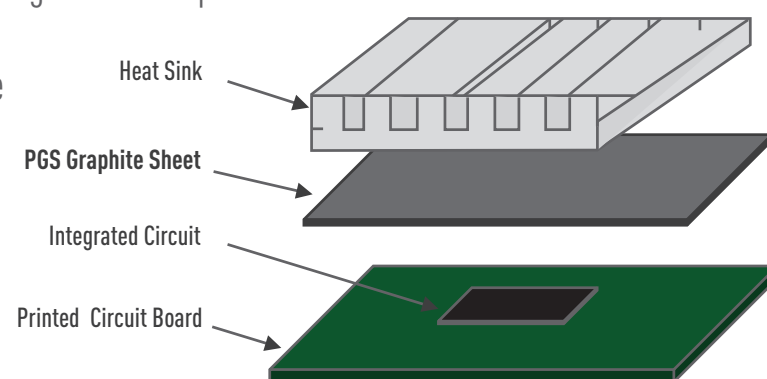


WHAT IS PGS?

PGS is an ultra-thin, lightweight, graphite polymer film with a thermal conductivity high enough to release and diffuse the heat generated by heat sources such as processors, power amplifiers and batteries. Developed by Panasonic engineers, this synthetically made material was named Pyrolytic Graphite Sheet or PGS. With a thermal conductivity up to five times greater than copper, PGS is extremely pliable and can be applied to heat-source shapes in high-density mounting situations.

Ideal for providing thermal management / heat-sinking in limited spaces or as supplemental heat-sink protection in addition to conventional means, PGS is light-weight, flexible and can be cut into customizable shapes to protect any electronic device.



PGS THERMAL MANAGEMENT OPTIONS

Standard Pyrolytic Graphite Sheets provide excellent thermal conductivity that can withstand temperatures up to 400°C! PGS sheets are also available with additional adhesives and laminants to provide extremely high heat resistance, insulation and stability within the application. Please review the PGS Selection Guide in this brochure for complete details.



PGS FEATURES AT-A-GLANCE

- Thermal Conductivity: 700 to 1950 W/(m-K)
- Offers Thermal Conductivity Two to Five Times as High as Copper, Three to Eight Times as High as Aluminum
- High Stability, No Deterioration With Age
- Simultaneous Solution For Thermal and Electromagnetic Wave Problems
- Thin, Flexible and Easy to Cut or Trim
- Withstands Repeated Bending
- Low Thermal Resistance
- RoHS and REACH Compliant

NEW PGS OPTIONS

EXPANDED THICKNESS OPTIONS AND NEW SEMI-SEALING MATERIAL (SSM) NOW AVAILABLE!

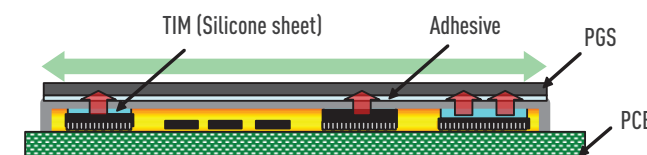
The groundbreaking thermal management material PGS is now available in several new thicknesses. PGS can now be ordered in 10 µm, 17 µm, 25 µm, 40 µm, and 50 µm thicknesses for expanded application coverage.

In addition, Panasonic has introduced a new addition to the PGS family called Semi-Sealing Material (SSM) layer. This is an elastomer layer that helps to facilitate the spread of heat generated by a PC board. Because it is compressible, this SSM layer fills the voids that are inherently present on any circuit board for greater contact with the heat source(s). This new option is ideal for applications where both electrical isolation and thermal management are required.

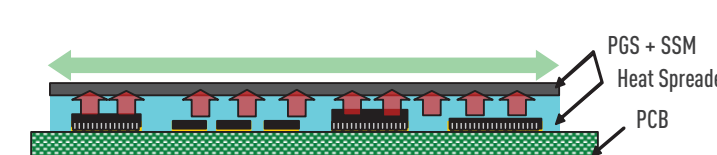


SSM IMPLEMENTATION

BEFORE: Example of current heat solution with PGS



AFTER: New heat solution with PGS and SSM



Panasonic

Panasonic Industrial Devices Sales Company of America
Two Riverfront Plaza, 7th Floor, Newark, NJ 07102

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Panasonic

Pyrolytic Graphite Sheet



The Advanced Thermal Management Solution For Today's Designs

Thermal management has long been a battle waged by design engineers. As the size of devices are decreasing, with power consumption increasing, the common methods of heat transfer are failing to meet today's designs.

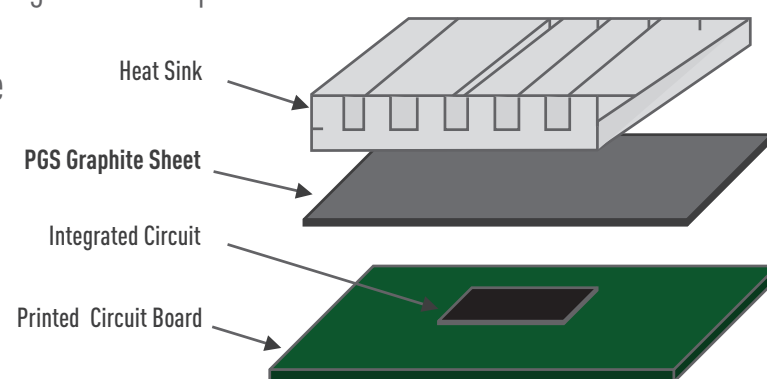
To address today's Thermal Management requirements, Panasonic has developed an advanced heat spreading material called Pyrolytic Graphite Sheet or PGS. Designed for thermal management/heat-sinking in limited spaces or to provide supplemental heat-sinking in addition to conventional means, PGS is the ultimate extreme Thermal Management Solution!

1-800-344-2112
na.industrial.panasonic.com/PGS

WHAT IS PGS?

