

Techsil's Thermally Conductive Adhesives Defeat the Heat in LED Lighting Application

Effective control of heat is an increasing concern among today's electronic device manufacturers and, as products become more compact, the need to dissipate damaging heat effectively is greater than ever. To address the thermal demands of today's electronic devices, Techsil provides a complete portfolio of high-performance, user-friendly materials to suit a variety of current and future heat control needs. In this case study Techsil provided this LED Luminaire Manufacturer with two thermal interface materials that improved the assembly process and heat dissipation within their LED lighting units.

Our Customer

LED Luminaire Manufacturer

Techsil Products Used

RTV1084G Thermally Conductive Adhesive

And

G641 Heat Transfer Compound

Customer Benefits

- Improved productivity and accuracy
- Improved heat dissipation
- Prolonged life of LEDs
- Improved efficiency of LED unit



Our client is a UK based energy efficient lighting company with over 30 years of experience within the lighting industry. They supply the architectural, entertainment, industrial, office and healthcare sectors with industrial LED lighting solutions.

Application

Our customer was looking for an adhesive to use in the manufacture of their LED luminaires that not only provide a good strong bond, but also help dissipate heat away from sensitive electronics. In addition there was a requirement for a heat transfer compound to dissipate heat away from the LED boards to the heat sink.

Solution 1 – Thermally Conductive Adhesive

RTV1084G was recommended, this is a ready-to-use one-part grey silicone rubber adhesive. It is fast skinning and cures to a 67 Shore A tough rubber with low linear shrinkage. It exhibits excellent primerless adhesion to many substrates.

The RTV1084G was used to attach LEDs to the board which are hand placed. The adhesive holds the LEDs securely in place which allows them to be soldered with ease. The silicon has a thermal conductivity of 2.3 W/mK so therefore also acts as a conductor between the LEDs and the circuit board. The adhesive is mainly

used in the production the smaller light fittings in this customer's range.

Solution 2 – Heat Transfer Grease

The second product selected was the G641 Heat Sink Compound from Techsil. G641 is a white, thermally conductive grease with high dielectric constant and dissipation factor. G641 exhibits excellent long-term storage stability without the oil separation common to other greases on the market.

The heat sink compound is applied between the LED board and the heat sink material for the purpose of dissipating any excess heat generated by the diodes away from the LED board, towards the heat sink. This ensures that the LEDs do not overheat thus prolonging life and maintaining efficiency. Our customers use this compound right across their range in the manufacture of their LED products in their small and large light units.

Conclusion

Implementing these thermal interface products in the manufacturing process improved productivity and accuracy on the production line. They improved the heat dissipation which in turn increased the efficiency of the LED units and prolonged their life.

Contact us for more information on our thermally conductive adhesives and sealants range:

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