

Thermal Management Catalog

P-THERM® Thermal Interface Materials

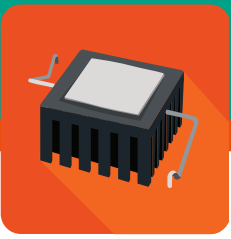
Polymer Science, Inc. offers a complete thermal management product line. Our P-THERM® Thermal Interface Materials are designed to efficiently and effectively aid in the conduction of heat to meet the growing thermal management requirements of today's advanced electronic designs.

P-THERM® Advantages

- Improved Material Yield
- Consistent High Quality
- Strong Technical Support
- Custom Web Coating
 - Thickness
 - Width
 - Color

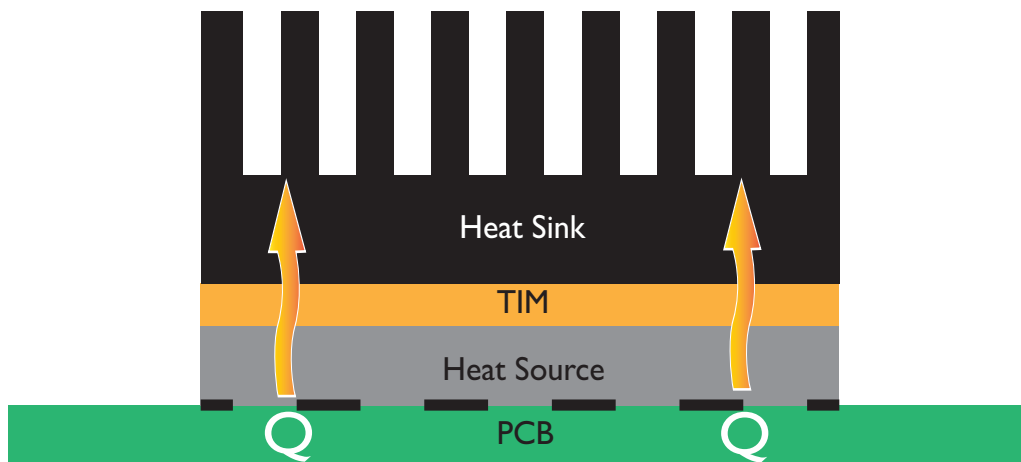
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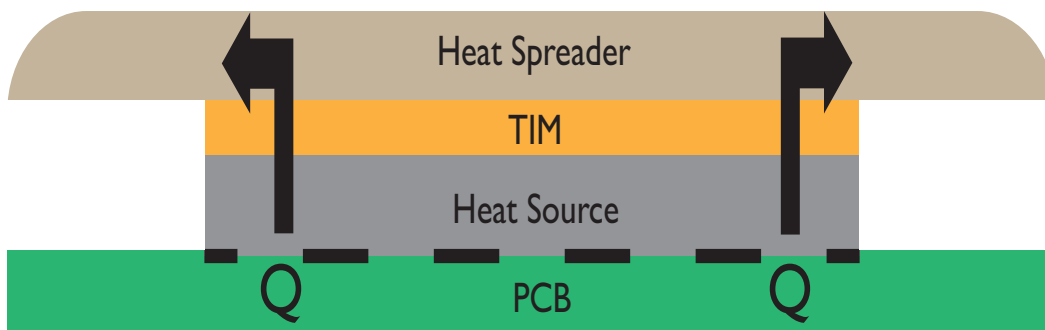


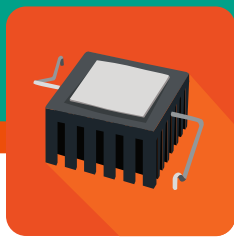
Conductive Heat Flow

Unidirectional into a Heat Sink



Bi-Directional Heat Spreader



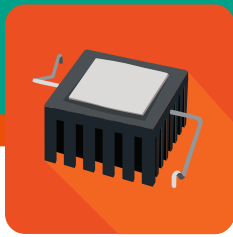


P-THERM® Gap Fillers - Pad Products

Polymer Science offers a variety of thermally conductive gap filler materials in many formats including silicone, non-silicone, pads, putty and dispensable. P-THERM® Gap Filler materials offer a range of thermal conductivities, hardnesses and thicknesses.

