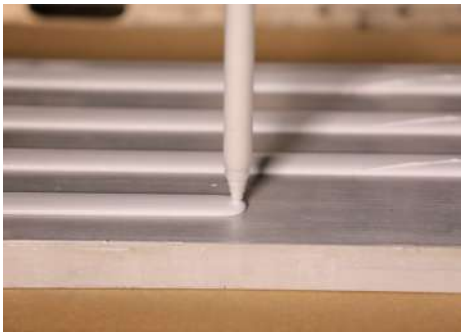
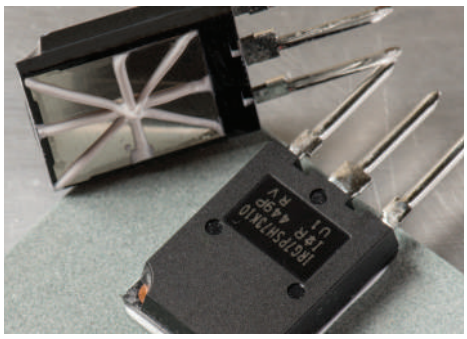
CoolTherm® Materials

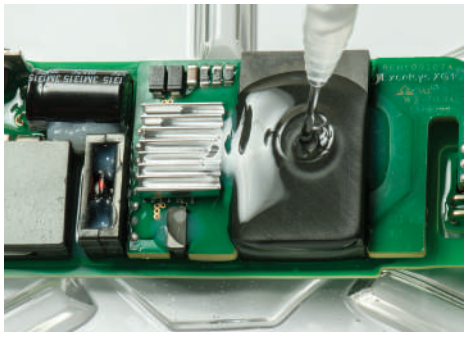
Power Electronics Application

Protect components and improve stability - In order to extend the life of your power electronics, you need to maintain low thermal resistance and protect components from shock, moisture and debris. CoolTherm® low viscosity, highly thermally conductive pottants provide a robust thermal interface, as well as protect delicate electrical components. Additionally, we offer a variety of other thermal interface materials that will not only improve heat flow but also provide excellent isolation and vibration damping.

Our dedicated technical service staff will work with you on a customized solution and can help select the correct material for your application that aligns with your cost targets and process for improving performance.







Top: Gap Filler (Left), Adhesive (Right)
Bottom: Encapsulants (Left), Gel (Right)

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For a listing of our worldwide locations, visit LORD.com

Gap Fillers:

Get the best performance out of your batteries by filling in surface imperfections with a thermally conductive gap filler. They are a stay-in-place solution and cure as a gel, easing the stresses caused by thermal differences and flex.

- **Low Outgas Options:** We offer low ppm siloxane solutions for sensitive electronic applications.
- **Protect Against Shock:** Our gap fillers remain tacky and soft to dampen vibration.

Adhesives:

Formulated for standard MMD equipment, our adhesives provide your application with structural integrity. Our thermally conductive adhesives not only provide mechanical rigidity but also a thermal connection where heat is a problem.

- **Improve Design Flexibility:** No longer constrained by mechanical fixtures and given the ability to bond a wide variety of substrates, you are free to discover the possibilities.
- **Reduce Complexity:** Reduce the need for fasteners, thereby simplifying your battery pack design.

Parker LORD

ENGINEERING YOUR SUCCESS.

Encapsulants:

Thermally connect your cells to the heat sink by encapsulating the entire pack and minimize design gaps by taking advantage of high dielectric strength.

- **Improve Performance:** Our encapsulants facilitate optimum heat transfer because of their high thermal conductivity and low viscosity.
- **Protect Electronics:** Potting and encapsulants provide protection from dust and moisture and can reduce vibration.
- **Reduce Component Stress:** Parker LORD encapsulants exhibit low shrinkage upon curing.

Gels & Greases:

Our experts understand that different applications require different solutions. We offer a broad portfolio of gels and greases to meet your unique specifications.

- **Resist Pump-Out:** Parker LORD gels enhance stable thermal performance by resisting pump-out.
- **Protect Against Shock:** Our thermal interface materials provide excellent isolation and vibration dampening.

GAP FILLERS

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	SHORE HARDNESS (OO)	DENSITY (g/cm³)
CoolTherm® SC-1200	Silicone	2.0	80	2.9
CoolTherm SC-3500	Silicone	3.5	80	3.3
CoolTherm SC-1600	Silicone	3.7	85	3.3
CoolTherm UR-2002	Urethane	2.0	75	2.7
CoolTherm UR-2000	Urethane	2.0	D55	2.6

- **Two-Component**
- **Low Outgas Options**
- **Room Temperature and Heat Curing**
- **Electrically Isolative**
- **1:1 Mix Ratio**

ADHESIVES

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	LAP SHEAR STRENGTH (MPa)
CoolTherm TC-2002	Acrylic	1.0	15.8
CoolTherm MT-322	Silicone	1.7	2.1
CoolTherm MT-125	Epoxy	2.4	20.7
CoolTherm MT-220	Epoxidized Silicone	4.2	6.2
CoolTherm MD-140 SP	Epoxy	12.0	48.3

- **Bond a Wide Variety of Substrates**
- **Room Temperature Curing**
- **Variable Cure Speeds**
- **Electrically Isolating and Conductive Options**

ENCAPSULANTS

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	VISCOSITY (cP @25°C)	DENSITY (g/cm³)
CoolTherm SC-305	Silicone	0.7	4,000	1.5
CoolTherm SC-309	Silicone	1.0	3,600	1.7
CoolTherm SC-315	Silicone	1.5	4,000	2.6
CoolTherm SC-252	Silicone	2.5	18,000	2.9
CoolTherm SC-320	Silicone	3.2	22,000	3.1
CoolTherm SC-324	Silicone	4.0	30,000	3.2

- **Two-Component**
- **Room Temperature and Heat Curing**
- **Electrically Isolative**
- **1:1 Mix Ratio**

GELS & GREASES

PRODUCT	CHEMISTRY	THERMAL CONDUCTIVITY (W/m·K)	VISCOSITY (cP @25°C)
CoolTherm SC-6754	Silicone (grease)	0.5	500,000
CoolTherm SG-21	Silicone (grease)	0.8	1,800,000
CoolTherm TC-404	Silicone (grease)	4.3	141,800
CoolTherm MG-121	Silicone (gel)	2.3	75,000
CoolTherm MG-133	Silicone (gel)	3.6	105,900

- **One-Component**
- **Low Thermal Resistance Properties**
- **Reworkable**