm size.
(PGS thickness of 17 µm, 10µm does not support as single item)
** PGS of 10 µm, 40 µm, 50 µm type is also possible to be made as lamination type.
*** The above-listed part number is sample part number for testing.
**** Please contact us about your request of custom part number which will be arranged separately.
***** Please contact us if quantity is below Minimum Order Quantity.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

## Minimum order

| Item | Type | Part No. | Size | Minimum order |
|---|---|---|---|---|
| PGS 70, 25, 17 µm [High heat resistance type] | A-V type 70 µm | EYGA091207V | 90×115 mm | 20 |
| | | EYGA121807V | 115×180 mm | 10 |
| | A-V type 25 µm | EYGA091203V | 90×115 mm | 20 |
| | | EYGA121803V | 115×180 mm | 10 |
| | A-V type 17 µm | EYGA091202V | 90×115 mm | 20 |
| | | EYGA121802V | 115×180 mm | 10 |
| | A-RV type 70 µm | EYGA091207RV | 90×115 mm | 20 |
| | | EYGA121807RV | 115×180 mm | 10 |
| | A-RV type 25 µm | EYGA091203RV | 90×115 mm | 20 |
| | | EYGA121803RV | 115×180 mm | 10 |
| | A-RV type 17 µm | EYGA091202RV | 90×115 mm | 20 |
| | | EYGA121802RV | 115×180 mm | 10 |
| | A-KV type 70 µm | EYGA091207KV | 90×115 mm | 20 |
| | | EYGA121807KV | 115×180 mm | 10 |
| | A-KV type 25 µm | EYGA091203KV | 90×115 mm | 20 |
| | | EYGA121803KV | 115×180 mm | 10 |
| | A-KV type 17 µm | EYGA091202KV | 90×115 mm | 20 |
| | | EYGA121802KV | 115×180 mm | 10 |
| SSM Elastomer 3.0, 2.0, 1.0 mm PGS 70, 25, 17 µm | E-9 type Elastomer 3.0 mm, PGS 70 µm | EYGE0912XD9D | 90×115 mm | 5 |
| | E-9 type Elastomer 3.0 mm, PGS 25 µm | EYGE0912XB9D | 90×115 mm | 5 |
| | E-8 type Elastomer 2.0 mm, PGS 70 µm | EYGE0912XD8D | 90×115 mm | 5 |
| | E-8 type Elastomer 2.0 mm, PGS 25 µm | EYGE0912XB8D | 90×115 mm | 5 |
| | E-6 type Elastomer 1.0 mm, PGS 70 µm | EYGE0912XD6D | 90×115 mm | 5 |
| | E-6 type Elastomer 1.0 mm, PGS 25 µm | EYGE0912XB6D | 90×115 mm | 5 |

✻ Only S type supports 180×230 mm size.
(PGS thickness of 17 µm, 10µm does not support as single item)
✻✻ PGS of 10 µm, 40 µm, 50 µm type is also possible to be made as lamination type.
✻✻✻ The above-listed part number is sample part number for testing.
✻✻✻✻ Please contact us about your request of custom part number which will be arranged separately.
✻✻✻✻✻ Please contact us if quantity is below Minimum Order Quantity.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

# "PGS" (Pyrolytic Graphite Sheet) Heat sink sheet

## Handling Precautions

### ⚠ Safety Precautions

- When using our products, no matter what sort of equipment they might be used for, be sure to make a written agreement on the specifications with us in advance. The design and specifications in this catalog are subject to change without prior notice.
- Do not use the products beyond the specifications described in this catalog.
- This catalog explains the quality and performance of the products as individual components. Before use, check and evaluate their operations when installed in your products.
- Install the following systems for a failsafe design to ensure safety if these products are to be used in equipment where a defect in these products may cause the loss of human life or other significant damage, such as damage to vehicles (automobile, train, vessel), traffic lights, medical equipment, aerospace equipment, electric heating appliances, combustion/gas equipment, rotating equipment, and disaster/crime prevention equipment.

✻ Systems equipped with a protection circuit and a protection device
✻ Systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault

PGS (Pyrolytic Graphite Sheet) Heat sink sheet (hereafter referred to as PGS) may result in accidents or trouble when subjected to severe conditions of electrical, environmental and /or mechanical stress beyond the specified "Rating" and specified "Conditions" found in the Specifications. Please follow the recommendations in "Safety Precautions" and "Application Notes". Contact our engineering staff or the factory with any questions.

### 1. ⚠Safety Precautions

1.1 The PGS shall be used within the specified operating temperature range.
1.2 The PGS is soft, do not rub or touch it with rough materials to avoid scratching it.
1.3 Lines or folds in the PGS may affect thermal conductivity.
1.4 The PGS shall not be used with acid.
The PGS shall not be used in contact with a soldering iron at 400 °C or more
1.5 The PGS shall not be exposed to salt water or direct sunlight during use. The PGS shall not be used in corrosive gases (hydrogen sulfide, sulfurous acid, chlorine, ammonia etc.).
1.6 Our PGS has been developed for general industry applications. Prior to using the PGS for special applications such as medical, work please contact our engineering staff or the factory.
1.7 Never touch a PGS during use because it may be extremely hot.
1.8 Since SSM Elastomer resin is soft, please do not preserve the parts adding weight.
1.9 Please do not use the parts at the status of hard foreign materials stuck such as metals in SSM Elastomer side.

### 2. Application notes

2.1 Use protective materials when handling and/or applying the PGS, do not use items with sharp edges as they might tear or puncture the PGS.
2.2 The PGS does not work properly if overheated.
2.3 Thermal conductivity is dependant on the way it is used.
Test the adaptability of PGS to your application before use.
2.4 The PGS has conductivity.
If required, the PGS should be provided insulation.
2.5 Long term storage
- The PGS shall not be stored under severe conditions of salt water, direct sunlight or corrosive gases (hydrogen sulfide, sulfurous acid, chlorine, ammonia etc.).
- The PGS shall not be stored near acid.
- Please preserve SSM packed under normal temprerture and humidity while not in use.

2.6 Once applying to the adherent which has dents, SSM Elastomer resin keeps its shape so it cannot be re-applied to different portion.

<Package markings>
Package markings include the product number, quantity, and country of origin.
In principle, the country of origin should be indicated in English.

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
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