



# TECHNICAL DATA SHEET

CATEGORY: **LEAD-FREE ALLOY**  
 NAME: **CASTIN<sup>®</sup>**

## FEATURES

- LOWEST COST SN-AG-CU ALLOY
- EXCELLENT SOLDER JOINT RELIABILITY
- STRAIN RELIEVING CHARACTERISTICS
- LOW ALPHA EMISSIONS
- LOW MELTING POINT FOR A PB-FREE ALLOY (217°C)
- SUPERIOR JOINT STRENGTH THAN SN/PB AND SN/AG
- EXCELLENT THERMAL & MECHANICAL FATIGUE RESISTANCE
- LOW DROSSING & COPPER DISSOLUTION IN WAVE

## DESCRIPTION

CASTIN<sup>®</sup> is a lead-free alloy that contains tin, silver, and copper, with the addition of a grain-refining and melting temperature-decreasing dopant. CASTIN<sup>®</sup> is a virtual drop-in replacement for 63Sn/37Pb for wave soldering and hand soldering applications and has proven to perform very well in SMT applications. When used in wave soldering, CASTIN<sup>®</sup> produces less dross than other solder alloys, wets well, and provides excellent joint strength. In SMT applications, CASTIN<sup>®</sup> reduces intermetallics, produces strong solder joints, and has excellent mechanical fatigue resistance. CASTIN<sup>®</sup> may be used with most existing equipment, processes, coatings, and flux chemistries. The CASTIN<sup>®</sup> alloy is available in bar, cored and solid wire, foil, preforms, powder, and water soluble, rosin, and no-clean solder pastes. CASTIN<sup>®</sup> solder products pass all applicable IPC specifications, including IPC-J-STD-006.

## PHYSICAL PROPERTIES

Tensile	Sn63/Pb37	CASTIN <sup>®</sup>
UTS (ksi)	4.92	5.73
Yield Strength (ksi)	4.38	4.86
Young's Mod of Expansion (msi)	4.87	7.42
Compression		
Elastic Modulus (ksi)	3.99	4.26
YS (ksi)	4.52	4.33
Stress (ksi)	7.17	8.54

CASTIN <sup>®</sup> MELTING POINT	217°C
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## ALLOY COMPOSITION in Percent

Ag: 2.5 ± 0.25	Al: = 0.001	As: = 0.05	Au: = 0.05	Bi: = 0.03
Cd: = 0.001	Cu: 0.75 ± 0.25	Fe: = 0.08	In: = 0.01	Ni: = 0.005
Sb: 0.50 ± 0.25	Sn: Balance	Zn: = 0.005		

## HANDLING

Refer to the specific Material Safety Data Sheet and the handling section of the individual Technical Data Sheets for the chemistry type of CASTIN<sup>®</sup> solder paste being used.

## FLUX COMPATIBILITY

CASTIN<sup>®</sup> is compatible with all major electronic grade fluxes on the market today, and is available in paste and wire form in no-clean, water soluble and rosin chemistries.

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## **CLEANING**

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Refer to the liquid flux manufacturer's data sheet for specific cleaning information, or refer to the cleaning section of the individual AIM solder paste technical data sheets for the recommended cleaning information.

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## **TEMPERATURE REQUIREMENTS**

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<b>APPLICATION</b>	<b>RECOMMENDED TEMPERATURE</b>
REFLOW SOLDERING	PEAK TEMPERATURE 235° - 245°C (455° - 473°F)
WAVE SOLDERING	POT TEMPERATURE OF 260°C (500°F )
HAND SOLDERING	TIP TEMPERATURE OF 370° - 425°C (700° - 800°F)

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## **SAFETY**

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- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying **Material Safety Data Sheet** for any specific emergency information.
- Do not dispose of any hazardous materials in non-approved containers.