



Medium Melting Point **Lead Free** Solder Paste

SB6N58-A730-3

■ Features

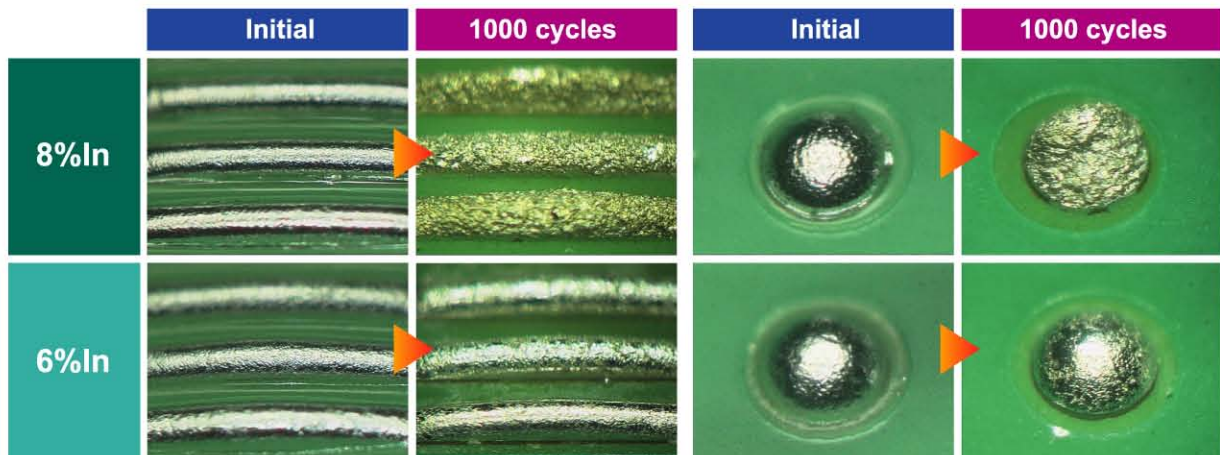
- Realizes **LOWER REFLOW TEMPERATURE** than SnAgCu solder paste.
- Specially developed flux system **PREVENTS EXCESSIVE REACTION** with the solder alloy and ensures stable and consistent performance.
- **PERFECT MELTING** and **WETTING** by reflow in **AIR**.

■ Alloy of 6% indium content and with less structural transformation

An indium type alloy structure has a lower melting point than SnAgCu type alloys, allowing lower temperature reflow for low heat resistance components. But a problem of the indium type alloy can be a large deformation of the structural shape due to heat. This is attributable to the growth of compound inside the structure and fine cracks due to the occurrence of strain stress.

In developing an indium type solder paste of low melting point, we investigated several types of indium type alloy composition. As to the degree of structural transformation due to thermal shock, which is a characteristic of the indium content, the higher the content of indium, then the larger the issue is. Primarily this is because the precipitation transformation starting temperature of Sn-In alloy after soldering is lower than the solidus temperature (8% indium product: about 120°C, 6% indium product: about 150°C). The precipitation transformation start temperature becomes lower when the content of indium is large and the melting point is lower. For this reason, in thermal cycle testing, if the upper limit temperature is close to this precipitation transformation start temperature, the solder consistently and considerably deforms.

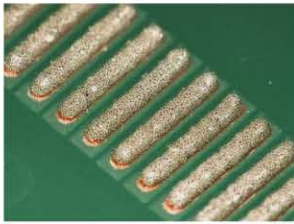
Koki therefore adopted "Sn3.5Ag0.5Bi6In", with less transformation within the alloy composition of lower melting point.



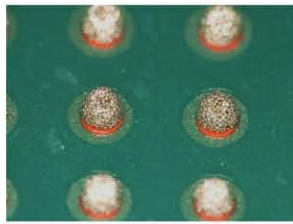
- Heat cycle condition : -40 ~ +125°C 30min./cycle after removal of flux residue

Printability

(Continual printing at 50mm/sec. stencil 120 μm, laser cut)

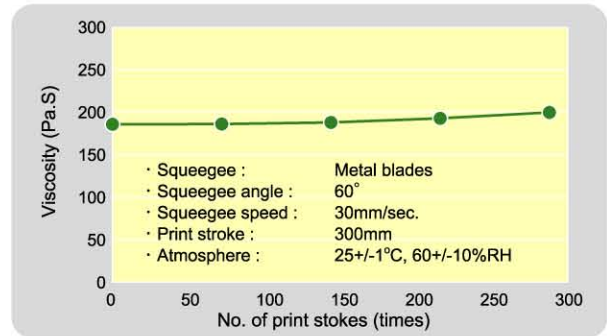


0.4mm pitch
(10th print; parallel)