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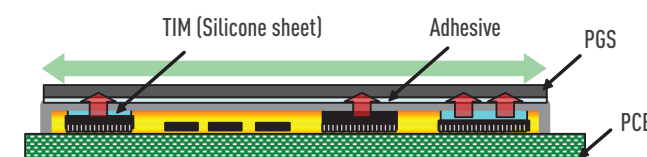
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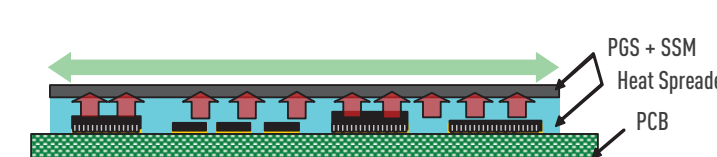


SSM IMPLEMENTATION

BEFORE: Example of current heat solution with PGS



AFTER: New heat solution with PGS and SSM



Panasonic

Panasonic Industrial Devices Sales Company of America
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Panasonic

Pyrolytic Graphite Sheet



The Advanced Thermal Management Solution For Today's Designs

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1-800-344-2112
na.industrial.panasonic.com/PGS

SELECTION GUIDE

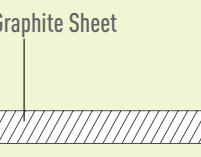
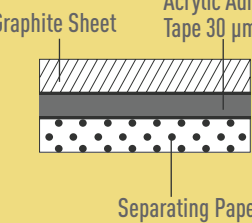
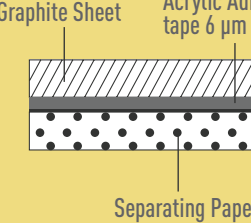
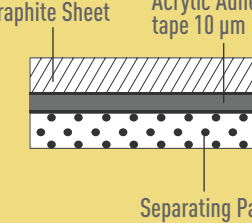
	SIZE	10µm	17µm	25µm	40µm	50µm	70µm	100µm
S-Type	90×115 mm			EGY-S091203	EGY-S091204	EGY-S091205	EGY-S091207	EGY-S091210
	115×180 mm			EGY-S121803	EGY-S121804	EGY-S121805	EGY-S121807	EGY-S121810
	180×230 mm				EGY-S182304	EGY-S182305	EGY-S182307	EGY-S182310
A-A Type	90×115 mm	EGY-A091201A	EGY-A091202A	EGY-A091203A	EGY-A091204A	EGY-A091205A	EGY-A091207A	
	115×180 mm	EGY-A121801A	EGY-A121802A	EGY-A121803A	EGY-A121804A	EGY-A121805A	EGY-A121807A	
A-F Type*	90×115 mm	EGY-A091201F	EGY-A091202F		EGY-A091204F	EGY-A091205F		
	115×180 mm	EGY-A121801F	EGY-A121802F		EGY-A121804F	EGY-A121805F		
A-M Type	90×115 mm	EGY-A091201M	EGY-A091202M	EGY-A091203M	EGY-A091204M	EGY-A091205M	EGY-A091207M	
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A-DF Type*	90×115 mm	EGY-A091201DF	EGY-A091202DF		EGY-A091204DF	EGY-A091205DF		
	115×180 mm	EGY-A121801DF	EGY-A121802DF		EGY-A121804DF	EGY-A121805DF		
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A-KV Type	90×115 mm	EGY-A091201KV	EGY-A091202KV	EGY-A091203KV	EGY-A091204KV	EGY-A091205KV	EGY-A091207KV	
	115×180 mm	EGY-A121801KV	EGY-A121802KV	EGY-A121803KV	EGY-A121804KV	EGY-A121805KV	EGY-A121807KV	

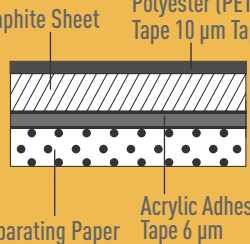
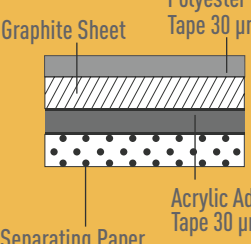
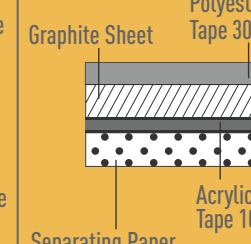
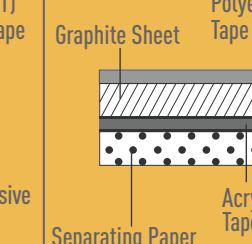
*For Part Number Information, Please Reference The PGS Datasheet at na.industrial.panasonic.com/PGS

CHARACTERISTICS

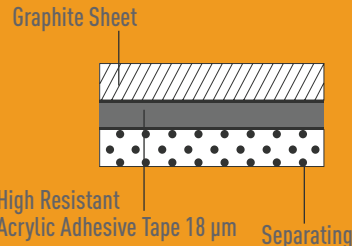
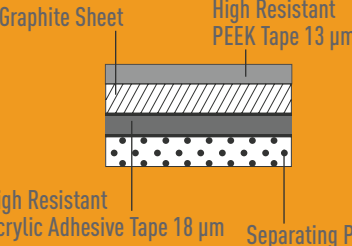
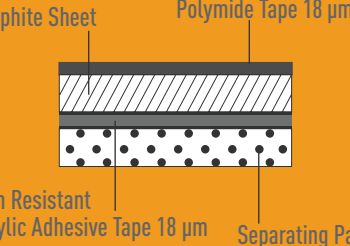
CHARACTERISTICS	UNITS	100µm	70µm	50µm	40µm	25µm	17µm	10µm
Thickness	mm	0.1	0.07	0.05	0.04	0.025	0.017	0.01
Density	g/cm ³	0.85	1.21	1.7	1.8	1.9	2.1	2.13
Thermal Conductivity (a-b plane)	W/(m-K)	700	1000	1300	1350	1600	1850	1950
Electrical Conductivity	S/cm	10,000	10,000	10,000	10,000	20,000	20,000	20,000
Extensional Strength	Mpa	20	20	20	25	30	40	40
Heat Resistance	"Degrees Celsius"	400°C						
Bending Angle (Radius 5mm, Angle 180)	"Number of Cycles"	10,000						

