

## **Thermal properties of Sn-0.7Cu/re-Al composite lead-free solder**

### **Abstract**

Composite approach in lead-free solder development was perceived as an expectation in finding new robust solder. Accordingly, Sn-0.7Cu/re-Al composite lead-free solder with varying amount of recycled-Aluminium (0, 3.0, 3.5 and 4.0 wt. % re-Al) particulates produced from aluminium beverage cans were successfully fabricated via powder metallurgy techniques in this study. This paper focuses on the thermal properties focusing on the melting temperature of the new developed Sn-0.7Cu/re-Al lead-free composite solder. The melting temperature ( $T_m$ ) of the new solders was determined using differential scanning calorimetry (DSC). The melting temperature of the composite solders has showed comparable results with the monolithic solders of Sn-0.7Cu lead-free solder.

**Keywords** — Lead-free composite solder, melting temperature, recycled-aluminium.