

SCREENING

The DDR4 memory is fully tested at maximum speed, full timing, full data rates, all DC parameters, dynamic power, standby power, full refresh timing, and each memory cell is tested at the use temperature condition. Parts carry full data logs for each unit backed with process and package qualification and generic QCI reports.

Note: This screening flow can be applied to any part number and any density in these product families. This includes DDR2, DDR3 and Flash.

PRODUCT SPECIFICATIONS

Description:

- 1.2V, DDR4, Z22A Rev B Die, FBGA

Configurations Available:

- 2Gb up to 32Gb

Data Rates:

- 1600 - 3200+ mb/s

TESTING PARAMETERS

The devices are fully characterized and tested over extended temperatures at FULL SPEED, 3.2Ghz, only available at Spirit Electronics.

Screening & Qual

- PEM-INST-001

HARSH ENVIRONMENT:

Temperature Cycling

- MIL-STD-883, Method 1010
- Electrical Test: -55C to 125C (w/ pre, post & interim test points)
- Guaranteed intolerance for early and infancy failures
- **MTBF 10+ years**

Burn-In (Static and Dynamic)

- MIL-STD-883, Method 1015

Life Test

- MIL-STD-883, Method 1005
- Interim electricals at 25C, at 500 and 1000 hours; Optional 4k hours.

HAST

- JESD22-A110
- 96 hours, +130C, 85% RH

Functionality Tests

- Checkerboard - Verifies "burst" refresh and performed as a checkerboard pattern to the entire data array.
- Inverse Checkerboard
- Marching Pattern
- Read, Write, Erase Testing at Speed



Radiation Testing

- TID Hardness Level: 100 krad
- Based on NASA EEE-INST-002 PEMs
- Anneal per datasheet
- DDR4 Radiation Analysis Report available for an additional fee. See below.
- Custom RAD option available. Details below.

ADDITIONAL FEATURES

- SLDC available upon request.
- Serialized part numbers; laser marked
- Easy migration to DDR5, when applicable
- Automotive base-grade available
- Companion to Xilinx and Microchip FPGAs
- Mechanical samples available
- Proprietary test socket design minimizes solder ball stress
- Proprietary case temp control hardware & process in thermal chambers
- Continuity, Leakage, Input Level Tests
- IDD and DC Electrical Tests
- Switching Tests
- Included Data Package:
 - C of C (both Micron and Spirit)
 - Process & Package Qualification Data
 - Generic QCI Reports
 - CSAM Images
 - X-Ray Images (top view only)
 - DPA
 - XRF
 - Delta Calculations - lot specific
 - In-family distribution and performance matching available

Custom Options (Additional Cost)

- Radiation exposure & electrical test. Lot specific and performed to customer driven spec.
- Radiation analysis report - (details on request)
- Solder-Ball Exchange
- Solderability Test
- Customer specific SCD screening flow, without additional development NRE.

Additional Industry Standards:

- MIL-STD-883
- JESD22
- NASA EEE-INST-002 PEMs

