

SPACE



BRIEF

Edition 6 - September 2012



From The Editors

Happy Fall and welcome to Microsemi's Space Newsletter. This edition brings you the latest news on Microsemi's comprehensive range of components and systems for space applications – from discrete transistors, point-of-load power converters, and hybrids, to FPGAs, ASICs and power management systems for space use. We hope you find the content useful, and we request that you pass the newsletter to your colleagues who are not already on our mailing list. Instructions for registering to receive this quarterly newsletter are included at the end.

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Radiation -Tolerant Octal Source Driver

Microsemi has added the first in a new family of octal source driver integrated circuits for space and other high-reliability power electronics control applications including motor control. The AAHS298B is radiation-tolerant to 100kRad (Si) total dose and screened to meet operation temperatures ranging from -55 to 125 degrees Celsius and class S and class B screening levels. The new driver can be used in conjunction with Microsemi's radiation-hardened and-tolerant programmable logic products and diodes to easily implement redundant power management solutions.

The AAHS298B includes eight non-inverting channels and can be used to provide an interface from TTL level, five volt (V) or 12 V logic systems to relays, stepper and servo motors, solenoids and other loads. For further information go to: <http://investor.microsemi.com/releasedetail.cfm?ReleaseID=689916>

Mars Science Laboratory - "Curiosity"

Microsemi once again congratulates the scientists and engineers who worked so hard to successfully create and deploy the Mars Curiosity rover. Microsemi components are in use in many critical systems on the rover. For example, high voltage and low voltage power supplies are in use onboard Curiosity. Microsemi BR247 latching relays are used aboard Curiosity as part of the motor drive control system. Dozens of Microsemi RTAX2000S and RTSX72SU FPGAs are used in the main mission computer and avionics system, various cameras and instruments. Microsemi high reliability diodes, small signal and power transistors are used on Curiosity across a wide variety of systems. The launch vehicle also used Microsemi, high reliability diodes, small signal and power transistors. For further information

go to:

<http://investor.microsemi.com/releasedetail.cfm?ReleaseID=700769>

SA series Radiation-Hardened DC - DC Converters are attracting a lot of interest in the industry.

The 120V versions remain the only radiation-hardened DC - DC converters in the industry segment and offer the additional benefit of full compliance to Mil-Std 461 conducted emissions. A version of the SA120 has been selected for upgrades on the International Space Station and is attracting interest from other customers seeking analog and digital power directly from higher voltage satellite buses.

The 28V version is distinguished by its exceptional efficiency over a very wide input voltage range. The series is applicable to systems with bus voltages up to 50V and will continue to fully perform in a "Brown Out" condition of 17 volts.

Due to the surface mount PWA construction approach of the SA series, customization to particular project needs is a snap and can usually be achieved within normal product lead times. For further information see:

<http://www.microsemi.com/en/products/parametric-search/10203>

26 Million Device-Hours of FPGA Reliability Testing Complete

An independent organization providing technical and scientific research, develop and advisory service to national security and space programs has completed reliability testing of Microsemi's commercial-grade Axcelerator FPGAs. The testing lasted more than four years with an accumulated total of more than 26 million device-hours of testing without any antifuse failures. The Axcelerator FPGAs are the commercial equivalent of the space-flight RTAX-S/SL FPGAs and share the same CMOS structures, antifuse technology, materials, processing dimensions and programming attributes. The RTAX-S/SL FPGAs are radiation-tolerant and include flip-flops protected against radiation-induced upsets by built-in triple-module redundancy (TMR).

RT ProASIC3 FPGA Datasheet Updated

The RT ProASIC3 FPGA datasheet has recently been updated to Revision 4. A key update in this revision is the addition of the Extended Flow, also known as E Flow. The latest revision also includes a lower input leakage current limit of 5 uA at worst case military temperature. For a complete list of datasheet changes, please refer to the latest RT ProASIC3 datasheet:

http://www.microsemi.com/soc/documents/RTPA3_DS.pdf

Customer Notification CN1213 was released to notify customers of the updated datasheet:

http://www.microsemi.com/soc/documents/CN1213_RTPA3_DS.pdf

FPGA Technical Articles

These articles have been published recently to provide customers with recommendations and guidance when designing with Microsemi space FPGAs.

