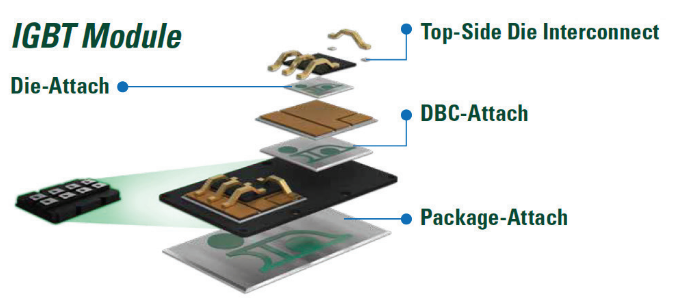
PRODUCT DATA SHEET
Indalloy®276 for Power Electronics

Introduction

Indalloy®276 (SnSbAgCu) is a unique lead-free solder alloy that offers a wide service temperature capability and improved reliability up to 175°C.

In power electronics applications with Direct-Bonded Copper (DBC) substrate and die-attach, a Cu-containing alloy such as SAC (SnAgCu) is preferred due to high-reliability performance in thermal cycling when looking at the IMC within the assembly. One challenge faced by SnAgCu is the capability at high service temperature conditions, which is a MUST for these applications. **Indalloy®276** has demonstrated high-reliability performance while also being capable at both moderate and high service temperature conditions.



Metallurgy

The melting temperature of the SnSb alloy increases as Sb is added to the peritectic composition. Antimony has ~3% solubility in Tin, which strengthens the Tin matrix through solid solution. The extra Sb forms the finely-dispersed SnSb IMC precipitates after soldering. These equiaxed fine particles rather than needles or plates, pinning the grain boundaries, benefits the creep-resistance and slows down the crack formation along grain boundaries and interfaces.

Indalloy®276 Properties

Selected Properties	Metric		Imperial	
Liquidus	233	°C	451	°F
Solidus	224	°C	435	°F
Density	7.32	g/cc	–	–
Thermal Conductivity	56	W/mK	–	–
CTE	23	ppm/°C	–	–
Poisson Ratio	0.39	–	–	–
Tensile Strength	77	MPa	11,170	psi
Yield Strength	60	MPa	8,700	psi
Elongation	28	%	–	–

Available Forms

Indalloy®276 solder is available as preforms and InFORMS®, as well as ribbon, wire, and paste. Preform shapes include discs, squares/rectangles, washers, frames, and special shapes.

Packaging

Packaging of all products is available to fit your manufacturing process.

Technical Support

Indium Corporation's internationally experienced engineers provide in-depth technical assistance to our customers. Thoroughly knowledgeable in all facets of Materials Science as it applies to the electronics and semiconductor sectors, Technical Support Engineers provide expert advice in solder properties, alloy compatibility and selection of solder preforms, wire, ribbon, and paste. Indium Corporation's Technical Support Engineers provide rapid response to all technical inquiries.

Safety Data Sheets

Please refer to the SDS document within the product shipment, or contact our local team to receive a copy.

All of Indium Corporation's solder paste and preform manufacturing facilities are IATF 16949:2016 certified.
Indium Corporation is an ISO 9001:2015 registered company.

From One Engineer To Another®

Contact our engineers: **askus@indium.com**
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