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Loh et al.

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(54) **LEADFRAME-BASED PACKAGES FOR SOLID STATE EMITTING DEVICES**

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H01L 23/495 (2006.01)

(52) **U.S. Cl.** **257/676**; 257/99; 257/E23.031

(58) **Field of Classification Search** 257/98, 257/99, 100, 676, E33.057, E33.058, E33.072, 257/E33.073, 666, 79, 684, 796, 675, 712, 257/713, 717, 720, E23.031

See application file for complete search history.

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Primary Examiner — Evan Pert

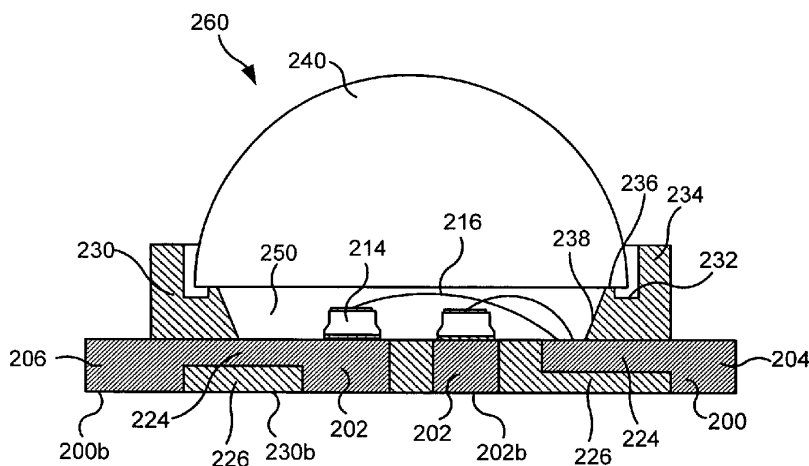
Assistant Examiner — Selim Ahmed

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(57) **ABSTRACT**

A modular package for a light emitting device includes a leadframe having a top surface and including a central region having a bottom surface and having a first thickness between the top surface of the leadframe and the bottom surface of the central region. The leadframe may further include an electrical lead extending away from the central region. The electrical lead has a bottom surface and has a second thickness from the top surface of the leadframe to the bottom surface of the electrical lead. The second thickness may be less than the first thickness. The package further includes a package body on the leadframe surrounding the central region and exposing the bottom surface of the central region. The package body may be at least partially provided beneath the bottom surface of the lead and adjacent the bottom surface of the central region. Methods of forming modular packages and leadframes are also disclosed.

16 Claims, 6 Drawing Sheets



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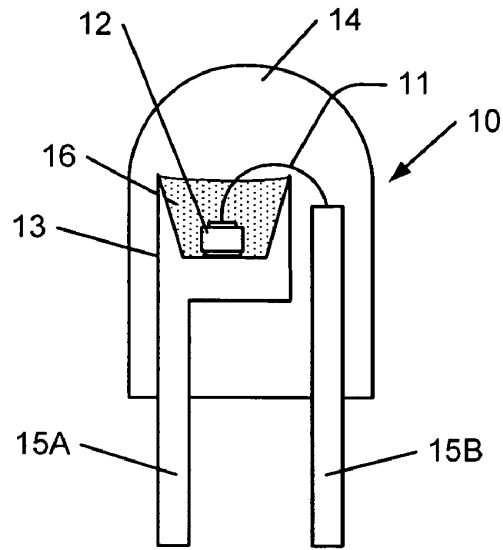