STANDARD PGS TYPES

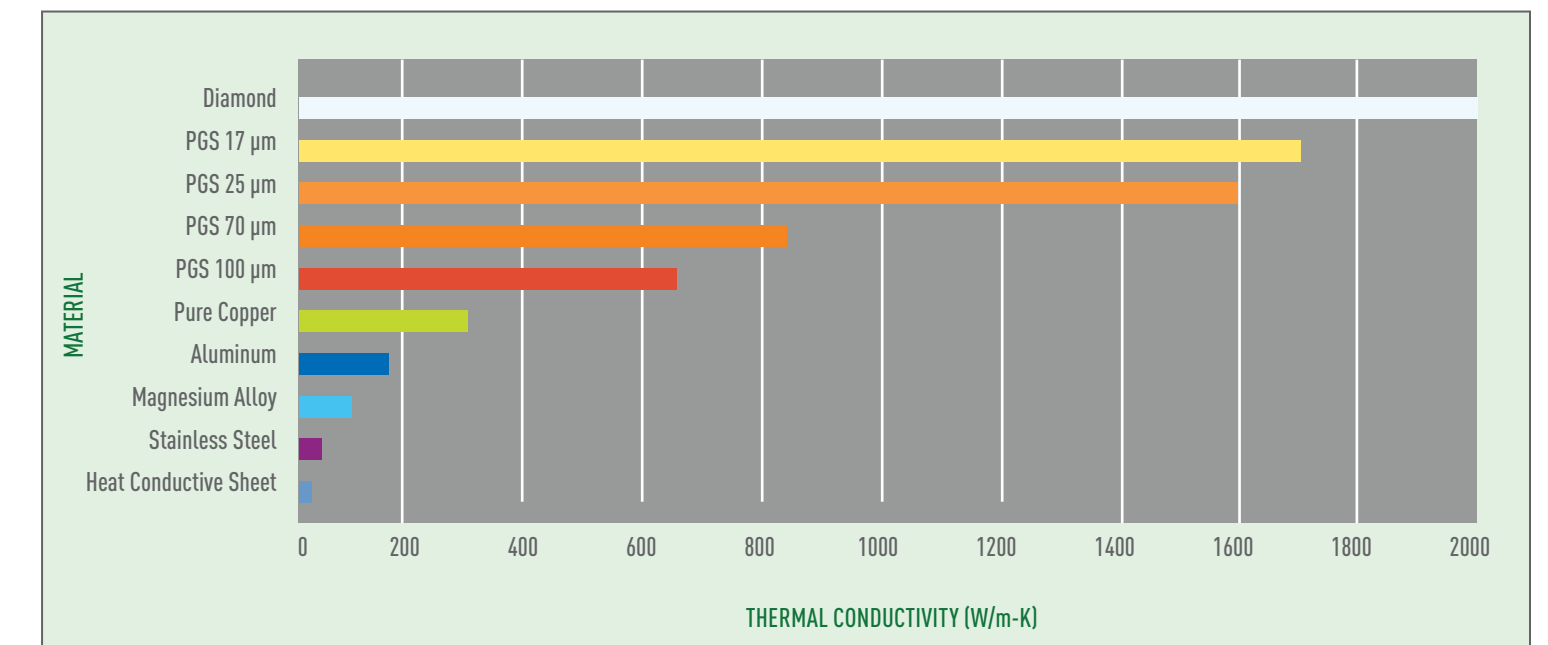
TYPE	PGS ONLY	ADHESIVE TYPES		
	S TYPE	A-A TYPE	A-F TYPE	A-M TYPE
REAR FACE		Insulative Adhesion Type: 30 µm	Insulative thin adhesion Type 6 µm	Insulative Thin Adhesion Type: 10 µm
STRUCTURE				
FEATURES	- High Thermal Conductivity - High Flexibility - Low Thermal Resistance - Conductive Material	- With Insulation Material on One Side - With Strong Adhesive Tape - Withstanding Voltage: 2 kV	- With Insulation Material on One Side - Low Thermal Resistance comparison with A-A Type	- With Insulation Material on One Side - Low Thermal Resistance Compared with A-A Type - Withstanding Voltage: 2 kV
WITHSTAND TEMPERATURE	400° C	100° C	100° C	100° C
STANDARD SIZE	115 x 180mm	90 x 115mm	90 x 115 mm	90 x 115mm
MAXIMUM SIZE	180 x 230mm 150 x 180mm (25µm)	115 x 180mm	115 x 180 mm	115 x 180mm

TYPE	LAMINATED TYPES (INSULATION AND ADHESIVE)			
	A-DF TYPE	A-PA TYPE	A-PM TYPE	A-DM TYPE
FRONT FACE	Polyester Tape Standard Type 10 µm	Polyester Tape Standard Type 30 µm	Polyester Tape Standard Type 30 µm	Polyester Tape Thin Type 10 µm
REAR FACE	Insulative Thin Adhesion Type 6 µm	Insulative Adhesion Type: 30 µm	Insulative Thin Adhesion Type: 10 µm	Insulative Thin Adhesion Type: 10 µm
STRUCTURE				
FEATURES	- With Insulation Material on Both Sides - Withstanding Voltage: PET tape : 1 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 4 kV - Adhesive Tape: 2 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 4 kV - Adhesive Tape: 1 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 1 kV - Adhesive Tape: 1 kV
WITHSTAND TEMPERATURE	100°C	100°C	100°C	100°C
STANDARD SIZE	90 x 115mm	90 x 115mm	90 x 115mm	90 x 115mm
MAXIMUM SIZE	115 x 180mm	115 x 180mm	115 x 180mm	115 x 180mm

HIGH HEAT RESISTANCE PGS TYPES

TYPE	A-V TYPE	A-RV TYPE	A-KV TYPE
FRONT FACE		High Heat Resistance and Insulation 13 µm	High Heat Resistance and Insulation 30 µm
REAR FACE	High Heat Resistant Adhesive Type: 18 µm	High Heat Resistant and Insulative Adhesive Type: 18 µm	High Heat Resistant and Insulative Adhesive Type: 18 µm
STRUCTURE			
FEATURES	- With High Heat Resistant Adhesive Tape on One Side - Withstanding Voltage: Adhesive Tape: 2 kV	- With High Heat Resistant Adhesive and Insulative Tapes - Withstanding Voltage: PEEK Tape: 2 kV Adhesive Tape: 2 kV	- With High Heat Resistant and Insulative Tapes - Withstanding Voltage PI Tape: 5 kV Adhesive Tape: 2 kV
WITHSTAND TEMPERATURE	150° C	150° C	150° C
STANDARD SIZE	90 x 115mm	90 x 115mm	90 x 115mm
MAXIMUM SIZE	115 x 180mm	115 x 180mm	115 x 180mm

