

# Take the heat off.

Solutions to help keep  
your devices performing  
at their best.

3M™ Thermal Management Materials



# Helping you design tomorrow's breakthroughs.

**Protect your brand reputation for reliability and performance – with the complete portfolio of 3M™ Thermal Management Materials**

Faster, smaller computers and mobile devices that put the world at users' fingertips and in their pockets. Advanced LED lights that use less energy while making displays brighter than ever. Next-generation batteries that power the electric car revolution. What do all these advances have in common? None of them would be possible without effective technologies for managing heat.

Heat is an unavoidable byproduct of electronic device operation, but it can degrade performance and even damage components if allowed to build unchecked. To help your designs keep their cool, we've developed a full portfolio of thermal management materials with proven ability to absorb and redirect heat away from critical parts.

Our solutions include thermally conductive tapes, interface pads, epoxies, greases and more. All are based on decades of pioneering research and experience in thermal management technologies for consumer, medical, industrial and military electronics. And no matter your application, our experts are ready to help you solve your toughest thermal management challenges, with comprehensive support and time-tested knowledge.



## **Thermal management for a connected world.**

No matter your industry, 3M thermal management materials can help you design devices that run cooler and more reliably. Their excellent thermal conductivity, high dielectric strength and conformability make them ideal for applications in:

- Computers
- Tablets and mobile devices
- Wearable devices
- IC packages
- Power transistors
- LED lighting and displays
- Automotive batteries

# Light weight, high efficiency solutions for speeding assembly, improving device reliability and extending component life.

With their smart mix of properties including excellent thermal and electrical performance, versatility and cost effectiveness, 3M™ Thermal Management Materials can help you meet your toughest design challenges.

## ► 3M™ Thermally Conductive Interface Tapes

A full range of thin, highly conformable thermal interface and heat spreading tapes with high adhesion and excellent thermal conductivity. They apply quickly and easily, and their good dielectric strength make them appropriate for a wide variety of applications including bonding heat sinks, heat spreaders and other cooling devices to IC packages, power transistors and other heat generating components.



## ► 3M™ Thermally Conductive Interface Pads

Soft, conformable thermal interface pads with high thermal conductivity and dielectric strength. They can be die cut to fit individual applications, making them ideal for use in LEDs, automotive batteries, notebook thermal modules and more. All pads are UL listed and available in both silicone and acrylic varieties.



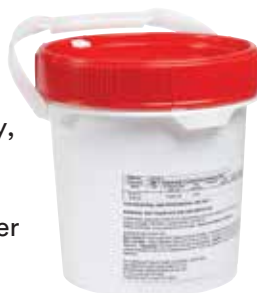
## ► 3M™ Thermally Conductive Epoxies

These low odor liquid adhesives offer robust strength plus an ultra-thin bond line for low thermal impedance even in tight micro-spaces. They dispense easily for efficiency in both high output, in-line automated manufacturing and manual application processes.



## ► 3M™ Thermally Conductive Greases

A range of high-performance thermal greases that are designed to provide efficient and cost-effective transfer of thermal energy from heat source to heat sink. Based on proprietary 3M technology, both standard and low viscosity products are available to meet device needs for processor chips, graphic chips, high power LEDs and more.



3M thermal management materials are designed to solve a wide range of heat-related challenges, efficiently and economically:

| Engineered for:                                                                                                     | To give you:                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Thermal conductivity</b><br>  | Effective transfer of heat from components to cooling devices and systems                                                        |
| <b>Conformability</b><br>        | The flexibility to place materials with precision and channel heat even in tight spaces                                          |
| <b>Dielectric strength</b><br> | Peace of mind that your materials will perform as intended without electrical interference or breakdown in insulating properties |
| <b>Versatility</b><br>         | The ability to find the right solution for your specific application                                                             |
| <b>Efficiency</b><br>          | Helps in effective control of heat without adding bulk to your designs or complexity to your manufacturing processes             |
| <b>Cost effectiveness</b><br>  | More performance from less materials for a longer-lasting budget                                                                 |



## Let's get started – together

Not sure which thermal management solution is right for your particular application? Our team of experienced professionals will help you work through the nuances of selecting materials that can keep your devices cooler and performing at their full potential. For applications with a high degree of complexity and individualized needs, we offer these materials in custom shapes, sizes and quantities. For more information, refer to our Production Selection Guides and Technical Data Sheets, available on our website.

Visit **3M.com/Electronics** to learn more and get started today.

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### Electronics Materials Solutions Division

3M Center, Building 224-3N-11  
St. Paul, MN 55144-1000 USA

Phone 1-800-810-8513  
Web [www.3M.com/Electronics](http://www.3M.com/Electronics)

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Issued: 5/17 12473HB  
78-9236-7060-4

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