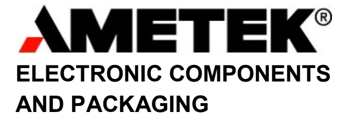

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Data Sheet: 65 Tin 35 Bismuth

Physical Properties of Bulk Solder

Solder Alloy Composition	65 Sn, 35 Bi (weight per cent)
Solidus	138°C
Liquidus	170°C
Density	8.21Mg/m³
Coefficient of Thermal Expansion	15.0 x 10^{-6} K^{-1}
Young's Modulus	n.a. GNm^{-2} (low creep resistance)
Tensile Strength	<15 MPa (at 20 ºC and slow deformation)
	>55 MPa (at 20 ºC and fast deformation)
Hardness	23/24 HB (2mm ball, 4kg load)
Thermal Conductivity	29.7W/mK
Electrical Conductivity	7.77% IACS
Resistivity	34 µΩcm

Typical impurity levels for electronic grade are less then:

Au: 0.05	Cu: 0.08	Ni: 0.01	Al: 0.005
Bi: 0.10	Fe: 0.02	Zn: 0.003	As: 0.03
Cd: 0.002			

Application: Soldering temperature for reflow should be minimal at or above 180ºC for a minimal time of 20 seconds. This assumes either very clean, soldering surfaces and an inert or reducing atmosphere or the presence of a deoxidizing agent/flux during the soldering cycle. If and when the components are slightly oxidized, a combination with higher temperatures and/or longer soldering temperatures is required. For more oxidized surfaces, an appropriate flux must be used.

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