

# Halogen Free **Lead Free** Solder Paste

## S3X58-M650-3

### ■ Features

1. Solder alloy composition is **Sn3Ag0.5Cu**.
2. Specially developed flux system ensures **EXCELLENT** and **CONSISTENT ICT TESTABILITY**.
3. Carefully selected flux chemistry ensures extremely **LOW VOID** formation.
4. **PERFECT MELTING** and **WETTING** at super fine pitch (<0.4mm pitch) and micro components (<0.35mm dia. CSP, 0603 chip).
5. Low color and crack free flux residues offer **SUPERIOR COSMETIC** appearance.
6. True **HALOGEN** free and meet a halogen free requirement (Br/Cl: <900ppm each, total: <1500ppm)

### ■ Specifications

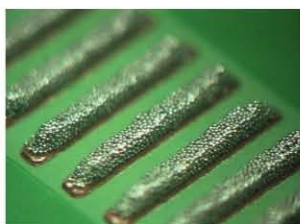
Application		Printing - Stencil	
Products		S3X58-M650-3	S3X58-M650H-3
Alloy	Composition (%)		Sn96.5, Ag3.0, Cu0.5
	Melting point (°C)		217 - 219
	Shape		Spherical
	Particle size (μ m)		20 - 38
Flux	Halide content (%)		0.0
	Surface insulation resistance *1	Initial value (Ω)	> 1 × 10 <sup>13</sup>
		After humidification (Ω)	> 1 × 10 <sup>12</sup>
	Aqueous solution resistivity *2 (Ω cm)		> 1 × 10 <sup>4</sup>
Flux type		ROL0	
Product	Flux content (%)		12      11.7
	Viscosity *3 (Pa.S)		170      200
	Copper plate corrosion *4		Passed
	Solder spread factor (%)		> 80
	Tack time		> 48 hours
	Shelf life (below 10°C)		6 months

1. SIR..... 40°C × 90%RH × 96Hr  
 2. Aqueous solution resistivity..... In accordance with MIL specifications.  
 3. Viscosity..... Malcom spiral type viscometer, PCU-205 at 25°C 10rpm  
 4. Copper plate corrosion..... In accordance with JIS.



### Printability

(Continual printing at 50mm/sec. stencil 130 μm laser cut)



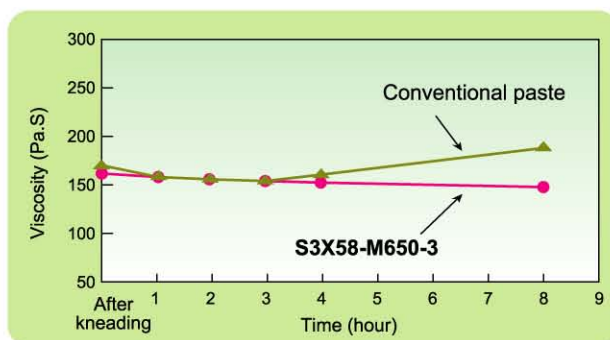
0.4mm pitch  
(10th print; parallel)



0.3mm diameter  
(10th print; CSP pattern)

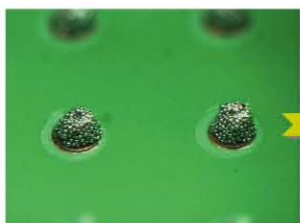
### Viscosity variation in continual print

(Squeegee speed : 30mm/sec., print stroke : 300mm)

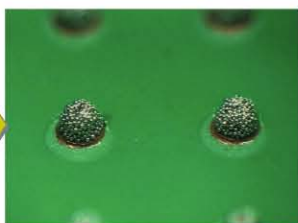


### Intermittent printability

(0.3mm diameter CSP pattern)



Initial print



1st print after 60 min.

### Solder wetting

(Cu base alloy with Sn plated)



0.65mm pitch QFP



0.3mm diameter

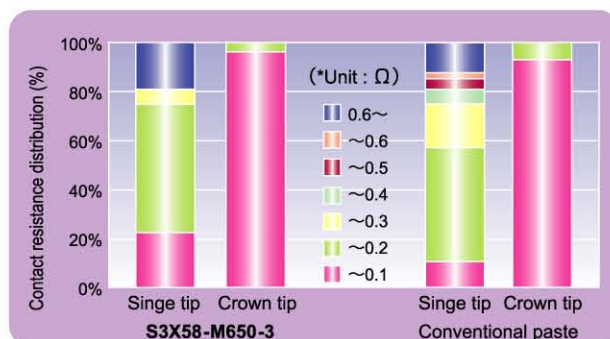
### Pin-testability (after 1,000 strikes)



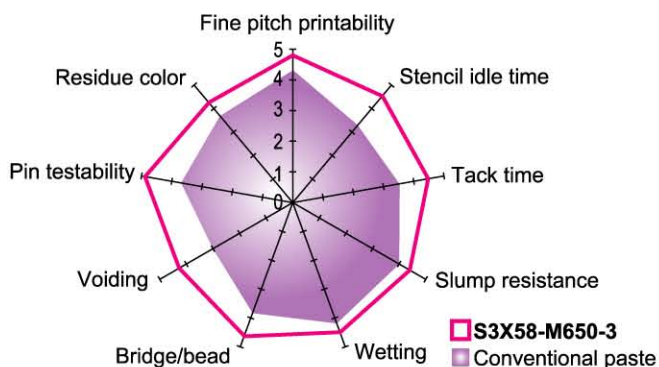
S3X58-M650-3



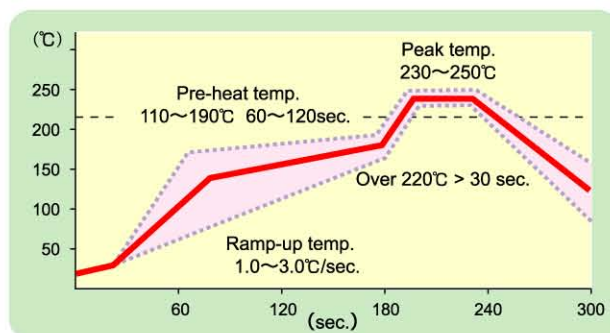
Conventional paste



### Features comparison (0: Bad → 5: Good)



### Recommended reflow profile



\*Specifications are subject to change.

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