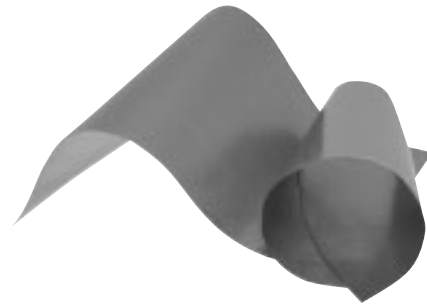


"PGS" Graphite Sheets

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 highly 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.



■ Features

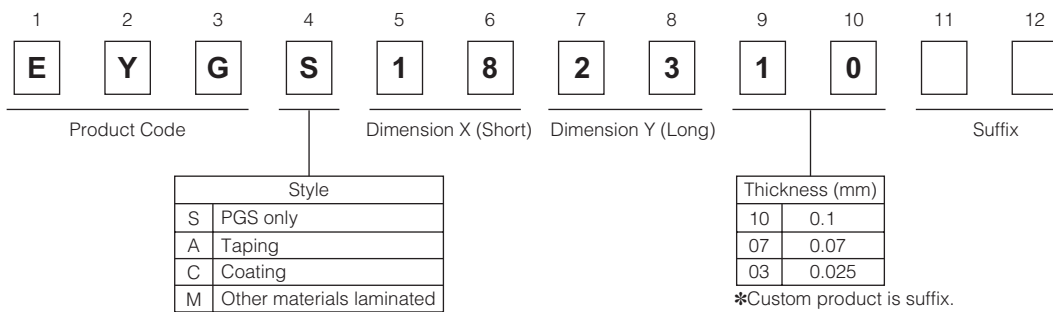
- Excellent thermal conductivity
(2 to 4 times as high as copper, 3 to 6 times as high as aluminum)
- Lightweight: Specific gravity : 0.85 to 2.1 g/cm³
(1/4 to 1/10 of copper, 1/1.3 to 1/3 of aluminum in density)
- Flexible and easy to be cut or trimmed.
(withstands repeated bending)
- Low thermal resistance
- RoHS compliant

■ Recommended applications

- Cellular phone, DVC, DSC, PC and peripherals, pickup
- Semiconductor manufacturing equipment
(Sputtering, Dry etching, Steppers)
- Optical communications equipment

■ Handling Precautions (See Page 182)

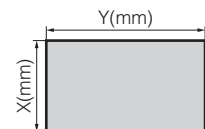
■ Explanation of Part Numbers



■ Dimensions in mm (not to scale)

Dimension of representative

| Part No. | Dimension X (Short)* | Dimension Y (Long)* | Thickness (mm) | | | | | | |
|---|----------------------|---------------------|----------------|---|----------|----------|-----------------------|----------|------------------------------------|
| EYGS1823 <table style="display: inline-table; vertical-align: middle; border-collapse: collapse;"><tr><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">0</td></tr><tr><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">7</td></tr></table> | 1 | 0 | 0 | 7 | 180±5 mm | 230±5 mm | 0.10±0.03, 0.07±0.015 | | |
| 1 | 0 | | | | | | | | |
| 0 | 7 | | | | | | | | |
| EYGS1218 <table style="display: inline-table; vertical-align: middle; border-collapse: collapse;"><tr><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">0</td></tr><tr><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">7</td></tr><tr><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">3</td></tr></table> | 1 | 0 | 0 | 7 | 0 | 3 | 115±5 mm | 180±5 mm | 0.10±0.03, 0.07±0.015, 0.025±0.010 |
| 1 | 0 | | | | | | | | |
| 0 | 7 | | | | | | | | |
| 0 | 3 | | | | | | | | |
| EYGS0912 <table style="display: inline-table; vertical-align: middle; border-collapse: collapse;"><tr><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">0</td></tr><tr><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">7</td></tr><tr><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">3</td></tr></table> | 1 | 0 | 0 | 7 | 0 | 3 | 90±5 mm | 115±5 mm | 0.10±0.03, 0.07±0.015, 0.025±0.010 |
| 1 | 0 | | | | | | | | |
| 0 | 7 | | | | | | | | |
| 0 | 3 | | | | | | | | |



