

Low Ag solder paste

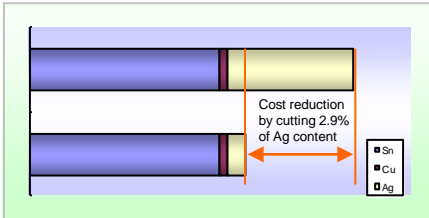
S01X7C48-M500C Alloy composition: Sn Ag0.1 Cu0.7 + Co



- Absolutely insensitive to silver price fluctuation due to Ag content reduction to 0.1%
- Co functions in various ways to supplement the disadvantages of low Ag alloy
- Achieves equivalent heat cycling properties to SAC107 alloy (Sn Ag1.0 Cu0.7)

◆ Cost performance

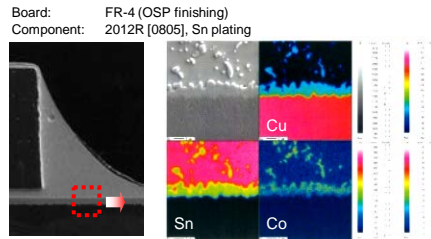
■ Comparison of cost structure



Although silver covers only a few % of alloy composition, it actually takes up a much higher ratio in the cost structure.

◆ Effect of Co (formulation of barrier layer in the interface)

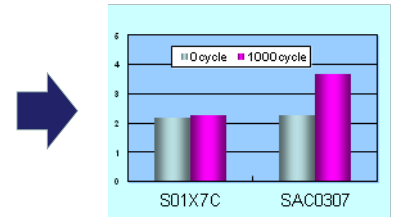
■ EPMA mapping images (distribution of each metal)



Barrier layer containing Co in the interface improves the heat cycling property by inhibiting the growth of conventional Cu-Sn type IMC layer.

■ Thickness of IMC layer after heat cycling

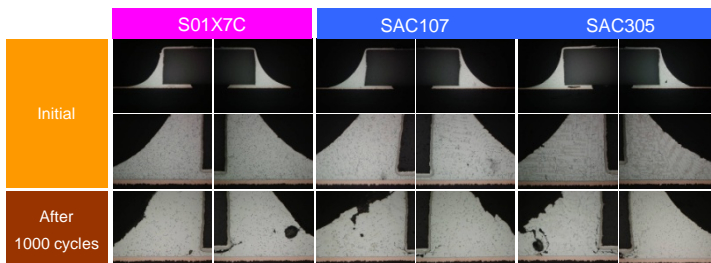
-40/+125°C every 30min.



Almost no growth of IMC layer is seen in S01X7C after 1000 cycles.

◆ Effect of Co (Inhibition of crystalline coarsening)

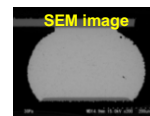
■ Comparison of solder composition after heat cycling test 3216 Chip (1206)



Since Co is scattered in the solder composition it inhibits the crystalline coarsening under the heat cycling condition, as a result, S01X7C retains its highly durable solder composition.

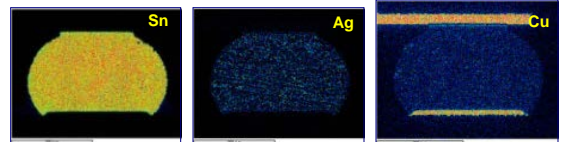
◆ Compatibility with BGA ball

■ EPMA mapping image after soldering



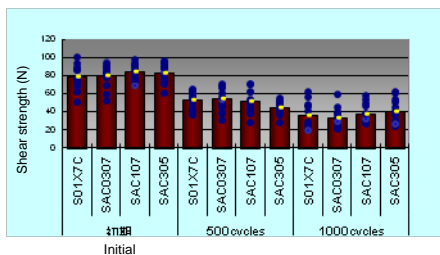
BGA: SAC305
Solder paste: S01X7C48-M500C

Sn, Ag and Cu are distributed equally without segregating.



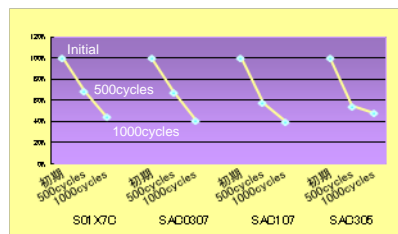
◆ Shear strength after heat cycling

■ Comparison of shear strength



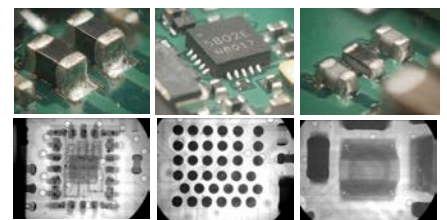
S01X7C shows least shear strength variation among the low Ag alloys.

■ Shear strength variation



◆ Actual application example

■ Application for mobile phones



S01X7C48-M500C can be used widely for various applications, products and processes.

◆ Product specifications

Product name	S01X7C48-M500C
Alloy composition	Sn Ag0.1 Cu0.7 + α
Melting point (°C)	217-227
Particle sizes	20~45μm(48) 20~38μm(58)
Viscosity(Pa.s)	200±30
Flux content (%)	11.5±1.0

◆ Solder paste line-up

S01X7C48-58-M500-2	Halogen free low Ag solder paste
S01X7C48-58-A230	Cleanable low Ag solder paste
S1X58-M500C	Solder paste with JEITA recommended low Ag (1.0%) alloy
S03X58-M500C	Solder paste with JEITA recommended low Ag (0.3%) alloy