HIGH THERMAL CONDUCTIVITY



SELECTION GUIDE

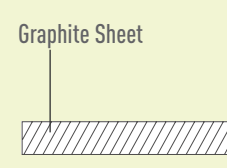
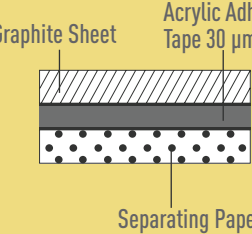
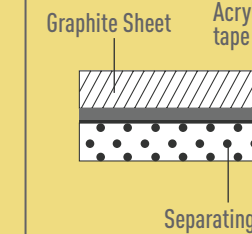
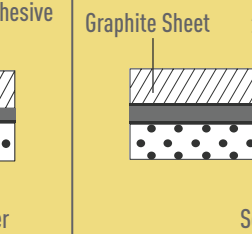
	SIZE	10µm	17µm	25µm	40µm	50µm	70µm	100µm
S-Type	90×115 mm			YEG-S091203	YEG-S091204	YEG-S091205	YEG-S091207	YEG-S091210
	115×180 mm			YEG-S121803	YEG-S121804	YEG-S121805	YEG-S121807	YEG-S121810
	180×230 mm				YEG-S182304	YEG-S182305	YEG-S182307	YEG-S182310
A-A Type	90×115 mm	YEG-A091201A	YEG-A091202A	YEG-A091203A	YEG-A091204A	YEG-A091205A	YEG-A091207A	
	115×180 mm	YEG-A121801A	YEG-A121802A	YEG-A121803A	YEG-A121804A	YEG-A121805A	YEG-A121807A	
A-F Type*	90×115 mm	YEG-A091201F	YEG-A091202F		YEG-A091204F	YEG-A091205F		
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A-M Type	90×115 mm	YEG-A091201M	YEG-A091202M	YEG-A091203M	YEG-A091204M	YEG-A091205M	YEG-A091207M	
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A-DF Type*	90×115 mm	YEG-A091201DF	YEG-A091202DF		YEG-A091204DF	YEG-A091205DF		
	115×180 mm	YEG-A121801DF	YEG-A121802DF		YEG-A121804DF	YEG-A121805DF		
A-PA Type	90×115 mm	YEG-A091201PA	YEG-A091202PA	YEG-A091203PA	YEG-A091204PA	YEG-A091205PA	YEG-A091207PA	
	115×180 mm	YEG-A121801PA	YEG-A121802PA	YEG-A121803PA	YEG-A121804PA	YEG-A121805PA	YEG-A121807PA	
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	115×180 mm	YEG-A121801PM	YEG-A121802PM	YEG-A121803PM	YEG-A121804PM	YEG-A121805PM	YEG-A121807PM	
A-DM Type	90×115 mm	YEG-A091201DM	YEG-A091202DM	YEG-A091203DM	YEG-A091204DM	YEG-A091205DM	YEG-A091207DM	
	115×180 mm	YEG-A121801DM	YEG-A121802DM	YEG-A121803DM	YEG-A121804DM	YEG-A121805DM	YEG-A121807DM	
A-V Type	90×115 mm	YEG-A091201V	YEG-A091202V	YEG-A091203V	YEG-A091204V	YEG-A091205V	YEG-A091207V	
	115×180 mm	YEG-A121801V	YEG-A121802V	YEG-A121803V	YEG-A121804V	YEG-A121805V	YEG-A121807V	
A-RV Type	90×115 mm	YEG-A091201RV	YEG-A091202RV	YEG-A091203RV	YEG-A091204RV	YEG-A091205RV	YEG-A091207RV	
	115×180 mm	YEG-A121801RV	YEG-A121802RV	YEG-A121803RV	YEG-A121804RV	YEG-A121805RV	YEG-A121807RV	
A-KV Type	90×115 mm	YEG-A091201KV	YEG-A091202KV	YEG-A091203KV	YEG-A091204KV	YEG-A091205KV	YEG-A091207KV	
	115×180 mm	YEG-A121801KV	YEG-A121802KV	YEG-A121803KV	YEG-A121804KV	YEG-A121805KV	YEG-A121807KV	

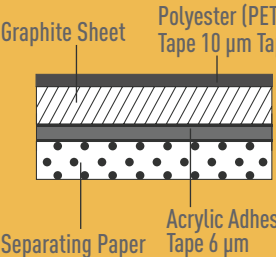
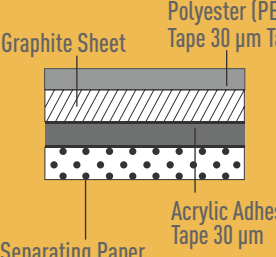
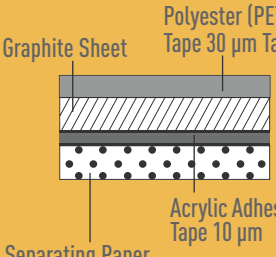
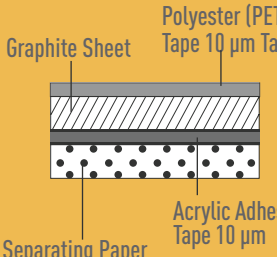
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CHARACTERISTICS

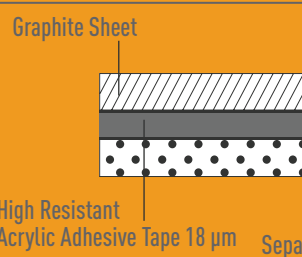
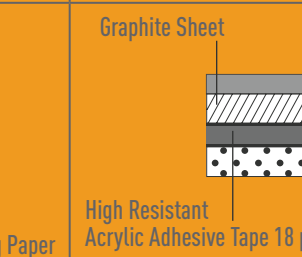
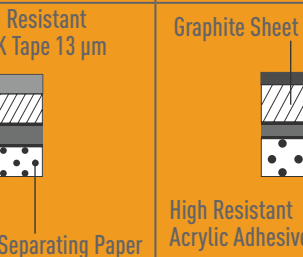
CHARACTERISTICS	UNITS	100µm	70µm	50µm	40µm	25µm	17µm	10µm
Thickness	mm	0.1	0.07	0.05	0.04	0.025	0.017	0.01
Density	g/cm ³	0.85	1.21	1.7	1.8	1.9	2.1	2.13
Thermal Conductivity (a-b plane)	W/(m-K)	700	1000	1300	1350	1600	1850	1950
Electrical Conductivity	S/cm	10,000	10,000	10,000	10,000	20,000	20,000	20,000
Extensional Strength	Mpa	20	20	20	25	30	40	40
Heat Resistance	"Degrees Celsius"	400°C						
Bending Angle (Radius 5mm, Angle 180)	"Number of Cycles"	10,000						

