Press Release

Teledyne e2v HiRel Introduces New Radiation Tolerant 2.5 GHz, 100 W RF Power Limiter

Limiter offers customers a monolithic, all-in-one solution for high reliability applications

MILIPITAS, CA – December 5, 2019 – Teledyne e2v HiRel today announced the availability of a new RF power limiter, the 2.5 GHz, 100 W TDLM025100. The limiter is a monolithic integrated circuit based on a Silicon-on-Insulator (SOI) technology that is ideal for use in high reliability aerospace and defense applications.

This new integrated device provides customers with a more reliable and robust power protection solution compared to the traditional industry alternative, discrete GaAs PIN diode circuits with multiple external components. The power limiter delivers low insertion loss and high linearity under non-limiting power levels and extremely fast response time in a limiting event, ensuring protection of sensitive circuitry.

Manufactured on the UltraCMOS® process, an advanced form of SOI technology, the TDLM025100 is available in a leadless, ultra-small 4x4 mm hermetic QFN package. Fully screened for space applications, it provides reliable protection for sensitive transceivers, with a response time of <1 ns. Evaluation kits, EM units, and flight units are in stock and available for customers.

“This new product further builds on our strong heritage developing many types of semiconductors qualified to meet a wide range of ruggedized environmental requirements,” said Mont Taylor, VP Business Development at Teledyne e2v HiRel. “We’re now pleased to be incorporating SOI technology into our product offerings while continually growing our portfolio of standard RF building blocks such as amplifiers, LNAs, PAs, DVGAs, DSAs, Limiters, Mixers, Prescalers, PLLs, Switches, and more. We continue to be committed to customers designing RF signal chains that meet the high-reliability challenges of defense and space applications.”

Traditionally, with a PIN diode, the input signal is shunted to ground. PIN diodes are known for their high maximum power handling and low insertion loss. However, they also feature slow response and recovery time, poor linearity, low ESD ratings, and require dc blocking capacitors. Additionally, PIN diodes take a significant amount of time to design and validate and cannot be easily integrated into a system.

In contrast to PIN diodes, the TDLM025100 power limiter provides a 10–100x improvement in response and recovery time, delivers a greater than 10–30 dB linearity (IIP3) improvement and offers a 20x improvement in ESD protection. Finally, the limiting threshold can be adjusted through a high impedance voltage control pin (VCTRL), eliminating the need for external components such as dc blocking capacitors, RF choke inductors and bias resistors.

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ABOUT TELEDYNE e2v HiRel
Teledyne e2v innovations lead developments in space, transportation, defense, and industrial markets. Teledyne e2v’s unique approach involves listening to the market and application challenges of customers and partnering with them to provide innovative standard, semi-custom or fully-custom solutions, bringing increased value to their systems. For more information, visit www.teledyne-e2v.com.

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Media Contact:
Darrek Porter, Director of Marketing
Teledyne Defense Electronics
(404)-368-9714 darrek.porter@teledyne.com