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## PRODUCT BULLETIN 2008-01

**PRODUCT:**  
.039/(1.00mm) Pitch SMT Sockets, Adapters, Headers

**DATE:**  
January 29, 2008

**PART NUMBER SERIES:**  
MHS, FHA, DHS, DHAM

**TYPE:**  
**Contact System Test Results**

### **Test Set Up**

The following tests were performed on a 5989G contact and .011 diameter mating male pin. The connector format was a 388 position BGA 1.00mm pitch molded socket and FR-4 adapter. The components were mounted to test PC boards. The parts were not shrouded and there were no locking features on the connector assemblies.

**Low Level Contact Resistance:** (Test Standards EIA 364 TP 23) **Initial results 18.1 mil ohm max.**

*Meets GR-1217 R5-76 (20 mil ohm max resistance for noble contact metallization)*

**High Temperature:** (Test Standard, BN EN 60068-2-2. Temperature 125°C for 48 hours mated and mounted.)

**No physical damage was found. LLCR maximum changes 4.9 mil ohms max.**

*Test results meet GR-1217 R5-76 (20 mil ohm max change) GR-1217 requires EIA-364-TP17 method A 85°C (185°F) for 500 hrs. Advanced tested to 125°C (275°F) for 48 hrs. 130°C is the materials RTI (relative temp. index).*

**Thermal Cycle:** (Test Standard BN EN 60068-2-14 Max temperature -40°C to 125°C. Time at temperature 10 minutes. Ramp time hot to cold 20 minutes. Ramp cold to hot 15 minutes. Number of cycles 100.)

**LLCR +2.4 max change.**

*Test results meet GR-1217 R5-76 (20 mil ohm max change) GR-1217 requires EIA-TP32 condition I. Temperature range -55°C to 85°C five cycles. Advanced testing exceeds the maximum temperature and number of cycles required. See requirements 6.3.3 R6-57.*

**Vibration with Thermal Cycle:** (Test standard BS EN 600-2-64 5Hz to 2000Hz sweep time 20 minutes. Duration 16 hours per axis. Number of cycles 48 maximum temperature 125°C to -40°C Time at temperature 10 minutes. Ramp hot to cold 20 minutes Ramp cold to hot 15 minutes.)

**LLCR 1.8 max change.**

*Acceptable for GR-1217 R9-21 less than 10 mil ohm change. Advanced vibration testing incorporates thermal cycling. Advanced test exceeds requirements for GR-1217 9.1.2.2.*

**Mechanical Shock:** (Test Standard BS EN 68-2-27 peak value 50G duration six milliseconds, wave form half sine. Velocity 11.3 feet per second, three shocks, three axes, eighteen shocks total.)

**LLCR max. change +1.9 no opens.**

*Acceptable for GR-1217 R9-21 less than 10mil ohm change. Advanced exceeds peak value for 9.1.2.2 (15g).*

### **Mixed Flowing Gas Testing:**

**Passed GR-1217 SQ Level II (see section 5.2.5 R5-61)**

**Controlled environment.**

*Advanced testing exceeded time requirements by 10 days. Results upon request.*

**Porosity:** (EIA 364 TP60 Nitric Vapor Test)

**Results: Passed.**

**Plating Thickness:** (Measured prior to MFG testing)

**Gold 32.5 min. micro inches acceptable for GR1217 5.2**

**Nickel 90.6 min. micro inches acceptable for GR1217 5.2**

**Durability:** (Test Standards EIA 364 TP 9) *Acceptable for GR-1217 R5-61 Number of cycles 25.*

**Results: No damage.**

**LLCR 2.1 mil ohms max. change.**

*Acceptable for GR-1217 R5-76 (20 mil ohm max change)*

### **Insertion Withdrawal Force:**

*Meets GR-1217 section 5.1.5*

Insertion force: **14 pin average 1.9 lbs.**

Withdrawal force: **14 pin average 1.5 lbs.**

### **Contact to Shell Retention:**

*GR-1217, 5.1.6-R5-37 requirement 3 lbs. retention*

**Advanced meets contact to shell retention, 4 lbs. min.**

This information was taken from test report #205484 Rev1.1 January 3, 2006 and test report #206327 MFG testing August 22, 2006. Testing was performed by an independent test lab.

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