New Product: Microbond® SMT650

Maximized Reliability in Fine Feature Applications

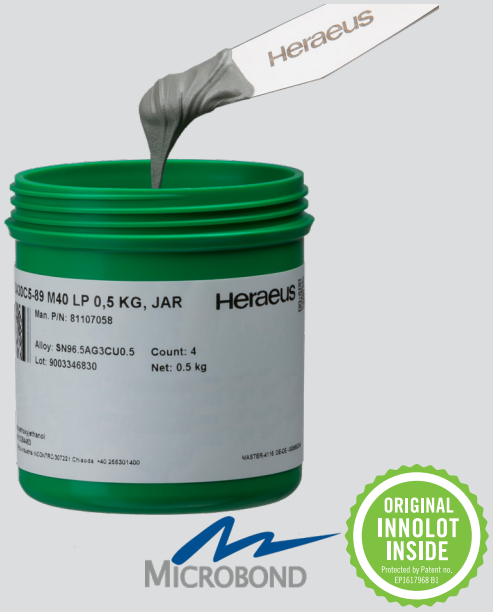
Microbond® SMT650 high reliability solder paste achieves a consistently high surface insulation resistance that prevents electrochemical migration. Combining the new F650 flux system with the Innolot® alloy delivers superior reliability—particularly in miniaturized systems in the automotive industry.

Electrochemical migration is a form of corrosion that negatively affects the reliability and service life of electronic components. It is caused by moisture—either during the circuit board manufacturing process or due to external factors. Miniaturization and the resulting minuscule distances between conductor paths lead to greater electric field intensity, which in turn increases the risk of electrochemical migration. One example are the control units in vehicles: Fluctuations in temperature can lead to condensation, and this can result in moisture reaching the circuit board. When combined with flux residue, this moisture can lead to negative interactions such as the formation of dendrites and eventually lead to short circuits.

Microbond® SMT650 solder paste achieves a consistently high surface resistance that prevents electrochemical migration. In addition, the specially developed F650 flux system can be combined with different alloys. The combination of the F650 flux system with Innolot® alloy delivers superior reliability— especially in miniaturized systems in the automotive industry. Its material composition provides a consistently high surface resistance that prevents electrochemical migration. Furthermore, Microbond® SMT650 is compatible with conformal coatings, solder resist, active and passive components, various PWB materials and combinations. For applications with low thermomechanical requirements Heraeus offers Microbond® SMT650 solder paste with a tin-silver-copper alloy (SAC).

Microbond® SMT650 Benefits

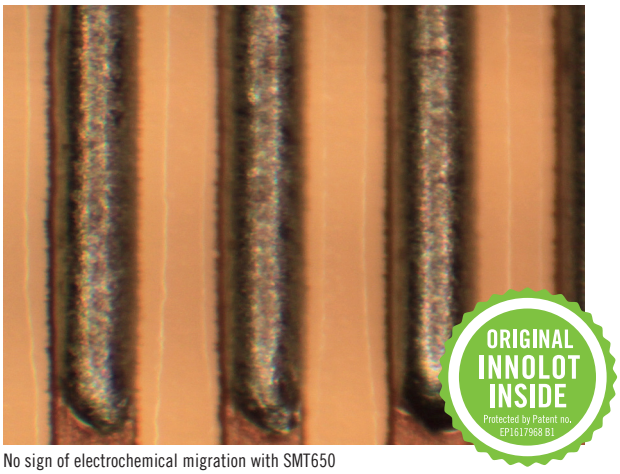
- Preventing electro-migration in fine feature applications - no dendrite growth and electro chemical migration is observed for various SIR test after 1500 h
- Excellent thermal mechanical strength, in combination with Innolot® alloy
- Clear residue
- Excellent printing
- Efficient wetting
- Residue is compatible with wide range of conformal coating materials
- Type 4 powder for fine pitch applications



Product Properties and ID

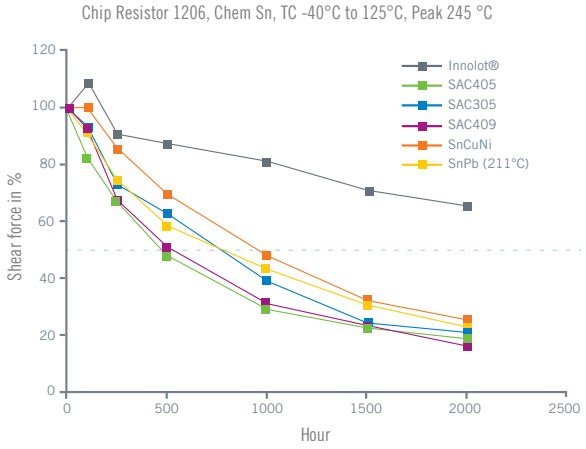
Properties	F650 SA30C5-89M40	F650 IL-89M40
Alloy	SA30C5	Innolot®
Metal Content	89%	
Viscosity	M	
Powder Type	4	
Halogen Content	Halogen Zero	
Powder Properties		
Particle size	20 - 38 µm	
Alloy	Sn96.5/Ag3/Cu0.5	Sn/Ag3.8/Cu0.7/ Ni0.15/Sb1.5/Bi3
Melting Point	217 °C	206 - 218 °C
Application		
Printing	Yes	

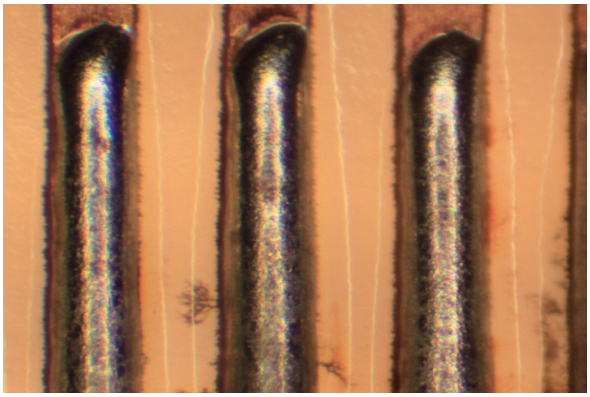
Application Over Time - Long Hour Test in Humid Environment



No sign of electrochemical migration with SMT650

Alloy Reliability





Electrochemical migration with flux which is not prepared for miniaturization

The data given here is valid. We reserve the right to make technical alterations.

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