CLAIMS

1. A lead-free, silver-free solder alloy comprising:
   0.6 to 0.8 wt. % copper;
   1.2 to 1.8 wt. % bismuth;
   0.04 to 0.06 wt. % cobalt;
   0.02 to 0.08 wt. % antimony; and
   balance tin, together with any unavoidable impurities.

2. The lead-free, silver-free solder alloy of claim 1, further comprising 0.001 to 0.01 wt. % germanium.

3. The lead-free, silver-free solder alloy of claim 2, comprising 0.004 to 0.008 wt. % germanium.

4. The lead-free, silver-free solder alloy of claim 2, comprising 0.006 wt. % germanium.

5. The lead-free, silver-free solder alloy of claim 1, further comprising 0.01 to 0.1 wt. % nickel.

6. The lead-free, silver-free solder alloy of claim 5, comprising 0.03 to 0.07 wt. % nickel.

7. The lead-free, silver-free solder alloy of claim 5, comprising 0.05 wt. % nickel.

8. The lead-free, silver-free solder alloy of claim 1, comprising 0.7 wt. % copper.

9. The lead-free, silver-free solder alloy of claim 1, comprising 1.5 wt. % bismuth.

10. The lead-free, silver-free solder alloy of claim 1, comprising 0.05 wt. % cobalt.

11. The lead-free, silver-free solder alloy of claim 1, comprising 0.05 wt. % antimony.