RTG4 Engineering Sample (ES) FPGAs

To facilitate design evaluation activities of the new RTG4 FPGA family, Microsemi SoC Group offers RTG4 ES devices. These devices use the first RTG4 silicon. Note that some flight-model tests are not performed on the RTG4 ES devices:

1. RTG4 ES devices are intended for hardware functional verification only. They should not be used for space flight applications. They should also not be used for applications or activities which require the quality of space flight parts, such as qualification of space flight hardware.
2. RTG4 ES devices are only tested at room temperature.
3. The following features on RTG4 ES devices have received testing at room temperature:
   - FPGA Fabric
   - General purpose I/Os including MSIO, MSIOD and DDRIO
   - CCC/PLL, LSRAM, uSRAM and DSP Mathblocks
   - SERDES for native SERDES (ePCS) and PCIe interfaces
   - FDDR blocks
   - Program/Erase through JTAG interface

   No other features have been tested on RTG4 ES devices.
4. No MIL-STD-883 Class B testing is performed. RTG4 ES devices are not subjected to temperature cycling, fine and gross leak testing, X-ray inspection, PIND testing, assembly lot Group B testing, or burn-in.
5. Customers are recommended to operate RTG4 ES devices within the datasheet recommended operating conditions.
6. Microsemi does not guarantee life time or reliability of RTG4 ES devices.
7. RTG4 ES devices are offered in Ceramic Column Grid Array (CCGA), Ceramic Ball Grid Array (CBGA) or Ceramic Land Grid Array (CLGA) packages. The hermeticity of the lid seal is not tested and is not guaranteed. The seal integrity should be sufficient to protect the FPGA during normal PCB manufacturing and cleaning processes. However, since hermeticity is not guaranteed, the RTG4 ES devices should not be subjected to thermal vacuum tests. System level flight-model qualification should be performed with flight-qualified FPGAs, meaning FPGAs screened to at least MIL-STD-883 Class B.
8. The lids of RTG4 ES devices have a shallow dimple drilled through the top plating layers but not penetrating the thickness of the lid. The purpose of this dimple is to deter counterfeiting. The drilling operation does not cause operating characteristics of the device to deteriorate.
9. RTG4 ES units may be assembled using an assembly process that is not qualified for space flight.
10. RTG4 ES units will be marked as "ES".
11. RTG4 ES units may have cosmetic visual imperfections.
12. RTG4 ES units are not DLA or QML certified.
13. RTG4 ES units are not tested for radiation performance and should not be used for radiation testing.
14. A system-generated Certificate of Conformance will be shipped with the RTG4 ES units. No other data will be shipped or available to ship with the RTG4 ES units.

15. Microsemi provides general technical support for RTG4 ES through the local Field Application Engineers and through the general Technical Support channels, but will not provide failure analysis support for RTG4 ES devices.
Technical Support Contact Info:
Web: soc.microsemi.com/mycases
Phone (NA): 800.262.1060
Phone (Int'l): +1 650.318.4460
Email: soc_tech@microsemi.com

16. If programming at the Microsemi factory is required, the programming files must be supplied at the time of order placement; Microsemi cannot reserve inventory or units from lots in process pending receipt of customer programming files.

17. No special or customer specific testing will be available for RTG4 ES units. Requests for Single Lot Date Code, specific date codes, Single Wafer Lot, date code restrictions, or specific wafer lots will not be accepted.

18. Microsemi cannot guarantee availability of flight units from the same wafer lot or date code as the RTG4 ES units.

19. No customer QA and/or P.O. clauses will be reviewed or accepted on RTG4 ES orders. There will be no review of customer Terms and Conditions on RTG4 ES orders. Orders will be accepted to Microsemi standard Terms and Conditions only, http://www.microsemi.com/terms-a-conditions

20. RTG4 ES units are under the same export controls as standard RT FPGA units.