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(54) **LOW-STRESS THERMAL INTERFACE**

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(57) **ABSTRACT**

A substrate is bonded to a conductive metallic flange via a free-standing heterostructure thermal interface material that includes physically distinct volumes of different conductive materials. The heterostructure thermal interface material (a bimetallic foil, for example) is metallurgically bonded to the bottom of the substrate on one side and metallurgically bonded to the flange on an opposite side. The constituent materials forming the thermal interface material and their dimensions can be chosen to achieve a desired thermal and/or electrical conductivity while allowing the coefficient of thermal expansion (CTE) to be matched to the substrate and/or the flange.