STANDARD PGS TYPES

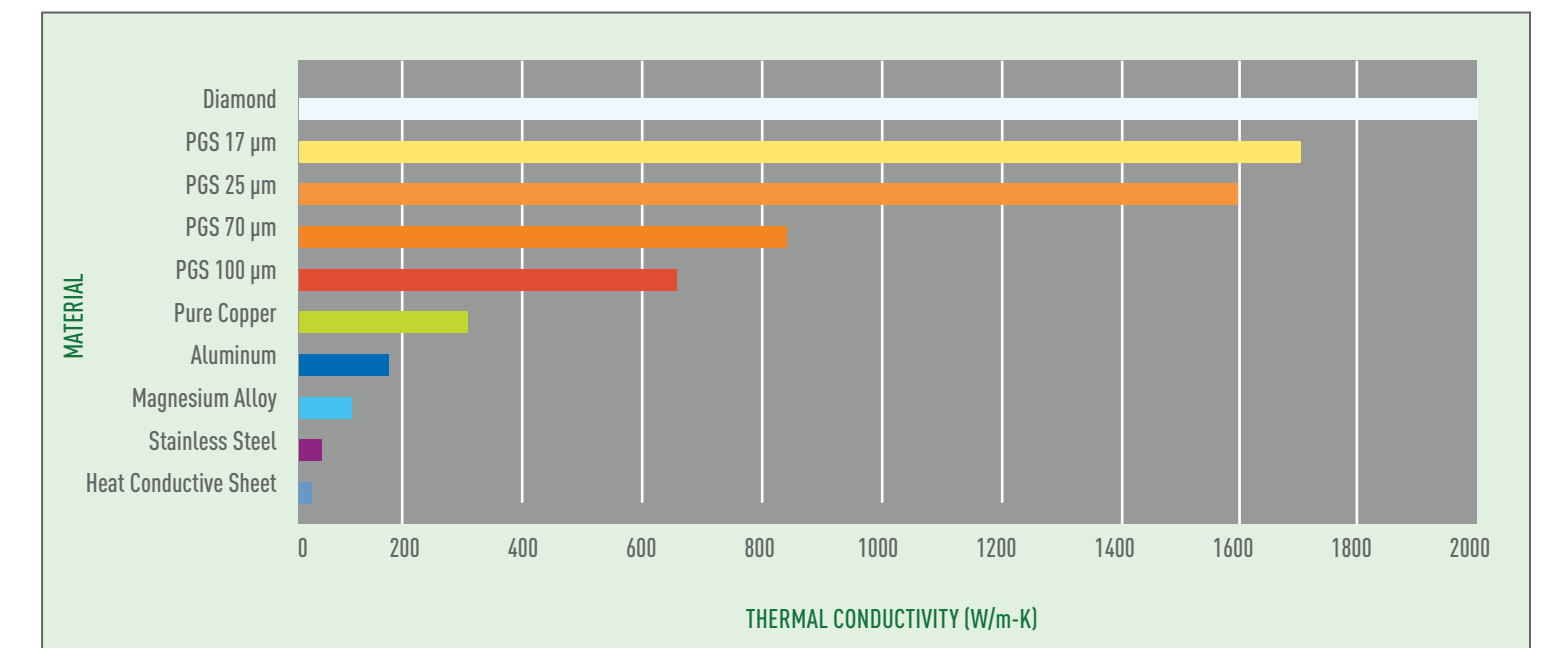
TYPE	PGS ONLY	ADHESIVE TYPES		
	S TYPE	A-A TYPE	A-F TYPE	A-M TYPE
REAR FACE		Insulative Adhesion Type: 30 µm	Insulative thin adhesion Type 6 µm	Insulative Thin Adhesion Type: 10 µm
STRUCTURE				
FEATURES	- High Thermal Conductivity - High Flexibility - Low Thermal Resistance - Conductive Material	- With Insulation Material on One Side - With Strong Adhesive Tape - Withstanding Voltage: 2 kV	- With Insulation Material on One Side - Low Thermal Resistance comparison with A-A Type	- With Insulation Material on One Side - Low Thermal Resistance Compared with A-A Type - Withstanding Voltage: 2 kV
WITHSTAND TEMPERATURE	400° C	100° C	100° C	100° C
STANDARD SIZE	115 x 180mm	90 x 115mm	90 x 115 mm	90 x 115mm
MAXIMUM SIZE	180 x 230mm 150 x 180mm (25µm)	115 x 180mm	115 x 180 mm	115 x 180mm

TYPE	LAMINATED TYPES (INSULATION AND ADHESIVE)			
	A-DF TYPE	A-PA TYPE	A-PM TYPE	A-DM TYPE
FRONT FACE	Polyester Tape Standard Type 10 µm	Polyester Tape Standard Type 30 µm	Polyester Tape Standard Type 30 µm	Polyester Tape Thin Type 10 µm
REAR FACE	Insulative Thin Adhesion Type 6 µm	Insulative Adhesion Type: 30 µm	Insulative Thin Adhesion Type: 10 µm	Insulative Thin Adhesion Type: 10 µm
STRUCTURE				
FEATURES	- With Insulation Material on Both Sides - Withstanding Voltage: PET tape : 1 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 4 kV - Adhesive Tape: 2 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 4 kV - Adhesive Tape: 1 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 1 kV - Adhesive Tape: 1 kV
WITHSTAND TEMPERATURE	100°C	100°C	100°C	100°C
STANDARD SIZE	90 x 115mm	90 x 115mm	90 x 115mm	90 x 115mm
MAXIMUM SIZE	115 x 180mm	115 x 180mm	115 x 180mm	115 x 180mm

HIGH HEAT RESISTANCE PGS TYPES

TYPE	A-V TYPE	A-RV TYPE	A-KV TYPE
FRONT FACE		High Heat Resistance and Insulation 13 µm	High Heat Resistance and Insulation 30 µm
REAR FACE	High Heat Resistant Adhesive Type: 18 µm	High Heat Resistant and Insulative Adhesive Type: 18 µm	High Heat Resistant and Insulative Adhesive Type: 18 µm
STRUCTURE			
FEATURES	- With High Heat Resistant Adhesive Tape on One Side - Withstanding Voltage: Adhesive Tape: 2 kV	- With High Heat Resistant Adhesive and Insulative Tapes - Withstanding Voltage: PEEK Tape: 2 kV Adhesive Tape: 2 kV	- With High Heat Resistant and Insulative Tapes - Withstanding Voltage PI Tape: 5 kV Adhesive Tape: 2 kV
WITHSTAND TEMPERATURE	150° C	150° C	150° C
STANDARD SIZE	90 x 115mm	90 x 115mm	90 x 115mm
MAXIMUM SIZE	115 x 180mm	115 x 180mm	115 x 180mm

