

高周波巻線チップコイル用被覆銅線の超音波接合

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Ultrasonic Bonding of Resin-Coated Cu Wire for High-Frequency Chip Coils

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Abstract

A high-speed bonding method with an ultrasonic bonding system has been investigated for bonding resin-coated Cu wire on electrodes of a high-frequency chip coil. A two-step amplitude method, which decreases the ultrasonic amplitude in the bonding process, was very effective for bonding the resin-coated Cu wire on Sn electrodes. In the method, the resin coating over the Cu wire is fractured by applying the bonding force. Moreover, subsequent ultrasonic applications cause Sn to embed into the resin-fractured area and join the Cu wire to the Sn electrodes. When the Sn layer covered the top of the wire, the maximum joint strength was obtained. On the other hand, when the bonding time was longer than optimal, the Sn layer that covered the top of the wire was removed from the top of the wire and the joint strength diminished.

Key Words: *Chip Coil, Resin-Coated Cu Wire, Ultrasonic Bonding, High Speed Bonding, Joint Strength*