



TEST SUMMARY

Product Test Laboratory
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Request Number: EL2004-01-003C

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SUBJECT: Temperature Cycle Testing Of FCI Lead Free MEG-Array® Connector

PURPOSE/TESTS

This report summarizes the testing performed on the FCI MEG-Array connector system incorporating lead free solder balls attached to the contacts using lead free solder paste. Temperature cycle testing was performed at Trace Laboratories in accordance with FCI MEG-Array product specification GS-12-100, rev F. Temperature cycle testing was performed using an air-to-air thermal shock chamber from -40C to +85C for 1000, 30 minute cycles. Testing details are contained in Trace Laboratories report # S.O. 23659-04.

SAMPLES:

MEG-Array connectors were soldered to continuity test boards by FCI product engineering using a convection reflow oven. Alpha OM338 (Sn/Ag/Cu) solder paste was used to attach the connectors to the test boards. This is the same solder paste used to attach the solder balls to the connector contacts. Samples were fixtured by the FCI test lab using aluminum spacer rails to minimize test board warpage during testing.

Table with 3 columns: FCI PART NUMBER, DESCRIPTION, QUANTITY. Rows include part numbers like 84512-101LF and descriptions like '0 mm, 100 pos. plug, 30 μ" Au'.

RESULTS

All samples of both 100 and 400 position sizes successfully completed 1000 temperature cycles without failure. One 400 position sample (#27) exhibited a 100% increase in resistance after 129 cycles and eventually exhibited an open circuit at end of test. Failure analysis of this sample (reference product test lab file # EL-2004-01-003D) determined the root cause of the failure to be a printed circuit board trace fracture at the plated through hole (pth) used to energize and monitor circuit continuity. It appeared the plated through hole was damaged during sample preparation. Further examination of the solder ball row nearest this pth found no solder joint cracks.

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