



EEE Parts Bulletin

February 2009
Volume 1 Issue 1

ATPO, NEPAG & Section 514
Jet Propulsion Laboratory

Xilinx Virtex Update

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Virtex-4 FPGAs

Recently, a Xilinx ad announced the new Virtex-4. The ad was mistakenly interpreted to mean that the device was a QMLV level part leading a NASA subcontractor to select the part for a flight project. The flight hardware designers are advised that the Xilinx Virtex-4 is NOT a QML part and may not meet project requirements. DSCC and the space community are working with Xilinx for Virtex-4 QML certification.

Virtex-5 FPGAs

Space part users are cautioned regarding the use of the Xilinx Virtex-5 FPGA. Presently this part is only being offered in a commercial flow. Xilinx, through a consortium of partners, has been developing a 'Rad-hard by design' version scheduled to be available in 2011.

For more information, contact Ramin Roosta at (818-354-7385), or Shri Agarwal at (818-354-5598).

Power MOSFETs

International Rectifier Fab Location Change: International Rectifier (IR) has moved its wafer fab operation from El Segundo to Temecula, Ca. IR assumed the move would not change the product, but found that in some instances, performance was impacted. IR does not believe the product difference is serious or will alter performance in the circuits in which they are used, but they have yet to produce proof of this. In a recent telecon with DSCC and the space community, IR was given the action to prepare a spreadsheet listing impacted products and significant performance changes.

Power MOSFET Performance in linear region: Users are cautioned that if power MOSFETs are operated in the linear region, they require additional derating in order to avoid damage. This is not an issue unique to space products – all power MOSFETs produced by space or commercial manufacturers are susceptible. A recent GIDEP Problem Advisory (FV5-P-09-01) from IR states they will update their SOA (safe operating area) curves to include operation in the linear region. Meantime, if a circuit application requires operating power MOSFETs in the linear mode, then the MOSFET should be characterized to ensure proper and safe operation.

For more information, contact Ed Powell at (818-354-3188), or Shri Agarwal at (818-354-5598).



*Contact Us:**NEPAG:**Shri Agarwal**818-354-5598**Shri.g.agarwal@jpl.nasa.gov**Lori Risse**818-354-5131**Lori.a.risse@jpl.nasa.gov**ATPO:**Chuck Barnes**818-354-4467**Charles.e.barnes@jpl.nasa.gov**Section 514:**Rob Menke**818-353-7780**Robert.j.menke@jpl.nasa.gov**Websites:**[ATPO](#)**[514](#)***Recent Acquisitions:***Hybrids*

- SatCon Electronics acquired by Spectrum Control.
- MS Kennedy acquired by Anaren, Inc.

Discretes

Semicoa by Microsemi: the U.S. Justice Dept. filed an antitrust lawsuit against Microsemi regarding this purchase in December 2008.

Vishay VSM & VSMP Precision Foil Resistors

Recently, a project experienced some failures of VSM and VSMP resistors. The failure experience manifested itself as a peeling at the endcap terminations and damage during standard installation procedures. Root cause was not determined, but the parts are fragile and must be handled and installed very carefully. Vishay is currently drafting a GIDEP Problem Advisory pertaining to these parts. The company has made and will continue to make process improvements. Currently, 514 parts specialists are not approving these parts for use in flight designs, but this will be re-evaluated as Vishay makes product improvements. There are alternate leaded devices that are MIL qualified, and more robust surface mounted versions that would require up-screening. Please contact G. Ray Smith for assistance (818-393-7547).

Maxwell EEPROMs

Four Maxwell 79C2040 EEPROMs failed on an assembly, two on engineering modules and two on flight boards. The 79C2040 EEPROM module consists of three hermetic packages stacked on top of each other, electrically connected by metal vias that run vertically through the package walls. The devices were inoperable immediately upon installation and were removed for testing. The 514 Failure Analysis Group has found many of the vias to be open, preventing any operation of the device. A Tiger Team is looking for the root cause of failure. Please contact Dennis Funaiolo (818-354-8556) with questions.

New Technology Evaluations

DSCC, manufacturers and the space community are working together to update MIL-PRF-38535, Appendix H, which will require manufacturers to do their own new technology evaluations. The appendix should be finalized by the end of the 2009 calendar year. Some major manufacturers have already begun collecting test data to determine/validate activation energies for potential failure mechanisms. Contact Shri Agarwal (818-354-5598).

A Parts User Group Meeting

on FPGAs and ASICs was held in December 2008.

See slides at:

PUG Presentation Slides

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