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(54) Title: DOPED ALLOYS FOR ELECTRICAL INTERCONNECTS, METHODS OF PRODUCTION AND USES THEREOF

(57) Abstract: Solder materials and dopants described herein comprise at least one solder material, at least one phosphorus-based dopant and at least one copper-based dopant. Methods of forming doped solder materials include: a) providing at least one solder material; b) providing at least one phosphorus-based dopant; c) providing at least one copper-based dopant, and d) blending the at least one solder material, the at least one phosphorus-based dopant and the at least one copper-based dopant to form a doped solder material. Layered materials are also described herein that comprise: a) a surface or substrate; b) an electrical interconnect; c) a solder material comprising at least one phosphorus-based dopant and at least one copper-based dopant, such as those described herein, and d) a semiconductor die or package. Electronic and semiconductor components that comprise solder materials and/or layered materials described herein are also contemplated.