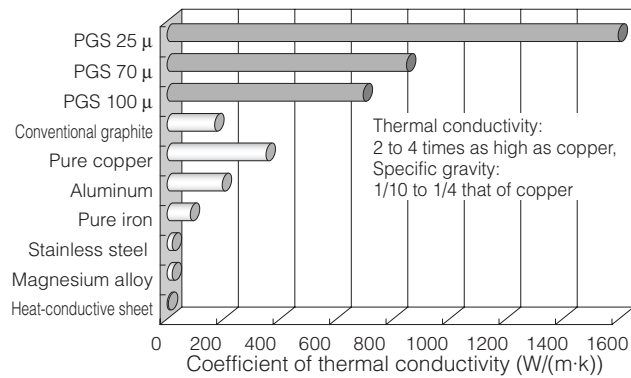
*Please contact us for other dimensions other than those above.

■ Characteristics

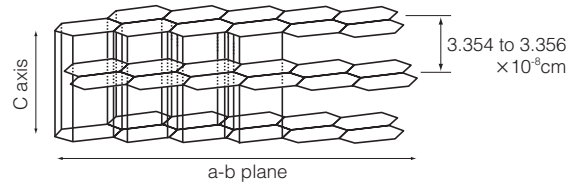
| Characteristics | Specification | Specification | Specification |
|-------------------------|---------------------------------|----------------------------|----------------------------|
| Thickness | 0.10 ± 0.03 mm | 0.07 ± 0.015 mm | 0.025 ± 0.010 mm |
| Density | 0.85 g/cm ³ | 1.1 g/cm ³ | 2.1 g/cm ³ |
| Thermal conductivity | a-b plane 600 to 800 W/(m·K) | 750 to 950 W/(m·K) | 1500 to 1700 W/(m·K) |
| Electrical conductivity | 10000 S/cm | 10000 S/cm | 20000 S/cm |
| Extensional strength | 19.6 MPa | 22.0 MPa | 30.0 MPa |
| Expansion coefficient | a-b plane | 9.3 × 10 ⁻⁷ 1/K | 9.3 × 10 ⁻⁷ 1/K |
| | c axis | 3.2 × 10 ⁻⁵ 1/K | 3.2 × 10 ⁻⁵ 1/K |
| Heat resistance | 400 °C | | |
| Bending(angle 180,R5) | 10000 cycles | | |

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.

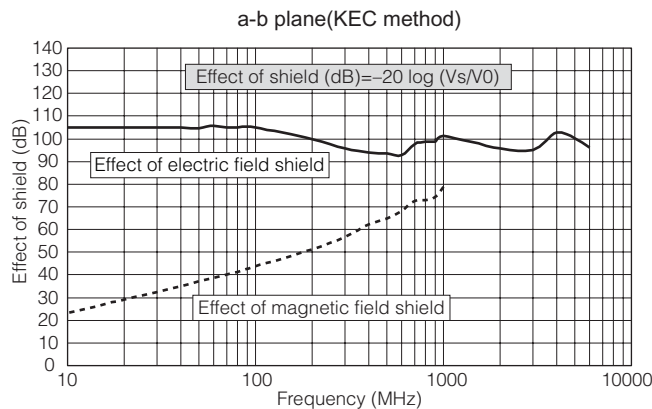
Thermal conductivity of PGS compared to other