HIGH THERMAL CONDUCTIVITY



SELECTION GUIDE

PRODUCT OVERVIEW

CHARACTERISTICS

SELECTION GUIDE


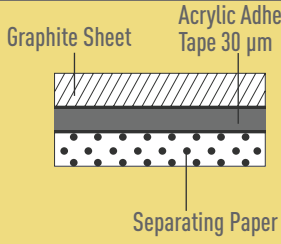
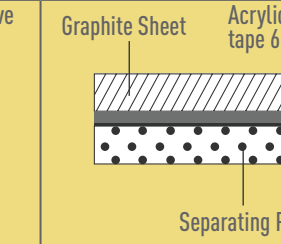
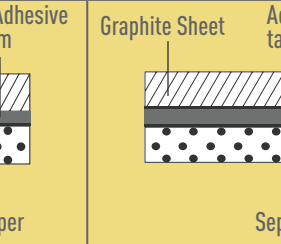
	SIZE	10µm	17µm	25µm	40µm	50µm	70µm	100µm
S-Type	90×115 mm			EGY-S091203	EGY-S091204	EGY-S091205	EGY-S091207	EGY-S091210
	115×180 mm			EGY-S121803	EGY-S121804	EGY-S121805	EGY-S121807	EGY-S121810
	180×230 mm				EGY-S182304	EGY-S182305	EGY-S182307	EGY-S182310
A-A Type	90×115 mm	EGY-A091201A	EGY-A091202A	EGY-A091203A	EGY-A091204A	EGY-A091205A	EGY-A091207A	
	115×180 mm	EGY-A121801A	EGY-A121802A	EGY-A121803A	EGY-A121804A	EGY-A121805A	EGY-A121807A	
A-F Type*	90×115 mm	EGY-A091201F	EGY-A091202F		EGY-A091204F	EGY-A091205F		
	115×180 mm	EGY-A121801F	EGY-A121802F		EGY-A121804F	EGY-A121805F		
A-M Type	90×115 mm	EGY-A091201M	EGY-A091202M	EGY-A091203M	EGY-A091204M	EGY-A091205M	EGY-A091207M	
	115×180 mm	EGY-A121801M	EGY-A121802M	EGY-A121803M	EGY-A121804M	EGY-A121805M	EGY-A121807M	
A-DF Type*	90×115 mm	EGY-A091201DF	EGY-A091202DF		EGY-A091204DF	EGY-A091205DF		
	115×180 mm	EGY-A121801DF	EGY-A121802DF		EGY-A121804DF	EGY-A121805DF		
A-PA Type	90×115 mm	EGY-A091201PA	EGY-A091202PA	EGY-A091203PA	EGY-A091204PA	EGY-A091205PA	EGY-A091207PA	
	115×180 mm	EGY-A121801PA	EGY-A121802PA	EGY-A121803PA	EGY-A121804PA	EGY-A121805PA	EGY-A121807PA	
A-PM Type	90×115 mm	EGY-A091201PM	EGY-A091202PM	EGY-A091203PM	EGY-A091204PM	EGY-A091205PM	EGY-A091207PM	
	115×180 mm	EGY-A121801PM	EGY-A121802PM	EGY-A121803PM	EGY-A121804PM	EGY-A121805PM	EGY-A121807PM	
A-DM Type	90×115 mm	EGY-A091201DM	EGY-A091202DM	EGY-A091203DM	EGY-A091204DM	EGY-A091205DM	EGY-A091207DM	
	115×180 mm	EGY-A121801DM	EGY-A121802DM	EGY-A121803DM	EGY-A121804DM	EGY-A121805DM	EGY-A121807DM	
A-V Type	90×115 mm	EGY-A091201V	EGY-A091202V	EGY-A091203V	EGY-A091204V	EGY-A091205V	EGY-A091207V	
	115×180 mm	EGY-A121801V	EGY-A121802V	EGY-A121803V	EGY-A121804V	EGY-A121805V	EGY-A121807V	
A-RV Type	90×115 mm	EGY-A091201RV	EGY-A091202RV	EGY-A091203RV	EGY-A091204RV	EGY-A091205RV	EGY-A091207RV	
	115×180 mm	EGY-A121801RV	EGY-A121802RV	EGY-A121803RV	EGY-A121804RV	EGY-A121805RV	EGY-A121807RV	
A-KV Type	90×115 mm	EGY-A091201KV	EGY-A091202KV	EGY-A091203KV	EGY-A091204KV	EGY-A091205KV	EGY-A091207KV	
	115×180 mm	EGY-A121801KV	EGY-A121802KV	EGY-A121803KV	EGY-A121804KV	EGY-A121805KV	EGY-A121807KV	

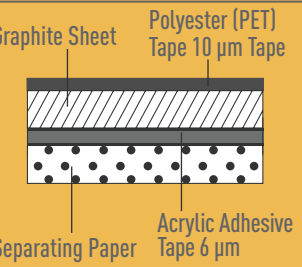
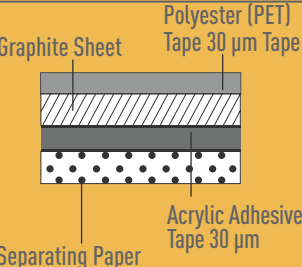
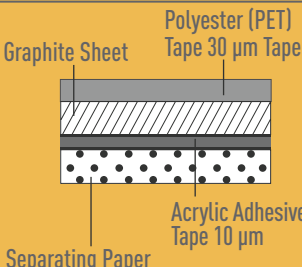
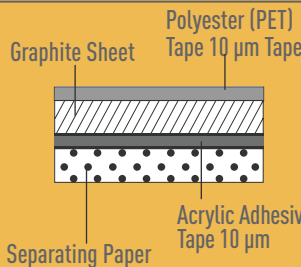
*For Part Number Information, Please Reference The PGS Datasheet at na.industrial.panasonic.com/PGS

