

4 ???· We demonstrate our paraffin-graphene composite (PGC) shows almost three-folds improvement of efficient energy density at high power density compared with commercial ...

Thermal interface materials (TIMs) with high thermal conductivity enable efficient heat dissipation from electronic devices such as integrated circuits leading to their performance and lifetime enhancement. Phase change materials (PCMs) are widely used as TIMs owing to the storage as well as release of heat during their phase change transitions. One of the widely used PCM is ...

ABSTRACT. This study proposes a novel solution for enhancement of the performance of electronic chips using a liquid channel heat sink with graphene nanoplatelets (GnP) dispersed in deionized (DI) water (H₂O). The nanofluid was prepared using a two-step method with variations made in the vol% of GnP from 0.01% to 0.1%, with the addition of ...

The study examines how the addition of graphene nanoparticles improves heat transfer capacity and extends the heat sink's working duration. The findings revealed that the ...

the anisotropy in the described laminated graphene film comes from the fact that the in-plane thermal conductivity of graphene is significantly higher than the out of plane thermal conductivity. Since the laminated graphene film is formed from layers of graphene film, the high in-plane thermal conductivity of graphene can be maintained and utilized in the heat sink by means of ...

Theoretically, thermal conductivity of graphene falls into the region of 4840-5300 W/m K based on the analysis of shift in the Raman G peak with increasing incident laser power [19], [20] ch high magnitude of GNs is much higher than that of Cu (i.e., 385 W/m K) [21] and multi-layered carbon nanotubes (i.e., 650-830 W/m K) [22].Accordingly, the GNs are ...

In this study, an attempt is made to examine the heating and cooling cycle, the time required to attain a target temperature, and the enhancement ratio of finned heat ...

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The Cu heat sink is non-porous metal foil, whereas the GN heat sink is composed of three graphene layers, which are crisscrossed together with an air pocket trapped inside. The Cu/GN heat sink consists of a number of Cu nanoparticles and three graphene layers, having a weight ratio of Cu to GN (= 10:90).

Flexible graphene composites with high thermal conductivity as efficient heat sinks in high-power LEDs, J Oliva, A I Mtz-Enriquez, A I Oliva, R Ochoa-Valiente, C R Garcia, Q Pei ... in SnO₂-graphene nanocomposites for lithium-ion battery performance RSC Adv. 4 20540-7. ... in the efficient reduction of graphene oxide and its application ...

In the present work, new hybrid passive heat sinks (HPHS) with various fin geometries, namely inclined interrupted fins, pin fins, and straight interrupted fins, have been developed by adding a phase change material (PCM) layer to passively cooled bare fin heat sinks (BFHS). The developed heat sinks have the same geometric footprint as that of ...

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