

# New Options to Keep Cool in Hot Situations

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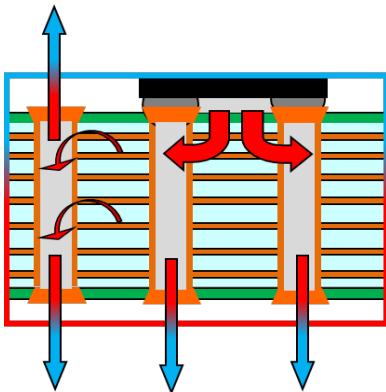
With these new advancements, comes increased heat associated with miniaturization, increased layer counts, higher power requirements and greater data transfer demands. As you can imagine, the methods required for thermal management become more complex and challenging. 5G and IoT is increasing the rate of these changes and the number of interconnected devices is expected to triple in the next 5 years.



New advances in dielectric technologies at Taiyo America have led to the introduction of our new Thermo Cool Series of thermal management dielectric materials. Thermo Cool technology will offer designers new options for dealing with the heat.

Thermo Cool inks and pastes are dielectric materials which are 50 times more thermally conductive than regular solder mask (10.2W/mK). They will change the way designers manage heat control and solve many heat dissipation issues in applications from IC Chip Packaging to LED Lighting by reducing or eliminating the bulky heatsinks which, to date, are necessary to control heat buildup.

We are also introducing a non-conductive via fill version which has better thermal conductivity than even silver hole fill.



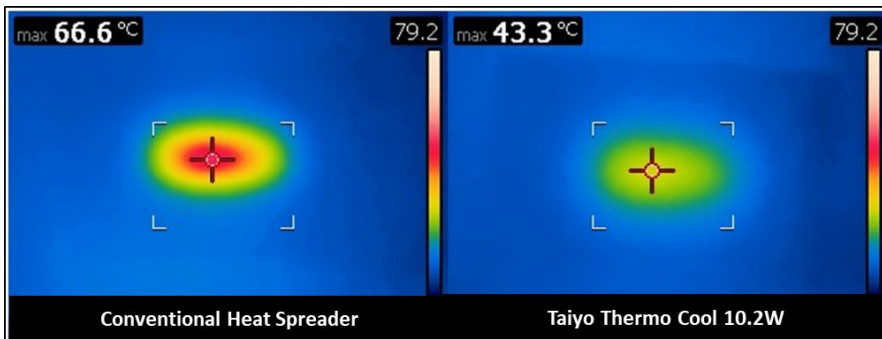
## Via Fill Application

- 100% solids
- Very low shrinkage
- Excellent adhesion to copper
- Plateable
- High Tg
- Low CTE

be significant. In the example below, under identical loads, the thermal signature of a component in use can be improved dramatically. With such a dramatic reduction in heat, components don't just run cooler, they require less heat sinks and other external cooling, which results in space savings and increased efficiencies.

Besides outstanding thermal conductivity, the single component, thermally cured Thermo Cool dielectric and Via fill materials have other excellent performance properties including a very low CTE of 14/45 ppm, very high Tg of 169°C and even low Outgassing. They are also Halogen and Silicone Free.

With the use of Thermo Cool, the improvements in thermal management can



Thermo Cool dielectrics can be used as solder masks over the entire PWB or applied to just specific locations of the panel (under specific components), as a component adhesive or as a non-conductive via fill which can be plated over, resulting in many thermal management options.

So, designers, the next time you have problems keeping your cool, remember

Thermo Cool may be the solution you have been looking for.