Material Number & Description	Color	Thermal Conductivity	Durometer (Shore 00)	Thickness Range (Typical)	Flammability Rating
PS-1511 hyper-soft silicone based gap filler	Gray	1.0 W/m K	<5	0.25mm - 5.0mm	V-0
PS-1513 hyper-soft silicone based gap filler	Green	3.0 W/m K	20	0.25mm - 5.0mm	V-0
PS-1514 hyper-soft silicone based gap filler	Orange	4.0 W/m K	30	0.25mm - 5.0mm	V-0*
PS-1515 hyper-soft silicone based gap filler	Gold	5.0 W/m K	40	0.25mm - 5.0mm	V-0
PS-1520 aluminum foil with naturally tacky non-silicone coating	White	1.0 W/m K	N/A	0.10mm - 0.25mm	N/A
PS-1533 ultra-soft silicone based gap filler with polyimide carrier	Green	3.0 W/m K	35	0.25mm - 5.0mm	V-0*
PS-1541 ultra-soft silicone based gap filler	Gray	1.0 W/m K	5	0.25mm - 5.0mm	V-0
PS-1542 ultra-soft silicone based gap filler	Blue	2.0 W/m K	35	0.5mm - 5.0mm	V-0
PS-1543 ultra-soft silicone based gap filler	Green	3.0 W/m K	35	0.25mm - 5.0mm	V-0
PS-1545 ultra-soft silicone based gap filler	Gold	5.0 W/m K	45	0.25mm - 5.0mm	V-0
PS-1561 silicone based gap filler	Gray	1.0 W/m K	30	0.25mm - 5.0mm	V-0
PS-1562 silicone based gap filler	Blue	2.0 W/m K	70	0.5mm - 5.0mm	V-0
PS-1563 silicone based gap filler	Green	3.0 W/m K	45	0.5mm - 5.0mm	V-0

*V-0 based on internal test methods

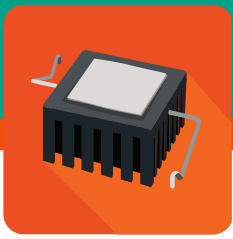


P-THERM® Gap Fillers - Pad Products

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Material Number & Description	Color	Thermal Conductivity	Durometer (Shore 00)	Thickness Range (Typical)	Flammability Rating
PS-1565 silicone gap filler	Gold	5.0 W/m K	50	0.5mm - 5.0mm	V-0*
PS-1581 non-silicone gap filler	Tan	1.0 W/m K	45	0.25mm - 2.0mm	V-0
PS-1582 non-silicone gap filler	Tan	2.0 W/m K	80	0.25mm - 2.0mm	V-0

*V-0 based on internal test methods

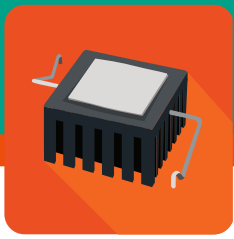


P-THERM® Gap Fillers - Dispensable Products

Our line of P-THERM® Gap Filler materials have been designed to achieve minimal bond lines and thermal resistance between electrical components to enhance performance and improve the usable life.

Material Number & Description	Color	Thermal Conductivity	Durometer (Shore 00)	Viscosity (as mixed)	Flammability Rating
PS-1911 non-silicone calendared putty gap filler	White with Black Specks	2.85 W/m K	20	N/A	V-0*
PS-1913 non-silicone putty gap filler	White with Black Specks	2.9 W/m K	20	N/A	V-0*
PS-1931 2-part dispensable silicone gap filler	Gray	1.0 W/m K	5	64000 cP	V-0*
PS-1933 2-part dispensable silicone gap filler	Green	3.0 W/m K	35	230000 cP	V-0*
PS-1935 2-part dispensable silicone gap filler	Gold	5.0 W/m K	45	230000 cP	V-0*
PS-1983 2-part HV dispensable silicone gap filler	Green	3.0 W/m K	35	230000 cP	V-0*

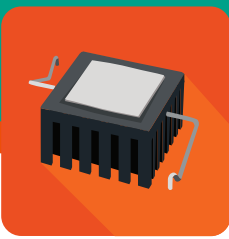
*V-0 based on internal test methods



P-THERM® Phase Change

P-THERM® thermally conductive Phase Change Materials perform like thermal grease with the convenience of a thermal pad. At 55°C materials begin to soften and flow, filling in irregular areas of the thermal interface surfaces reducing the natural thermal resistance. They are made of a non-silicone polymer blend. The material is tacky, making it easy to convert and place into the electrical assembly.

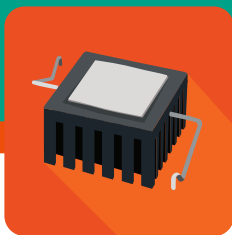
Material Number & Description	Color	Thermal Conductivity	Phase Change Temperature	Thickness Range
PS-1595 tacky phase change	Yellow	4.0 W/m K	55 C	0.1mm - 0.5mm
PS-1596 tacky phase change on PI carrier	Yellow	4.0 W/m K	55 C	0.1mm - 0.5mm



P-THERM® Heat Spreaders

Proper heat dissipation is critical in today's compact electronic devices. P-THERM® Heat Spreaders allow for quick dissipation of heat in the x-y direction. Thermally conductive Acrylic PSA secures the thin conductive heat spreader material to the heat source for efficient heat dissipation.