0.3mm diameter
(10th print; CSP pattern)

Viscosity variation in continual print

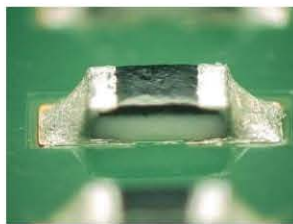


Solder wetting

(After 8 hours kneading on sealed-up stencil)

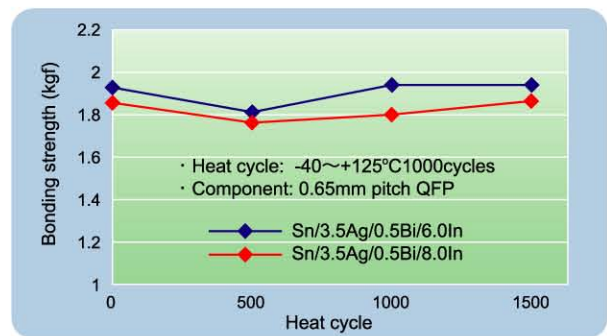


0.3mm diameter



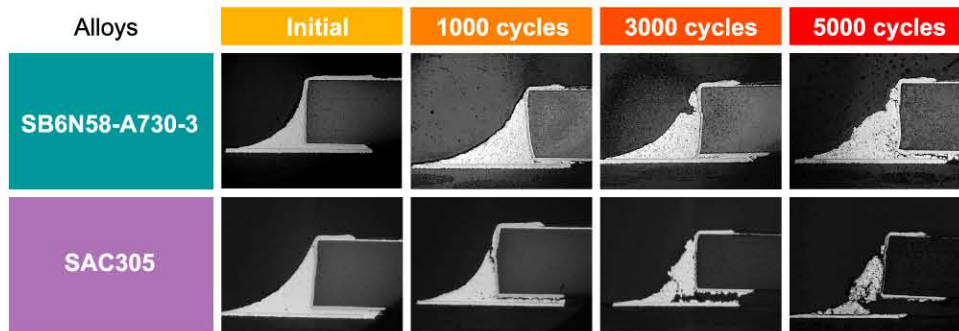
0603 chip (100Sn)

Bonding strength

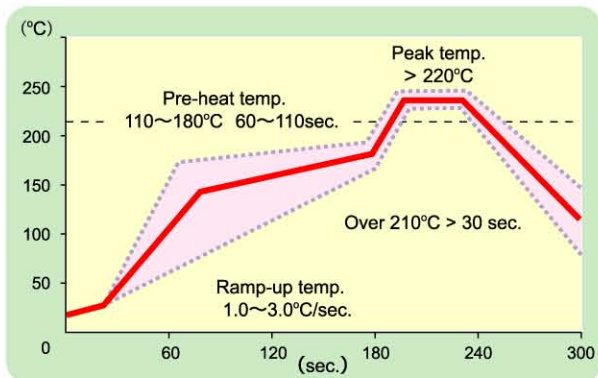


Joint durability

Combination of thermal stresses and growth of IMC layer shall induce the joint interface to become brittle. SB6N58-A730-3, containing 6% of Indium which provides ductility to the solder, effectively prevents occurrence cracking in comparison with SAC alloy, even under -40~+125°C 5000cycles.



Recommended reflow profile



Specifications

Application		Printing - Stencil
Products		SB6N58-A730-3
Alloy	Composition (%)	Sn90, Ag3.5, Bi0.5, In6
	Melting point (°C)	201 - 210
	Particle size (μm)	20 - 38
Flux	Halide content (%)	0.2
	Flux type	ROL1 (ANSI J-STD-004)
Product	Flux content (%)	11.2
	Viscosity (Pa.S)	200
	Copper plate corrosion	Passed
	Tack time	> 24 hours
	Shelf life (below 10°C)	3 months

*Specifications are subject to change.

KOKI COMPANY LIMITED

32-1, Senju Asahi-cho, Adachi-ku, Tokyo 120-0026
Tel : (03) 5244-1521 Fax : (03) 5244-1525 www.ko-ki.co.jp