Layered structure of PGS



Electric field shield performance



Rating and Characteristics

Thickness : PGS 0.1 mm type

| Type | ①PGS only | Standard type | | | | Special type | | | | |
|-----------------------|--|--|--|--|--|---|--|---|---------------------------------------|--|
| | | ②A-P Insulating film type | ②A-S Thin insulating film type | ③A-A Strong adhesion type | ④A-M Thin adhesion type | ⑤A-K High heat-resistance insulating film type | ⑥A-T High heat-resistance adhesion type | ⑦C-C Low thermal resistance type | ⑧M-SS Multilayered type (One-side) | ⑨M-SW Multilayered type (Double-side) |
| Structure | PGS | PGS Polyester tape 0.03 mm | PGS Polyester tape 0.01 mm | PGS Acrylic adhesive tape 0.03 mm Separating paper | PGS Acrylic adhesive tape 0.01 mm Separating paper | PGS Polyimide tape 0.03 mm | PGS Heat-resistance acrylic adhesive tape 0.03 mm Separating paper | PGS Acrylic adhesion 0.01 mm Separating paper | PGS Silicon 0.1 mm | PGS Silicon 0.1 mm |
| Thickness | 0.10 mm | 0.13 mm | 0.11 mm | 0.13 mm | 0.11 mm | 0.13 mm | 0.13 mm | 0.11 mm | 0.20 mm | 0.30 mm |
| Thermal conductivity | 600 to 800 W/(m·K) | 500 to 600 W/(m·K) | 550 to 650 W/(m·K) | 500 to 600 W/(m·K) | 550 to 650 W/(m·K) | 500 to 600 W/(m·K) | 500 to 600 W/(m·K) | 550 to 650 W/(m·K) | 250 to 350 W/(m·K) | 200 to 300 W/(m·K) |
| Withstand temperature | 400 °C | 100 °C | 100 °C | 100 °C | 100 °C | 180 °C | 150 °C | 85 °C | 180 °C | 180 °C |
| Maximum size | 180×230 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm |
| Part No. | EYGS182310 | EYGA121810P | EYGA121810S | EYGA121810A | EYGA121810M | EYGA121810K | EYGA121810T | EYGA121810C | EYGM121810SS | EYGM121810SW |
| Features | · Usable up to 400 °C · Low Thermal resistance · Electrically Conductive | · High mechanical strength · Insulation | · High mechanical strength · Insulation | · Insulation · Strong adhesion | · Insulation · Thin adhesion | · High mechanical strength · Insulation | · High heat-resistance | · Low thermal resistance | · Cushioning properties | · Cushioning properties |

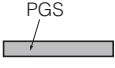
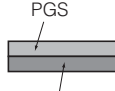
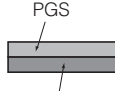
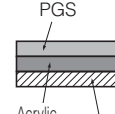
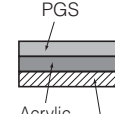
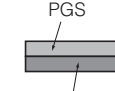
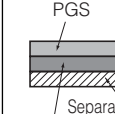
* Please contact our engineering section or factory about to special applications.

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.

00 Apr. 2008

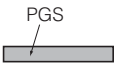
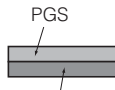
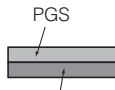
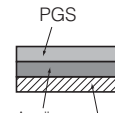
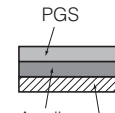
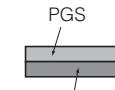
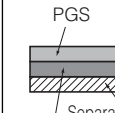
Rating and Characteristics