Material Number & Description	Color	Thermal Conductivity (x-y axis)	Support Substrate	Thickness	Adhesive Peel Strength (to SUS)
PS-1685 copper foil with conductive acrylic PSA	Polished Copper	>200 W/m K	Copper Foil	0.015mm	>800 g/25mm
PS-1686 copper foil with conductive acrylic PSA	Polished Copper	>200 W/m K	Copper Foil	0.025mm	>1000 g/25mm
PS-1688 aluminum foil with conductive acrylic PSA	Gray	7 W/m K	Aluminum Foil	0.045mm	>1000 g/25mm
PS-1689 copper foil with soft conductive acrylic PSA with conductive acrylic PSA	Polished Copper	>100 W/m K	Copper Foil	0.045mm	>1000 g/25mm
PS-1692 copper heat spreader with conductive acrylic PSA	Copper	100 W/m K	Copper Foil	0.06mm	800 g/25mm
PS-1693 aluminum heat spreader with conductive acrylic PSA	Silver	100 W/m K	Aluminum Foil/ Polyester	0.15mm	1000 g/25mm
PS-1696 copper foil with conductive PSA	Copper	140 W/m K	Rolled Copper	0.047mm	>1500 g/25mm
PS-1698 copper foil with conductive adhesive	Gray with Copper Core	184 W/m K	Copper Foil	0.055mm	>500 g/25mm (Electrically Conductive Adhesive) >300 g/25mm (Thermally Conductive Adhesive)
PS-1991 graphite film over polyester carrier layer	Dark Gray	>1200 W/m K	Polyester	0.04mm	N/A
PS-1993 graphite film over polyester carrier layer	Dark Gray	>1400 W/m K	Polyester	0.032mm	N/A
PS-1994 graphite film over polyester carrier layer	Dark Gray	>1500 W/m K	Polyester	0.017mm	N/A

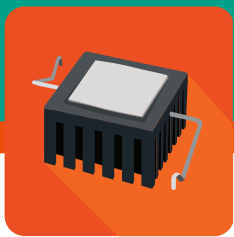


P-THERM® Pressure Sensitive Adhesives

All P-THERM® tapes and adhesives offer reliable adhesion and conductive properties at continuous high temperatures. Transfer adhesives, double and single-faced tapes are available.

Material Number & Description	Color	Thermal Conductivity	Adhesive Peel Strength (to SUS)	Total Thickness	Flammability Rating
PS-0266 thermally conductive PSA	White	0.55 W/m K	2270 g/25mm	0.05mm	V-0*
PS-1651 thermally conductive PSA coated to aluminum	White	0.55 W/m K	2270 g/25mm	0.15mm	V-0*
PS-1652 thermally conductive PSA coated to fiberglass	White	0.55 W/m K	2270 g/25mm	0.25mm	V-0*
PS-1656 double coated thermally conductive acrylic adhesive	White	0.8 W/m K	1850 g/25mm	0.13mm	V-0*
PS-1659 double coated thermally conductive acrylic adhesive on fiberglass	White	≥0.8 W/m K	≥1200 g/25mm	0.25mm	V-0*

*V-0 based on internal test methods



P-THERM® Dielectric Pads

P-THERM® ECIs offer good dielectric and thermally conductive properties without the worry of flow or mess associated with thermal grease. The natural tack of the materials mitigate movement during assembly.

Material Number & Description	Color	Thermal Conductivity	Dielectric Breakdown Strength	Thickness Range (Typical)	Flammability Rating
PS-1522 non-silicone dielectric pad coated onto PET	White	0.4 W/m K	>5000 Vac	0.1 mm - 0.25mm	V-0
PS-1523 thermally conductive PSA coated to polyimide film	Gold	0.75 W/m K	>5000 Vac	0.1 mm - 0.25mm	V-0
PS-1524 thermally conductive PSA coated to fiberglass	White	0.7 W/m K	>5000 Vac	0.25mm	V-0



Our Innovation. *Your Edge.*

Other Product Material Offerings

Polymer Science offers the following range of products under its brands:



P-DERM®

- Silicone Gel Adhesives
- Hydrogels
- Acrylics
- Hydrocolloids
- Hydrophilic Coatings
- Urethanes



P-SHIELD®

- Fabrics
- Foam Multi-laminates
- Foils
- Films
- Tapes and Adhesives



General Industrial

- Release Liners
- Films
- Transfer Adhesives
- Double and Single Coated PSA's

Company Overview

Polymer Science has been coating materials since 1998 serving the medical device and electronic industries worldwide. Our strengths include high quality products, strong technical support and commitment to our customers. Suzhou Polymer Science was formed in 2012 to satisfy the growing need for our support and quality in our Asian markets. Polymer Science expanded once again in 2014 when our Polymer Science Europe office opened in Bremen, Germany to better serve our European markets. Our diverse team of engineers and technical staff, along with our state of the art equipment, provide the capabilities necessary to develop a quality custom adhesive or coated material consistent with application requirements from anywhere in the world.

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SCIENCE, INC.

*Specific tests should be performed by the end user on materials listed in this catalog in order to determine the product suitability for the particular application.
Document Revision: 091817*