SAC305 Lead Free Solder Alloy

Product Description

Asahi SAC305, Sn96.5Ag3.0Cu0.5 solder alloy was developed to have better fluidity and low drossing in dipping and wave soldering process. For stabilization of copper, Cu content in the soldering pot, Asahi SnAg3.0, Sn97.0Cu3.0 alloy will be recommended as a top up solder. Asahi SAC305 is also developed to have better wetting and spreadability.

Asahi SAC305 and SnAg3.0 solder alloys are available in hand-casted and extruded bar form. They are also available in solid wire form for autofeeding system. Asahi alloys could be produced into any forms upon users request and application.

Alloy Composition

Main Composition		IPC J-STD-006 (wt%)
Tin	Sn	Remainder
Silver	Ag	3.0 ± 0.2
Copper	Cu	0.5 ± 0.1
Contamination		
Lead	Pb	0.05 max
Antimony	Sb	0.05 max
Bismuth	Bi	0.10 max
Indium	In	0.10 max
Aluminium	Al	0.005 max
Arsenic	As	0.03 max
Cadmium	Cd	0.002 max
Iron	Fe	0.02 max
Nickel	Ni	0.01 max
Zinc	Zn	0.003 max

Specification

Item	Result
Alloy Melting Point DSC at 5˚C/min	217 - 220˚C
Density Water Displacement Method	7.36 g/cm^3

Wettability

IPC-TM-650 2.4.14.2

JIS Z 3197 8.3.1.2

235˚C	2.09 mN, 1.21 sec
245˚C	4.28 mN, 0.82 sec
260˚C	4.76 mN, 0.53 sec

Mechanical Properties (As-Cast)

Instron Series IX Automated Materials Test System

ASTM E8M (3 mm/min at 23°C)

Tensile Strength	48.548 MPa
Yield Strength	40.808 MPa
Max Percent Strain	57.85 %
Energy to Yield Point	0.122 J
Energy to Break Point	16.347 J
Toughness	23.126 MPa

Cycle Fatigue Resistance 3600 N_f

ASTM E606-92

Application

For wave soldering applications, the solder can be used at 255 – 265°C, depending on PCB design & complexity. Conveyor speed can be set up to a maximum of 1.8 m/min for single-sided boards and recommended to set at between 1.2m/min to 1.6m/min for double-sided boards. Recommendation of preheat on-board temperature (refer to flux specification) dependent on flux activation temperature, machine design and board complexity.

For dipping and HASL applications, it is recommended to use at temperatures > 260°C, depending on applications.

Top-up Solder

SnAg3.0 is recommended as top-up solder.

Storage

Store the solder alloy in a cool, dry and non-corrosive environment. Wrap up the solder alloy when not in use to reduce exposure to environment. SAC305 lead free solder bar and solid wire can be kept for 5 years if proper storage conditions are observed.

Health & Safety

The product when use or handling maybe hazardous to health or environment. Please refer to Material Safety Data Sheet for more information.

Packaging

Solder Bar: 25kg per box, Solid Wire: 20kg per roll (Diameter: 0.25, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0, 1.2, 1.6, 2.0 and 3.0 mm). For any other packing requirements, please refer to the sales department.