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Data Sheet: 63 Tin-37 Lead

Physical Properties of Bulk Solder

Solder Alloy Composition	63Sn-37Pb (weight per cent)
Solidus	183°C
Liquidus	183°C
Density	8.40 Mg/m³
Coefficient of Thermal Expansion	23.9 x 10^{-6} K^{-1}
Young's Modulus	29.99 Nmm^{-2}
Hardness	16 HV
Thermal Conductivity	50 W $m^{-1}K^{-1}$
Electrical Conductivity	11.5% IACS
Electrical Resistivity	14.99 µΩ cm
Poisson's Ratio	0.4 at 25 ºC
Specific Heat Capacity	150 J $Kg^{-1}K^{-1}$

Mechanical Properties: Tensile Strength (Stress, Nmm^{-2})

		20ºC	100ºC
Test speed	50 mm min^{-1}	66.6	31.2
	20	50.0	28.2
	5.0	46.5	19.6
	1.0	38.2	12.7
	0.2	32.0	7.4
	0.05	18.7	3.9

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	In: 0.10		

Application: Soldering temperature for reflow should be minimal at or above 235ºC 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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