CHARACTERISTICS

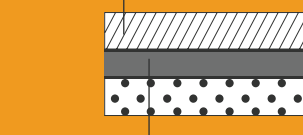
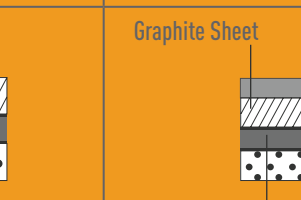
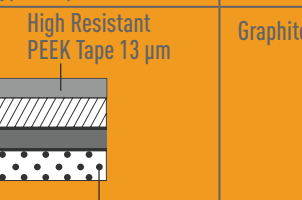
CHARACTERISTICS	UNITS	100µm	70µm	50µm	40µm	25µm	17µm	10µm
Thickness	mm	0.1	0.07	0.05	0.04	0.025	0.017	0.01
Density	g/cm ³	0.85	1.21	1.7	1.8	1.9	2.1	2.13
Thermal Conductivity (a-b plane)	W/(m-K)	700	1000	1300	1350	1600	1850	1950
Electrical Conductivity	S/cm	10,000	10,000	10,000	10,000	20,000	20,000	20,000
Extensional Strength	Mpa	20	20	20	25	30	40	40
Heat Resistance	"Degrees Celsius"	400°C						
Bending Angle (Radius 5mm, Angle 180)	"Number of Cycles"	10,000						

STANDARD PGS TYPES

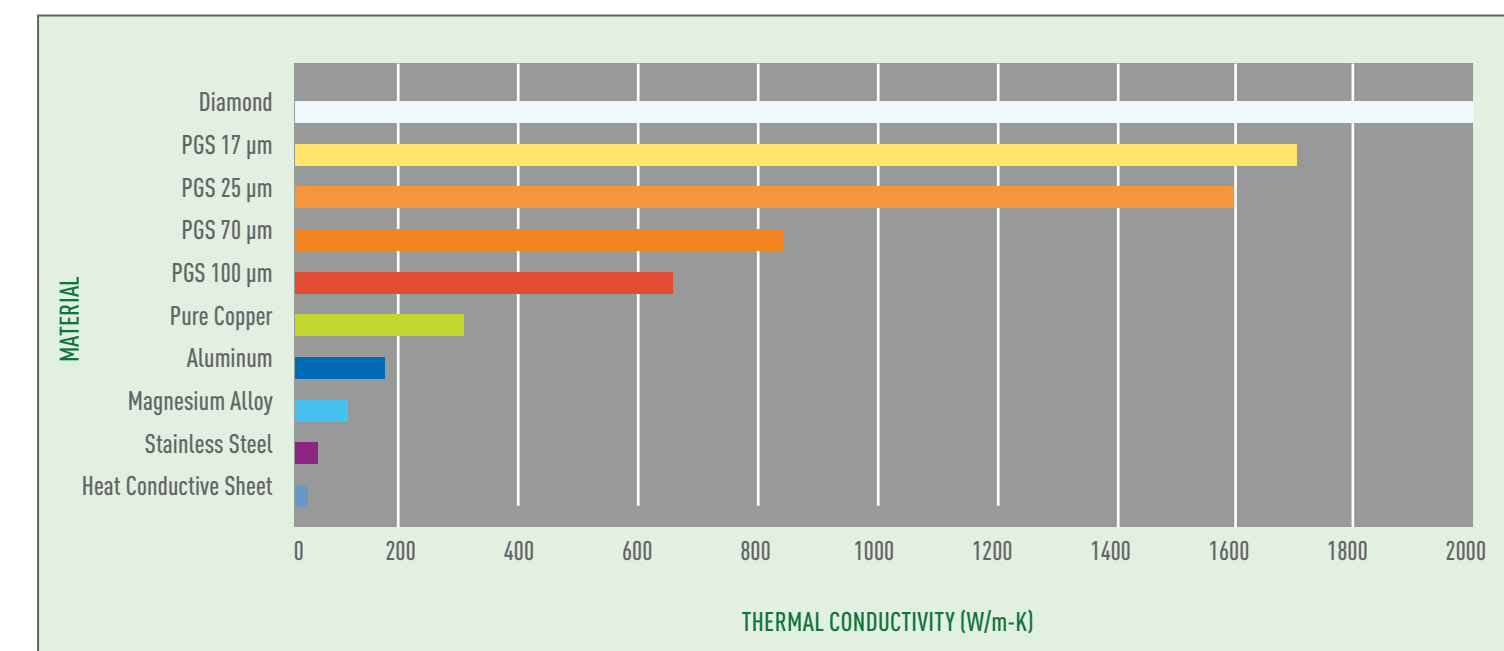
TYPE	PGS ONLY	ADHESIVE TYPES		
	S TYPE	A-A TYPE	A-F TYPE	A-M TYPE
REAR FACE		Insulative Adhesion Type: 30 µm	Insulative thin adhesion Type 6 µm	Insulative Thin Adhesion Type: 10 µm
STRUCTURE				
FEATURES	- High Thermal Conductivity - High Flexibility - Low Thermal Resistance - Conductive Material	- With Insulation Material on One Side - With Strong Adhesive Tape - Withstanding Voltage: 2 kV	- With Insulation Material on One Side - Low Thermal Resistance comparison with A-A Type	- With Insulation Material on One Side - Low Thermal Resistance Compared with A-A Type - Withstanding Voltage: 2 kV
WITHSTAND TEMPERATURE	400° C	100° C	100° C	100° C
STANDARD SIZE	115 x 180mm	90 x 115mm	90 x 115 mm	90 x 115mm
MAXIMUM SIZE	180 x 230mm 150 x 180mm (25µm)	115 x 180mm	115 x 180 mm	115 x 180mm

TYPE	LAMINATED TYPES (INSULATION AND ADHESIVE)			
	A-DF TYPE	A-PA TYPE	A-PM TYPE	A-DM TYPE
FRONT FACE	Polyester Tape Standard Type 10 µm	Polyester Tape Standard Type 30 µm	Polyester Tape Standard Type 30 µm	Polyester Tape Thin Type 10 µm
REAR FACE	Insulative Thin Adhesion Type 6 µm	Insulative Adhesion Type: 30 µm	Insulative Thin Adhesion Type: 10 µm	Insulative Thin Adhesion Type: 10 µm
STRUCTURE				
FEATURES	- With Insulation Material on Both Sides - Withstanding Voltage: PET tape : 1 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 4 kV - Adhesive Tape: 2 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 4 kV - Adhesive Tape: 1 kV	- With Insulation Material on Both Sides - Withstanding Voltage: PET Tape: 1 kV - Adhesive Tape: 1 kV
WITHSTAND TEMPERATURE	100°C	100°C	100°C	100°C
STANDARD SIZE	90 x 115mm	90 x 115mm	90 x 115mm	90 x 115mm
MAXIMUM SIZE	115 x 180mm	115 x 180mm	115 x 180mm	115 x 180mm

