

TH855 Product Release

Penchem Introduces an **Ultra-Low Volatile Thermal Putty** for Power Semiconductors, Electronics Telecommunication Applications.

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Penchem TH855 series is a thermally conductive and electrically insulating at the same time thermal putty. The silicone resin-based putty was developed especially for dissipating heat for microelectronic components.



Penchem has developed a new electronic thermal putty that is both thermally conductive and electrically insulating and shows good thermal conductivity and ultra-low bleeding, even after standardized reliability test like humidity tests, thermal stress and aging. Penchem TH855 series ensures fast heat transfer and long-term reliable operation of semiconductors in power electronics.

A common reason for the failure of power semiconductors is the heat development in the often very small components, as there is usually no efficient heat dissipation. TH855 series not only ensure low pump out, ultra-low outgassing but also dissipate heat and provide electrical insulation.

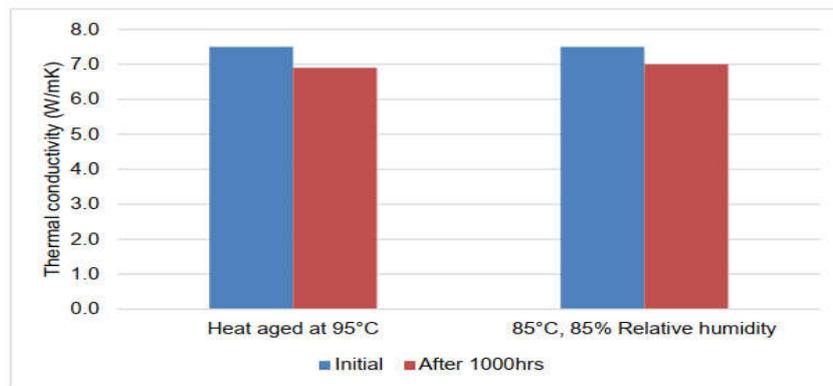
The new TH855 series from Penchem is a one-component, partially cured silicone resin. Due to its ceramic filler aluminum oxide it provides very high thermal conductivity of 7 to 8 W/mK (measured by the criteria of ASTM D5470). This is even higher than some silver-filled isotropic conductive adhesives (ICA), which have a thermal conductivity of 2 W/mK.

One advantage of Penchem TH855 series over ICA or silver filled TIM is that it also provides electrical insulation. The putty thus ensures both reliable heat dissipation and electrical insulation of assemblies. Using the new putty additionally allows proportionate component costs to be reduced. This putty has helped several

customers automated their manufacturing lines with Artificial Intelligent Robotic Dispensing which materialized the industrial 4.0 adoption which aims to increase the output, cost saving and minimize the resource dependency.

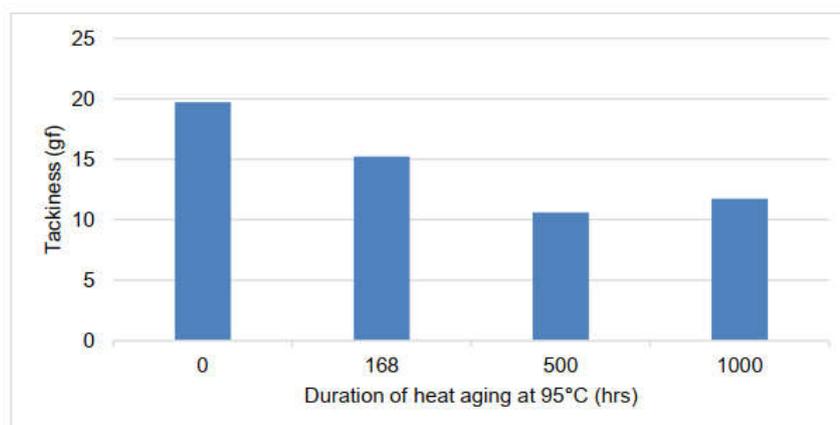
TH855 series have ultra-low bleeding properties with volatile content as low as 0.06% at 150°C and low bond line thickness (BLT) from 70 microns. Its ability to maintain consistence thermal conductivities around 7 W/mK after reliability test of thermal stress at 200°C, heat aging at 150°C and MSL 1 of 85°C/85%RH 1000hrs have enable TH855 series to be excel in long term reliability and meeting various customer requirement. The TH855 series are able to operate between temperature range of -55°C to 200°C.

Thermal Conductivity after Heat Aging (95°C) and Damp Heat Test (85°C, 85% RH) for 1000hrs



TH855 series exhibit superior heat age, damp heat performance and no dry up to 1000 hrs.

Tackiness after Heat Aging at 95°C



Test Method : 180 ° Peel Test; 0.200 +/- 0.005g;
Substrate : Kapton film (0.6cm width) to glass