Global Set Fuse operation during the power-up of RTAX-S/SL/DSP FPGAs

<http://www.microsemi.com/soc/kb/article.aspx?id=SL5606>

The need for adequate current supply during the power-down of RTAX-S/SL/DSP FPGAs

<http://www.microsemi.com/soc/kb/article.aspx?id=FQ1274>

Maximum GTL+ clock speed in RTAX-S/SL/DSP FPGAs

<http://www.microsemi.com/soc/kb/article.aspx?id=FQ1273>

Power RTSX-SU FPGAs with negative voltages

<http://www.microsemi.com/soc/kb/article.aspx?id=FQ1275>

Upcoming Appearances and Events

RADECS

Microsemi will be participating in the Radiation Effects on Components and Systems (RADECS) conference and exhibition in Biarritz, France September 24-28, 2012. RADECS promotes basic and applied science and research in the field of radiation and its effects on materials, components and systems. For further information see:

www.radecs.net

RHET

Microsemi will be participating in the Radiation Hardened Electronics Technology (RHET) meeting in Irvine, CA on October 30-31, 2012. RHET is a meeting for the space avionics community with presentations oriented to requirements, plans and programs for the space and missile electronic systems technology base. Microsemi will be

speaking during this conference and hosting a luncheon for RHET attendees on October 31. Please stop by and visit us. For further information see: <http://www.jazzsemi.com/rhet.html>

JAXA MEWS

Microsemi will be participating in the 25th JAXA Microelectronics Workshop on November 1-2, 2012 at the Tsukuba International Congress Center in Japan. This is a highly technical workshop discussing the current status of and the future trends in the space industry. Microsemi will be speaking on the topic of "Applying a System View to Efficient Multi-Device Product Development," illustrating how system-level architectural analysis can be used to create product development roadmaps that result in higher performance and reliability in space systems, while concurrently reducing total system costs. Additionally, Microsemi will be exhibiting in the exclusive booth area with a limited number of other participants. Please stop by and see us. For further information see: <https://eepitnl.tksc.jaxa.jp/mews/en/index.htm>

RUSSIA FIRST INTERNATIONAL FORUM

Microsemi will support Petersburg Electronic Company (PEC), our space partner in Russia, by participating in the first International Technical Forum "Hi-Rel Electronic Components for the Strategic Industries of Russia," which will be held September 19 - 21, 2012. Microsemi will participate in the conference "Key development aspects of the Russian strategic industries" on Thursday, September 20th in St. Petersburg and will feature some of our radiation tolerant power and mixed signal product portfolio for space applications. For further information, see:

http://www.pec.ru/files/Forum_en.pdf

Microsemi Space Forums

Thank you to everyone who participated in our lively survey on US based Forum locations. Your input is being used to help us define the 2nd location for our upcoming Spring 2013 Space Forum.

Space Forum, December 4, 2012 - Los Angeles Marriott Hotel, Los Angeles, California

At this conference there will be two concurrent session tracks following the general session. One track will focus on power and mixed-signal and the other track will cover digital solutions. You will want to note your preferred track when you register online.

Who Should Attend:

The Microsemi Space Forum is an ideal technology event for component engineers, design engineers, system-level architects, R&D engineers and other space industry professionals interested in the latest space-related solutions, system performance, reliability, packaging, radiation, and new digital and analog components for space applications.

The conference runs from 8:00 a.m. to 5:30 p.m. with registration opening at 7:30 a.m. and a cocktail reception and networking event following the close of the Forum.

Registration has just opened for this exciting upcoming forum, please go to:

<http://www.microsemi.com/en/node/125007>

If you want further information please contact: spaceforum@microsemi.com

Future Microsemi Space Forums:

Spring 2013 - US location TBD Washington DC/MD, Philadelphia, Orlando/Tampa, Denver

May 2013 - Noordwijk, Netherlands

July 2013 - Bangalore & Ahmedabad, India

October 2013 - Tokyo, Japan

November 2013 - Moscow, Russia

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<http://www.microsemi.com/soc/interact/default.aspx?p=E402>