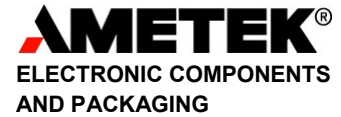




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AMETEK[®]
ELECTRONIC COMPONENTS
AND PACKAGING

Data Sheet: 99 Tin-1 Antimony

Physical Property Information:

Solder Alloy Composition	99Sn-1Sb (weight per cent)
Melting range	234°C-236°C
Density	7.28 Mg.m ⁻³
Coefficient of Thermal Expansion (CTE)	21 ppm/K
Thermal Conductivity	70 W m ⁻¹ .K ⁻¹
Electrical Resistivity	13.5 μΩ.cm
Hardness	4.0 HB

Mechanical Properties:

Young's Modulus:	50 GNm ⁻²
Yield strain:	5.5 %

Typical impurity levels for electronic grade are less then:

Pb: 0.05,	Ni: 0.01,	Al: 0.005,	Bi: 0.10,	Fe: 0.02,
Zn: 0.003,	As: 0.03,	Cd: 0.002	In: 0.05	

Application: Soldering temperature for reflow should be minimal at or above 260°C for 20 seconds. This assumes either very clean, soldering surfaces or the presence of a reducing agent or atmosphere during the soldering cycle. If and when the components are slightly oxidized, a combination with flux and higher temperatures and/or longer soldering temperatures is required. Alternatively, the alloy can be reflowed below 260°C when special conditions for substrates (i.e. Au-plating over Ni-) and longer temperatures above melting point are being met.

The alloy can be used for flux-less soldering, when the soldering substrates materials are free of oxides and/or oily residues. Common practice for flux-free soldering is: Nickel-plated substrates (1.5-2.5μm) protected with an Au-flash (0.2-0.5μm) and soldering in vacuum or inert atmosphere.

The Sb-addition suppresses the tendency of whisker formation of pure tin.

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