



15 Mercedes Drive
Montvale, NJ 07645 U.S.A.
Telephone: 201.791.4020
Fax: 201.791.1637
www.coininginc.com



AMETEK[®]
ELECTRONIC COMPONENTS
AND PACKAGING

DATA SHEET – 96.5 Tin-3 Silver-.5 Copper

Physical Properties of the Bulk Solder

Solder Alloy Composition	96.5 Sn-3 Ag-.5 Cu (weight per cent)
Solidus	217°C
Liquidus	218°C
Density	7.37 Mg m ⁻³
Hardness	15 HV
Thermal Conductivity	50 W m ⁻¹ K ⁻¹
Electrical Conductivity	13 % IACS
Electrical Resistivity	12.5 μΩ cm
Coefficient of Thermal Expansion	21.6 ppm (20°C)

Mechanical Properties: Tensile Strength (Stress, N/mm⁻²)

		<u>20°C</u>	<u>100°C</u>
Test speed	50 mm min ⁻¹	52.7	37.1
	20	57.4	33.4
	5.0	44.1	30.7
	1.0	43.1	28.2
	0.2	42.2	26.7
	0.05	36.6	24.3

Typical impurity levels for electronic grade are less than:

Au: 0.05	Pb: 0.07	Ni: 0.01	Al: 0.005	Bi: 0.10
Fe: 0.02	Zn: 0.003	As: 0.03	Cd: 0.002	In: 0.10

Application: Soldering temperature for reflow should be minimal at or above 250°C for a minimal time of 20 seconds, or at above 245°C for a minimal time of 45 seconds. This assumes either very clean soldering surfaces (e.g. Ni-plated substrate with an Au-flash) and an inert atmosphere, or the presence of a deoxidizing agent or atmosphere during the soldering cycle. If and when the substrates are slightly oxidized, a combination with higher temperatures and/or longer soldering temperatures may be required.

RoHS statement: This alloy is produced by Coining, Inc. such that it complies with the requirements of the European Parliament and Council Directive 2002/95/EC for the Restriction and use of Certain Hazardous Substances in Electrical and Electronic Equipment.

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