

High reliability low Ag solder paste

S1XBIG/S01XBIG series

Sn 1.1Ag 0.7Cu 1.8Bi +Ni
Sn 0.1Ag 0.7Cu 1.6Bi +Ni



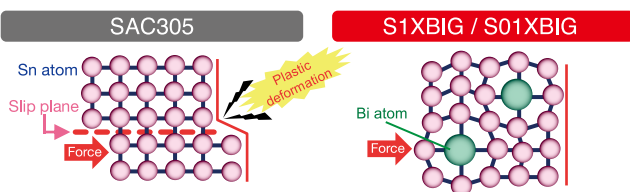
JPN PAT. #3262113

Achieve equivalent joint reliability & heat profile to SAC305 despite being low Ag

Hybrid reinforcement with Bi & Ni inhibits crystal structure deformation with time

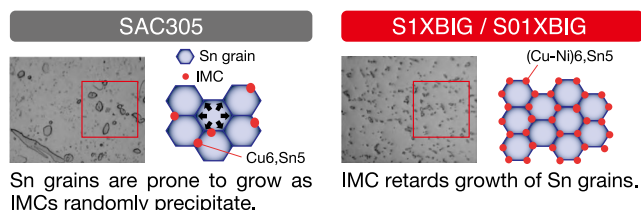
Distortion of the Sn crystal is achieved by placing a different sized metallic element of Bi into the crystal, which inhibits the occurrence of plastic deformation.

Solid solution strengthening by Bi



Ni finely disperses into the boundaries of the Sn crystals and other IMCs, which retards the growth of crystal structures caused by thermal cycling.

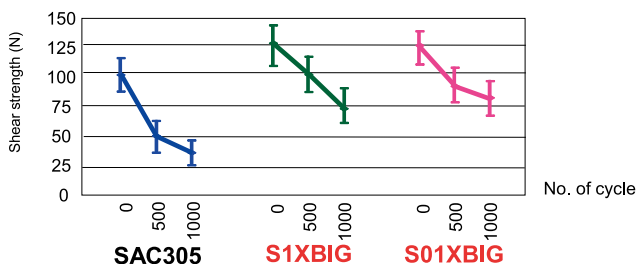
Precipitation strengthening by Ni (-40⇔125°C x 2000 cycles)



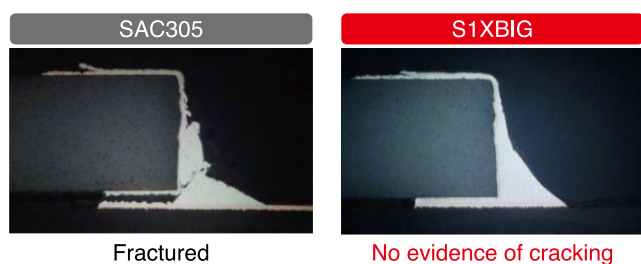
Equivalent thermal cycling durability to SAC305

As a result of the hybrid reinforcement described above, S1XBIG series achieve equivalent or even superior joint reliability to SAC305.

Shear strength in thermal cycling 3216 chip (-40⇔125°C 30min. each)



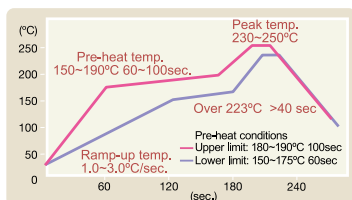
Cross section of chip after thermal cycling (1500cycles)



Reflow profile of SAC305 applicable

Thermal profile for SAC305 is applicable to S1XBIG/S01XBIG as the solidus temperature of S1XBIG/S01XBIG is lower than that of SAC305.

Thermal profile



Alloy code	Melting point (°C)
SAC305	217-219
S1XBIG	211-223
S01XBIG	211-227

Versatile application

S1XBIG / S01XBIG is applicable to a variety of products such as high-end electronics, long life consumer products, car audio and many other products exposed to high temperature environments.



Product specifications

Product name	S1XBIG58-M500-4	S01XBIG58-M500-4	1.1Ag+α Solder alloy	Low Ag	0.1Ag+α Solder alloy	Low Ag
Alloy composition (%)	Sn 1.1Ag 0.7Cu 1.8Bi +Ni	Sn 0.1Ag 0.7Cu 1.6Bi +Ni				
Melting point (°C)	211-223	211-227				
Particle size (μm)		20-38				
Viscosity (Pa.s)		220				
Flux content (%)		11.2				
Halide content (%)		0				
Flux type		ROLO				
			Low voiding		Anti-pillow defect	
			Applicable for high pre-heating reflow		Fine pitch printing >0.4mm pitch >0.3mm dia. CSP	
			No clean type	No-clean	Tack time >48hours	