

# FutureHorizons



The Global Semiconductor Industry Analysts

## FH MONDAY

24 April 2023

### EPC Launches Rad Hard GaN Transistors for Space Applications

Efficient Power Conversion (EPC) has expanded its family of radiation-hardened (rad-hard) gallium nitride (GaN) products for power conversion solutions with two new devices rated at 100V and 200V to address a multitude of critical spaceborne and other high-reliability applications.

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### Renesas Boosts RISC-V Embedded Processing Lineup

Renesas Electronics Corp. has expanded its RISC-V portfolio with the launching of a RISC-V MCU designed for voice-controlled HMI (human-machine interface) systems. Developed in collaboration with RISC-V ecosystem partners, the R9A06G150 32-bit ASSP provides a complete, cost-effective, production-ready voice-control system solution that eliminates the need for RISC-V tools and upfront software investment.

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### Nexperia ASFETs Enable 60% Footprint Reduction

Nexperia has released 80V and 100V application-specific MOSFETs (ASFETs) for hotswap with enhanced safe operating area (SOA) in a compact 8x8 mm LFPK88 package. These new ASFETs are fully optimized for demanding hotswap and soft-start applications and are qualified to 175°C for use in advanced telecom and computing equipment.

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## TALK TO US



### Infinion Automotive MCUs Support Rust

Infinion Technologies AG has taken the first step to create a Rust ecosystem in the embedded sector—making the company the first major semiconductor manufacturer to officially support Rust for its microcontrollers (MCUs). First up are the market-leading AURIX TC3xx and TRAVEO T2G automotive MCUs.

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## EVENTS

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### Sony Semiconductor invests in Raspberry Pi

Sony Semiconductor Solutions (SSS) has agreed to make a strategic investment in Raspberry Pi Ltd. (RPL), the developer of small, low-cost, single-board computers whose devices SSS has manufactured for more than a decade.

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## **EPC Launches Rad Hard GaN Transistors for Space Applications**

Efficient Power Conversion (EPC) has expanded its family of radiation-hardened (rad-hard) gallium nitride (GaN) products for power conversion solutions with two new devices rated at 100V and 200V to address a multitude of critical spaceborne and other high-reliability applications.

The EPC7020 is a 200V, 11mΩ, 170APulsed rad-hard GaN FET in a small 12mm<sup>2</sup> footprint, while the EPC7003 is a 100V, 30mΩ, 42APulsed, rad-hard GaN FET in a 1.87mm<sup>2</sup> footprint. Both devices have a total dose radiation rating greater than 1,000K Rad (Si) and SEE immunity for LET of 83.7MeV/mg/cm<sup>2</sup> with VDS up to 100% of rated breakdown.

These new devices, along with the rest of the Rad Hard family, EPC7019, EPC7014, EPC7004, EPC7018, EPC7007, are offered in a chip-scale package, the same as the commercial eGaN FET and IC family. Packaged versions will be available from EPC Space.

## **Renesas Boosts RISC-V Embedded Processing Lineup**

Renesas Electronics Corp. has expanded its RISC-V portfolio with the launching of a RISC-V MCU designed for voice-controlled HMI (human-machine interface) systems. Developed in collaboration with RISC-V ecosystem partners, the R9A06G150 32-bit ASSP provides a complete, cost-effective, production-ready voice-control system solution that eliminates the need for RISC-V tools and upfront software investment.

Targeting residential and commercial building automation, home appliances, toys and healthcare devices, the new ASSP supports multiple languages and user-defined keywords for voice-recognition operations. The foundation of a turnkey voice-control solution, the R9A06G150 is pre-programmed using specialized application code developed by independent design houses with a proven ability to bring customer designs to volume production.

## **Nexperia ASFETs Enable 60% Footprint Reduction**

Nexperia has released 80V and 100V application-specific MOSFETs (ASFETs) for hotswap with enhanced safe operating area (SOA) in a compact 8x8 mm LPAK88 package. These new ASFETs are fully optimized for demanding hotswap and soft-start applications and are qualified to 175°C for use in advanced telecom and computing equipment.

Nexperia's PSMN2R3-100SSE (100V, 2.3mΩ N-channel ASFET) is the leading addition in the portfolio, delivering low RDS(on) and strong linear-mode (safe operating area) performance in a compact 8x8mm footprint, tailored to meet the requirements of demanding hotswap applications. Nexperia has also released PSMN1R9-100SSE (80V, 1.9mΩ), an 80 V ASFET which responds to the growing trend for using 48 V power rails in computing servers and other industrial applications where environmental conditions allow for MOSFETs with a lower BVDS rating.

## **Infineon Automotive MCUs Support Rust**

The development of secure systems is critical for the automotive market. The Rust programming language, with its built-in support for memory-safe software development, is an important enabler for the design of mission-critical automotive software.

Infineon Technologies AG has taken the first step to create a Rust ecosystem in the embedded sector—making the company the first major semiconductor manufacturer to officially support Rust for its microcontrollers (MCUs). First up are the market-leading AURIX TC3xx and TRAVEO T2G automotive MCUs. While TRAVEO uses the official Rust tool chain and Arm Cortex-M targets, a dedicated Rust compiler has been developed for AURIX by Infineon's tool partner HighTec EDV-Systeme. PSoC and AURIX TC4x support will follow in the second half of 2023.

## **Sony Semiconductor invests in Raspberry Pi**

Sony Semiconductor Solutions (SSS) has agreed to make a strategic investment in Raspberry Pi Ltd. (RPL), the developer of small, low-cost, single-board computers whose devices SSS has manufactured for more than a decade.

Raspberry Pi devices like the recently announced Global Shutter camera module already include Sony sensors, and the companies said in a statement that Sony Semiconductor's minority investment "cements the relationship between the two companies, to provide a development platform for SSS's edge AI devices" to RPL's global user community.

"Our goal is to provide new value to a variety of industries and support them in solving issues using our innovative edge AI sensing technology built around image sensors," said SSS President and CEO Terushi Shimizu, in a statement. "We are very pleased to be partnering with Raspberry Pi Ltd. to bring our AITRIOSTM platform -- which supports the development of unique and diverse solutions utilizing our edge AI devices -- to the Raspberry Pi user and developer community, and provide a unique development