

ABSTRACT

LEAD-FREE AND ANTIMONY-FREE TIN SOLDER RELIABLE AT HIGH
TEMPERATURES

- 5 A lead-free, antimony-free solder alloy comprising:
- (a) 10 wt.% or less of silver
 - (b) 10 wt.% or less of bismuth
 - (c) 3 wt.% or less of copper
 - (d) at least one of the following elements
- 10 up to 1 wt.% of nickel
up to 1 wt.% of titanium
up to 1 wt.% of cobalt
up to 3.5 wt.% of indium
up to 1 wt.% of zinc
- 15 up to 1 wt.% of arsenic
- (e) optionally one or more of the following elements 0 to 1
wt.% of manganese, 0 to 1 wt. % of chromium 0 to 1 wt.% of
germanium, 0 to 1 wt.% of iron, 0 to 1 wt.% of aluminum, 0
to 1 wt.% of phosphorus, 0 to 1 wt.% of gold, 0 to 1 wt.% of
- 20 gallium, 0 to 1 wt.% of tellurium, 0 to 1 wt.% of selenium,
0 to 1 wt.% of calcium, 0 to 1 wt.% of vanadium, 0 to 1 wt.%
of molybdenum, 0 to 1 wt.% of platinum, 0 to 1 wt.% of
magnesium, 0 to 1 wt.% of rare earths,
- (f) the balance tin, together with any unavoidable
- 25 impurities.

Fig. 1