HIGH HEAT RESISTANCE PGS TYPES

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FRONT FACE		High Heat Resistance and Insulation 13 µm	High Heat Resistance and Insulation 30 µm
REAR FACE	High Heat Resistant Adhesive Type: 18 µm	High Heat Resistant and Insulative Adhesive Type: 18 µm	High Heat Resistant and Insulative Adhesive Type: 18 µm
STRUCTURE			
FEATURES	- With High Heat Resistant Adhesive Tape on One Side - Withstanding Voltage: Adhesive Tape: 2 kV	- With High Heat Resistant Adhesive and Insulative Tapes - Withstanding Voltage: PEEK Tape: 2 kV Adhesive Tape: 2 kV	- With High Heat Resistant and Insulative Tapes - Withstanding Voltage PI Tape: 5 kV Adhesive Tape: 2 kV
WITHSTAND TEMPERATURE	150° C	150° C	150° C
STANDARD SIZE	90 x 115mm	90 x 115mm	90 x 115mm
MAXIMUM SIZE	115 x 180mm	115 x 180mm	115 x 180mm

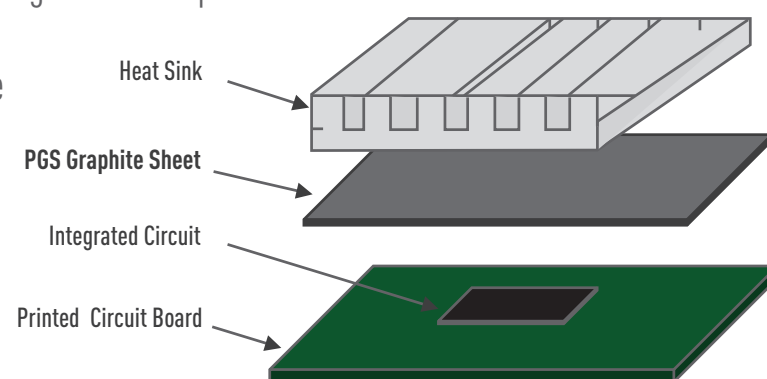
HIGH THERMAL CONDUCTIVITY



WHAT IS PGS?

PGS is an ultra-thin, lightweight, graphite polymer film with a thermal conductivity high enough to release and diffuse the heat generated by heat sources such as processors, power amplifiers and batteries. Developed by Panasonic engineers, this synthetically made material was named Pyrolytic Graphite Sheet or PGS. With a thermal conductivity up to five times greater than copper, PGS is extremely pliable and can be applied to heat-source shapes in high-density mounting situations.

Ideal for providing thermal management / heat-sinking in limited spaces or as supplemental heat-sink protection in addition to conventional means, PGS is light-weight, flexible and can be cut into customizable shapes to protect any electronic device.



PGS THERMAL MANAGEMENT OPTIONS

Standard Pyrolytic Graphite Sheets provide excellent thermal conductivity that can withstand temperatures up to 400°C! PGS sheets are also available with additional adhesives and laminants to provide extremely high heat resistance, insulation and stability within the application. Please review the PGS Selection Guide in this brochure for complete details.



PGS FEATURES AT-A-GLANCE

- Thermal Conductivity: 700 to 1950 W/(m-K)
- Offers Thermal Conductivity Two to Five Times as High as Copper, Three to Eight Times as High as Aluminum
- High Stability, No Deterioration With Age
- Simultaneous Solution For Thermal and Electromagnetic Wave Problems
- Thin, Flexible and Easy to Cut or Trim
- Withstands Repeated Bending
- Low Thermal Resistance
- RoHS and REACH Compliant

NEW PGS OPTIONS

EXPANDED THICKNESS OPTIONS AND NEW SEMI-SEALING MATERIAL (SSM) NOW AVAILABLE!

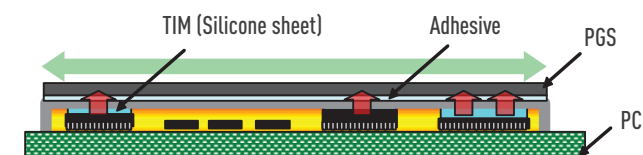
The groundbreaking thermal management material PGS is now available in several new thicknesses. PGS can now be ordered in 10 µm, 17 µm, 25 µm, 40 µm, and 50 µm thicknesses for expanded application coverage.

In addition, Panasonic has introduced a new addition to the PGS family called Semi-Sealing Material (SSM) layer. This is an elastomer layer that helps to facilitate the spread of heat generated by a PC board. Because it is compressible, this SSM layer fills the voids that are inherently present on any circuit board for greater contact with the heat source(s). This new option is ideal for applications where both electrical isolation and thermal management are required.

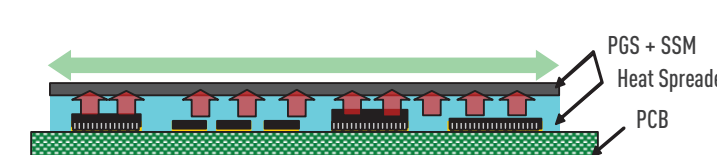


SSM IMPLEMENTATION

BEFORE: Example of current heat solution with PGS



AFTER: New heat solution with PGS and SSM



Panasonic Industrial Devices Sales Company of America
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800-344-2112 | na.industrial.panasonic.com | industrial@us.panasonic.com

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Pyrolytic Graphite Sheet



The Advanced Thermal Management Solution For Today's Designs

Thermal management has long been a battle waged by design engineers. As the size of devices are decreasing, with power consumption increasing, the common methods of heat transfer are failing to meet today's designs.

To address today's Thermal Management requirements, Panasonic has developed an advanced heat spreading material called Pyrolytic Graphite Sheet or PGS. Designed for thermal management/heat-sinking in limited spaces or to provide supplemental heat-sinking in addition to conventional means, PGS is the ultimate extreme Thermal Management Solution!

1-800-344-2112
na.industrial.panasonic.com/PGS