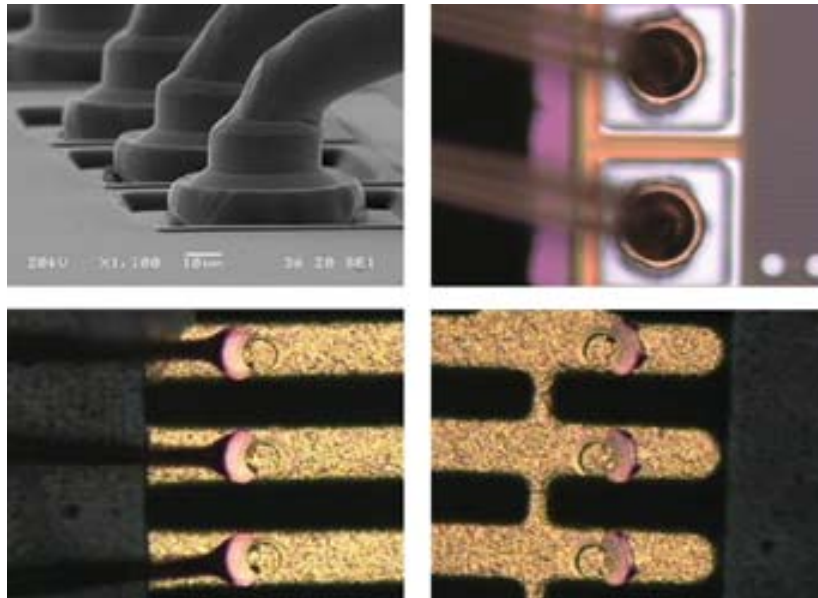


## COPPER WIRE BONDING

Copper (Cu) wire bonding is not new in the industry. 1.5mil and 2mil Cu wire has been in volume production for many years mainly for power devices. Generally, Cu wire has higher thermal and electrical conductivity with lower power loss and higher current flow as compared to Au wire. These properties are important for enhanced device performance and reliability. With a cost saving of more than 80% as compared to Au wire, Cu wire has emerged as a growing choice for fine-pitch and ultra-fine pitch bonding.

Today, most of the wire bonders is capable of bonding fine pitch Cu wire with very minimal upgrading kit. Most of the upgrading kit consists of software and a nozzle mount near to the EFO with forming gas (95%N2, 5%H2) to prevent FAB oxidation. However, the stitch bond performance still remains to be optimized. To improve stitch bondability, higher bonding parameters has to be used, causing heavy cap imprint and potential short tail or wire open issues. Although the wire supplier has came up with high purity Cu wire with purity at 99.99%, intermittent wire open and short tail issues remain to be solved.

The challenge is to be able to improve the stitch bondability for Cu wire. The enhanced coupling effect between the **SI capillary** and the wire has proven to improve the bondability of the stitch bond with minimum interruption to the bonder.



Bond Pad Pitch μm	Useable Wire Diameter μm	H μm	CD μm	FA °	T μm	Recommended SPT Part Number
100	30	38	55	8	130	SI-38130-555E-ZB36TS
90	30	38	53	8	110	SI-38110-535E-ZB36TS
90	25	35	51	8	110	SI-35110-515E-ZB36TS
80	30	38	51	8	100	SI-38100-515E-ZB34TP
80	25	33	48	8	100	SI-33100-485E-ZB34TP
70	25	33	43	8	90	SI-33090-435E-ZB34TP
60	25	30	38	11	80	SI-30080-385F-ZB34TP
60	23	28	35	11	80	SI-28080-355F-ZB34TP
50	20	25	30	11	63	SI-25063-305F-ZB34TP