FIG. 1A
PRIOR ART

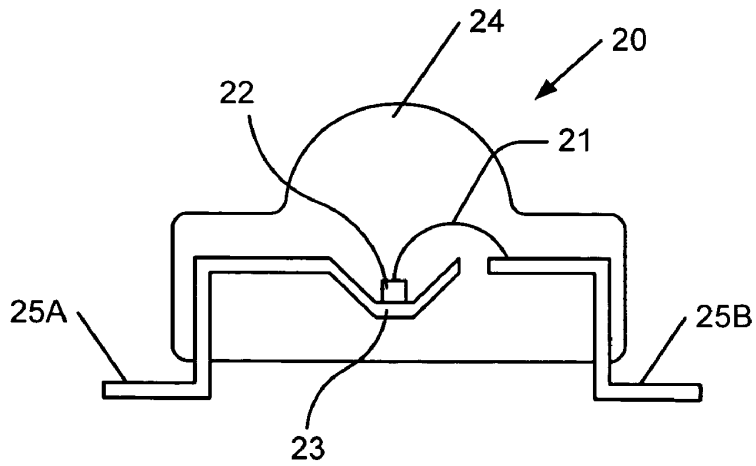


FIGURE 1B
PRIOR ART

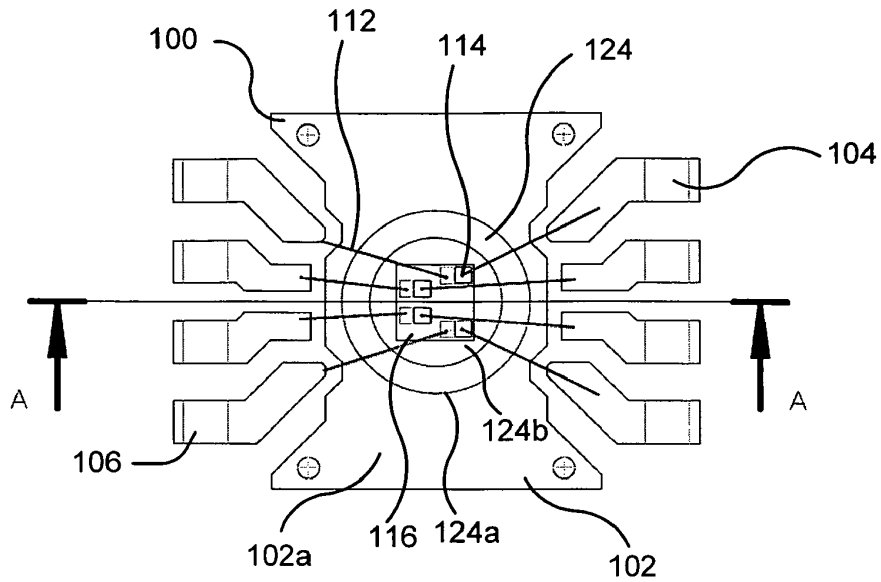


FIGURE 2A

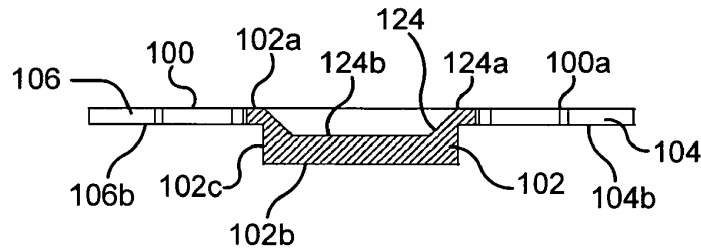


FIGURE 2B

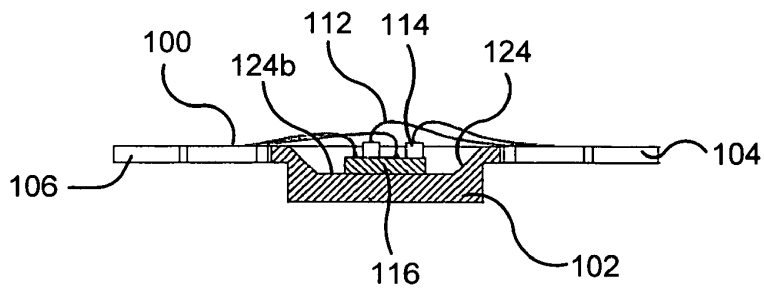


FIGURE 2C

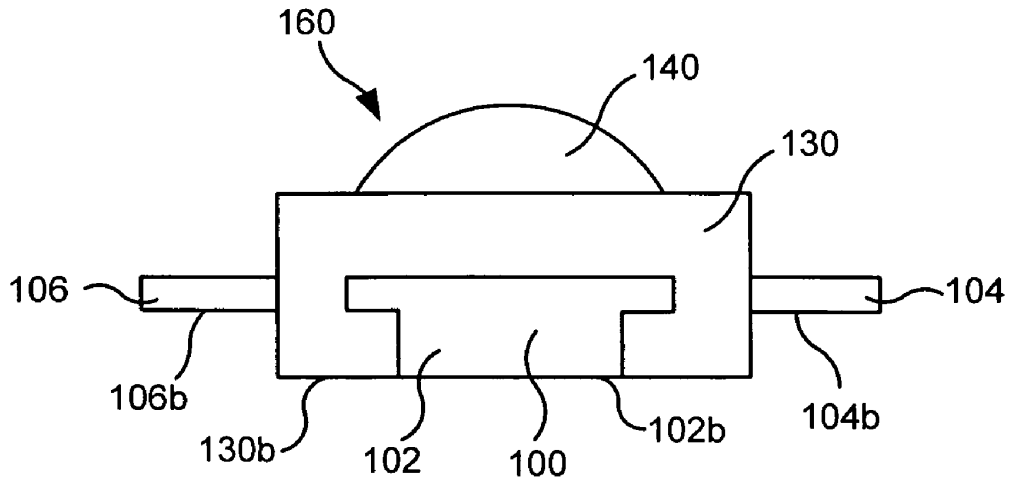


FIGURE 3A

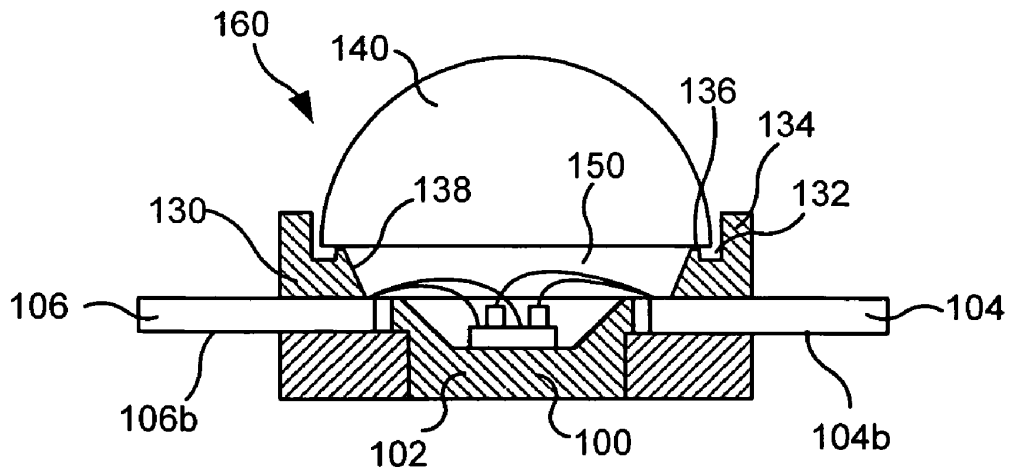


FIGURE 3B

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