



Electronic Materials for LED Applications

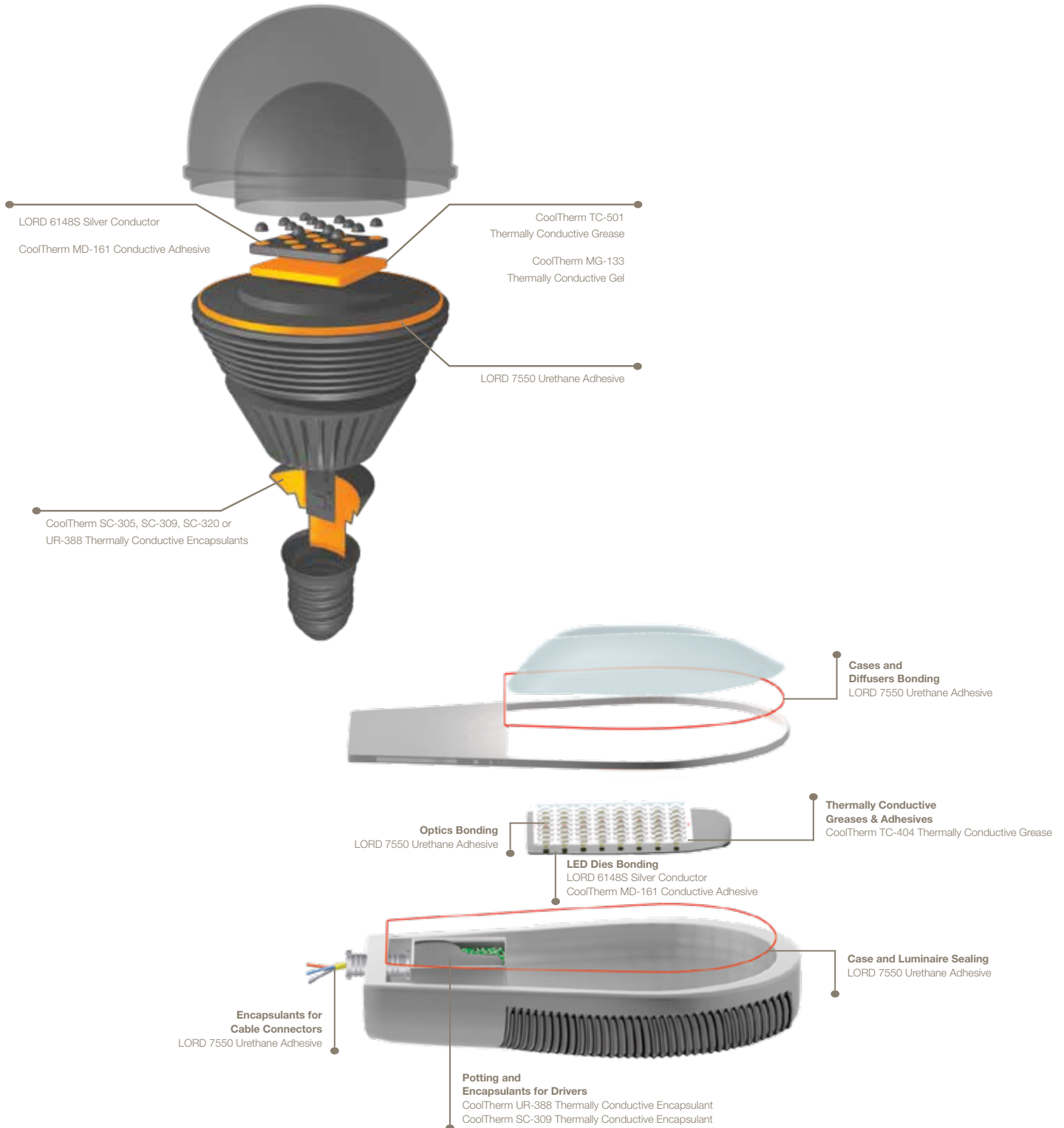
Selector Guide



ENGINEERING YOUR SUCCESS.

Parker LORD specializes in developing world-class adhesives and thermal management materials including gels, greases and encapsulants for demanding LED applications. Our experience in electronic materials spans more than 40 years. We incorporate this vast experience in developing solutions for new applications to help ensure our customers' success.

