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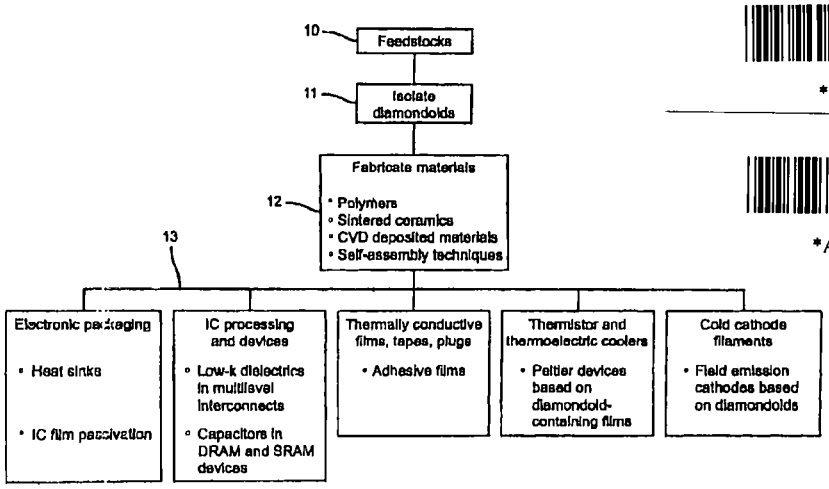
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[Continued on next page]

(54) Title: DIAMONDOID-CONTAINING MATERIALS IN MICROELECTRONICS



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ACTION

(57) Abstract: Novel uses of diamondoid-containing materials in the field of microelectronics are disclosed. Embodiments include, but are not limited to, thermally conductive films in integrated circuit packaging, low-k dielectric layers in integrated circuit multi-level interconnects, thermally conductive adhesive films, thermally conductive films in thermoelectric cooling devices, passivation films for integrated circuit devices (ICs), and field emission cathodes. The diamondoids employed in the present invention may be selected from lower diamondoids, as well as the newly provided higher diamondoids, including substituted and unsubstituted diamondoids. The higher diamondoids include tetramantane, pentamantane, hexamantane, heptamantane, octamantane, nonamantane, decamantane, and undecamantane. The diamondoid-containing material may be fabricated as a diamondoid-containing polymer, a diamondoid-containing sintered ceramic, a diamondoid ceramic composite, a CVD diamondoid film, a self-assembled diamondoid film, and a diamondoid-fullerene composite.

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