Protec GmbH
High-Rel Electronic Components

SPACE COMPONENTS NEWSLETTER *January 2022*

New Components for your Rad Hard Space Applications

DDR4 Memory Module up to 2.4GT/s

TELEDYNE e2V HIREL ELECTRONICS Everywhereyoulook™

Fault Tolerant DDR4T04G72:

- 4GB; 72 bits (64 bits data + 8 bits ECC)
- Size 15mm x 20mm x 1.92mm
- TID 100krad / SEL >60MeV
- Temp. Range -55°C to 125°C
- Qual Flow Nasa Level 1 and ESA Class 1

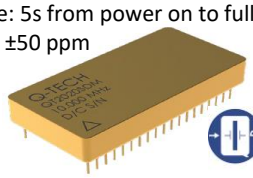
EM & EQM ➔ available now
FM ➔ Q1/2022

Support for interfacing with: Xilinx KU060 and MPSOC ZYNQ Ultrascale+ & Microchip RT Polarfire

QT2020 MCXO

OCXO performance with less then 90mW

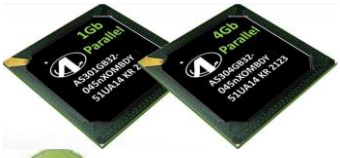
- SWaP much better than traditional OCXOs
- As low as ±10ppb frequency stability performance
- Initialization time: 5s from power on to full performance
- Startup 20 ms to ±50 ppm
- 50kRad (Si) TID



Q-TECH CORPORATION
www.q-tech.com

Space Grade MRAMs 4Mb up to 4Gb

Parallel and Serial version available

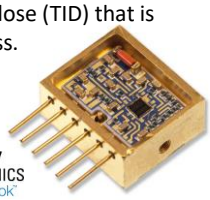


avalanche technology
Spin Programmable Solutions

NuDos Micro Dosimeter

Low Power, 5V single supply, 14µrad resolution

The NuDos Low LET dosimeter is a compact hybrid microcircuit which directly measures total ionizing dose (TID) that is absorbed by an internal silicon test mass. The test mass simulates silicon die of integrated circuits on board in critical mission payloads and subsystems.



TELEDYNE e2V HIREL ELECTRONICS Everywhereyoulook™

EV12DD700 dual-channel DAC

Convert from any band up to Ka-Band

EV12DD700 capable of operating up into Ka-band frequencies and support beamforming applications. They have a 25GHz output bandwidth with only 3dB attenuation being witnessed, and can go way beyond this with just a little over 3dB attenuation. Built into each DAC is an array of sophisticated signal processing functionality. This encompasses a programmable anti-sinc filter and direct digital synthesis (DDS) capabilities, as well as a programmable complex mixer. Also included is a digital up-converter (with four interpolation stages, plus sinc compensation).

PRODUCT STATUS UPDATE

- DESIGN COMPLETED
- FIRST SAMPLES IN LAB
- ELECTRONICA 2020 DEMO CONFIRMED
- PRE- RESERVE EVAL KIT NOW
- QUALIFICATION PENDING
- RADIATION TESTING PENDING

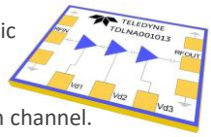
ESCC9000 Qualified LVDS Driver & Receiver

ANSI EIA/TIA644A std
500Mbps Channel data rate
Low Channel skew and jitter
Cold-spare in all pins
TID: 300 kRad(Si) / SEL immune
BER <10-13 err/bit (GEO Orbit)
Improved compatibility with SpaceWire standard

ARQUIMEA

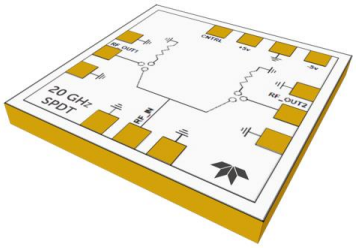
Rad Tolerant X-Band LNA

The TDLNA001013 LNA leverages monolithic microwave integrated circuit (MMIC) design techniques that deliver superior performance in the X-band communication channel. The TDLNA01013 delivers a gain of 26 dB from 8 GHz to 12 GHz while maintaining a noise figure of less than 1.4 dB and an output power (P1dB) of 12 dBm. The Class K-equivalent element evaluation is performed per wafer.



TELEDYNE e2V HIREL ELECTRONICS Everywhereyoulook™

Rad Tolerant 20GHz SPDT RF Switch



The TDSW020A2T leverages monolithic microwave integrated circuit (MMIC) design techniques that deliver superior performance in the Ku and K microwave and millimeter-wave bands. The switch delivers low insertion loss, high isolation, fast switching times, and high linearity across a wide frequency band from dc to 20 GHz and attains an input power 1 dB compression of 28 dBm (typical). Class K equivalent element evaluation is performed per wafer. Qualified to 100 krad.

TELEDYNE e2V HIREL ELECTRONICS Everywhereyoulook™