Typical Applications



Adhesives

Parker LORD adhesives have been specified for challenging LED applications requiring superior strength over a wide range of temperatures. Our technology allows us to achieve superior performance at competitive costs by minimizing the amount of costly raw material components.

| PRODUCT | CoolTherm® MD-140 SP | CoolTherm MD-161 | CoolTherm MT-125 | CoolTherm EP-6150 |
|-----------------------------|--|------------------|---------------------------------|----------------------------------|
| CHEMISTRY | Epoxy | Epoxy | Epoxy | Epoxy |
| VISCOSITY, cP @ 25°C | 40,000 | 40,000 | 100,000 | 145,000 |
| THERMAL CONDUCTIVITY, W/m-K | 12 | 1.9 | 2.35 | 0.6 |
| FILLER TYPE | Metal | Metal | Metal | Mineral |
| SHELF LIFE, months | 6 @ -40°C | 6 @ -30°C | 6 @ -30°C | 3 @ 5°C |
| WORKING LIFE @ 25°C | 3 days | 5 days | 2 weeks | 1 month |
| CURE SCHEDULE | 5-10 min @ 120°C 3-5 min @ 150°C 1-3 min @ 180°C | 60 min @ 150°C | 30 min @ 100°C 8 min @ 150°C | 30 min @ 121°C 10 min @ 177°C |

Data is typical and not to be used for specification purposes.

| PRODUCT | Thermoset™ EP-937 | Thermoset ME-456 | LORD® 6148S | LORD 7550 |
|-----------------------------|--|------------------|----------------|--------------|
| CHEMISTRY | Epoxy | Epoxy | Epoxy | Urethane |
| VISCOSITY, cP @ 25°C | 47,900 | 1,200,000 | 10,000 | 6,000 |
| THERMAL CONDUCTIVITY, W/m-K | 0.4 | 0.6 | 7.5 | 0.2 |
| FILLER TYPE | Mineral | Mineral | Metal | — |
| SHELF LIFE, months | 6 @ 0-5°C | 6 @ -40°C | 3 @ -20°C | 6 @ 21-27°C |
| WORKING LIFE @ 25°C | 1 month | 36 hr | 8 hr | 3-5 min |
| CURE SCHEDULE | 60-80 min @ 100°C 18-28 min @ 120°C 12 min @ 135°C 6-12 min @ 150°C | 30 min @ 150°C | 15 min @ 125°C | 72 hr @ 25°C |

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Thermal Management Materials

Parker LORD thermally conductive materials are easily applied and have high thermal conductivity/low thermal resistance to improve device reliability.

| PRODUCT | GELS | | GREASES | | ENCAPSULANTS | | | |
|-----------------------------|--|----------------------------------|------------------|------------------|--|--|--|--|
| | CoolTherm MG-121 | CoolTherm MG-133 | CoolTherm TC-404 | CoolTherm TC-501 | CoolTherm SC-305 | CoolTherm SC-309 | CoolTherm SC-320 | CoolTherm UR-388 |
| CHEMISTRY | Silicone | Silicone | Silicone | Silicone | Silicone | Silicone | Silicone | Urethane |
| UL APPROVED | UL 94 V-0 | — | — | — | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 | UL 94 V-0 |
| VISCOSITY, cP @ 25°C | 60,500 | 105,900 | 141,800 | 128,400 | 3,500 (resin) 4,000 (hardener) 4,000 (mixed) | 3,500 (resin) 3,500 (hardener) 3,500 (mixed) | 25,000 (resin) 20,000 hardener) 22,000 (mixed) | 15,000 (resin) 70 (hardener) 6,000 (mixed) |
| THERMAL CONDUCTIVITY, W/m-K | 2.3 | 3.6 | 4.3 | 3.6 | 0.7 | 1.0 | 3.2 | 0.7 |
| SHELF LIFE, months | 6 @ -30°C | 6 @ -30°C | 6 @ -30°C | 6 @ -30°C | 9 @ 25°C | 6 @ 25°C | 9 @ 25°C | 6 @ 25°C |
| WORKING LIFE @ 25°C | 8 hr | 8 hr | N/A | N/A | 60 min | 30 min | 40 min | 30 min |
| CURE SCHEDULE | 2 hr @ 100°C 60 min @ 125°C 30 min @ 150°C | 60 min @ 100°C 30 min @ 120°C | N/A | N/A | 24 hr @ 25°C 30 min @ 60°C 10 min @ 100°C | 24 hr @ 25°C 15 min @ 100°C 10 min @ 120°C | 24 hr @ 25°C 60 min @ 125°C | 24 hr @ 25°C 6 hr @ 60°C |

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Parker LORD
Engineered Materials Group
111 LORD Drive
Cary, NC 27511-7923
USA

phone +1 877 ASK LORD (275 5673)

www.lord.com

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