● Thickness : PGS 0.07 mm type

| Type | ①PGS only | Standard type | | | | Special type | |
|-----------------------|---|---|---|---|--|---|---|
| | | ②A-P Insulating film type | ②A-S Thin insulating film type | ③A-A Strong adhesion type | ④A-M Thin adhesion type | ⑤A-K High heat-resistance insulating film type | ⑥A-T High heat-resistance adhesion type |
| Structure |  |  |  |  |  |  |  |
| Thickness | 0.07 mm | 0.10 mm | 0.08 mm | 0.10 mm | 0.08 mm | 0.10 mm | 0.10 mm |
| Thermal conductivity | 750 to 950 W/(m·K) | 550 to 700 W/(m·K) | 650 to 800 W/(m·K) | 550 to 700 W/(m·K) | 650 to 800 W/(m·K) | 550 to 700 W/(m·K) | 550 to 700 W/(m·K) |
| Withstand temperature | 400 °C | 100 °C | 100 °C | 100 °C | 100 °C | 180 °C | 150 °C |
| Maximum size | 180×230 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm |
| Part No. | EYGS182307 | EYGA121807P | EYGA121807S | EYGA121807A | EYGA121807M | EYGA121807K | EYGA121807T |
| Features | · Usable up to 400 °C · Low Thermal resistance · Electrically Conductive | · High mechanical strength · Insulation | · High mechanical strength · Insulation | · Insulation · Strong adhesion | · Insulation · Thin adhesion | · High mechanical strength · Insulation | · High heat-resistance |

* Please contact our engineering section or factory about to special applications.

● Thickness : PGS 0.025 mm type

| Type | ①PGS only | Standard type | | | | Special type | |
|-----------------------|---|---|---|---|--|---|---|
| | | ②A-P Insulating film type | ②A-S Thin insulating film type | ③A-A Strong adhesion type | ④A-M Thin adhesion type | ⑤A-K High heat-resistance insulating film type | ⑥A-T High heat-resistance adhesion type |
| Structure |  |  |  |  |  |  |  |
| Thickness | 0.025 mm | 0.055 mm | 0.035 mm | 0.055 mm | 0.035 mm | 0.055 mm | 0.055 mm |
| Thermal conductivity | 1500 to 1700 W/(m·K) | 650 to 800 W/(m·K) | 1100 to 1250 W/(m·K) | 650 to 800 W/(m·K) | 1100 to 1250 W/(m·K) | 650 to 800 W/(m·K) | 650 to 800 W/(m·K) |
| Withstand temperature | 400 °C | 100 °C | 100 °C | 100 °C | 100 °C | 180 °C | 150 °C |
| Maximum size | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm | 115×180 mm |
| Part No. | EYGS121803 | EYGA121803P | EYGA121803S | EYGA121803A | EYGA121803M | EYGA121803K | EYGA121803T |
| Features | · Usable up to 400 °C · Low Thermal resistance · Electrically Conductive | · High mechanical strength · Insulation | · High mechanical strength · Insulation | · Insulation · Strong adhesion | · Insulation · Thin adhesion | · High mechanical strength · Insulation | · High heat-resistance |

* Please contact our engineering section or factory about to special applications.

| | | |
|----------------------|--|--|
| Minimum order | | |
|----------------------|--|--|

| Part Numbers | Size | Minimum order |
|--------------|------------|---------------|
| EYGS182310 | 180×230 mm | 10 |
| EYGS182307 | 180×230 mm | 10 |
| EYGS1218□□ | 115×180 mm | 10 |
| EYGS0912□□ | 90×115 mm | 20 |
| EYGA1218□□A | 115×180 mm | 10 |
| EYGA1218□□S | 115×180 mm | 10 |
| EYGA1218□□M | 115×180 mm | 10 |
| EYGA1218□□T | 115×180 mm | 10 |
| EYGA1218□□P | 115×180 mm | 10 |
| EYGA1218□□K | 115×180 mm | 10 |
| EYGC121810C | 115×180 mm | 10 |
| EYGM121810SS | 115×180 mm | 10 |
| EYGM121810SW | 115×180 mm | 10 |
| EYGA0912□□A | 90×115 mm | 20 |
| EYGA0912□□S | 90×115 mm | 20 |
| EYGA0912□□M | 90×115 mm | 20 |
| EYGA0912□□T | 90×115 mm | 20 |
| EYGA0912□□P | 90×115 mm | 20 |
| EYGA0912□□K | 90×115 mm | 20 |
| EYGC091210C | 90×115 mm | 20 |
| EYGM091210SS | 90×115 mm | 20 |
| EYGM091210SW | 90×115 mm | 20 |

* Please consult if the quantity of orders is little.