

Ruby 1.3M USV

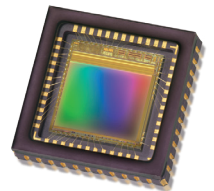
Industrial Image Sensors Upscreened for Space

1.3 MP RADIATION TOLERANT IMAGE SENSOR FOR STAR TRACKERS & MONITORING CAMERAS



Teledyne e2v Ruby 1.3M USV is a compact 1280 x 1024 pixels radiation tolerant CMOS image sensor optimized in size, weight and power with no compromise on performances. It works in a global or electronic rolling shutter mode and is available in monochrome or optionally color version.

Very compact (12.7 x 12.7 mm²) and featuring less than 200 mW power consumption, Ruby 1.3M USV is ideal for SWaP star trackers or monitoring cameras for satellites, moon rovers or landers, and space suits.



SENSOR FEATURES

Very compact 12.7 x 12.7 mm² CLCC ceramic package

Very low power: less than 200 mW

Global shutter @ 60 fps

5.3 µm pixel pitch with possible HDR mode

CUSTOMER BENEFITS

Compatible with cost-effective 1/1.8" lenses allowing to design very compact systems

Suitable for battery powered applications or applications requiring low level of energy

Sharp images of moving object

Sensible image sensor able to work in high-contrast scenes

SPACE PERFORMANCES

SEL:

- Ruby 1.3M USV is free of SEL below 40 MeV.cm².mg⁻¹, at T = 38°C and stay conform over the entire electrical specification.
- Even below 42 MeV.cm².mg⁻¹, they are no destructive SEL and they can be quenched by powering the sensor off.

TID:

- Ruby 1.3M USV remains compliant with the specification after TID irradiation at 10 and 20 krad (Si)

Qualification: 2 levels of space qualification available

- ECSS 9020 like flow (screening + LVT)
- INST-002 NASA Class 3 tailored for image sensors

SENSOR CHARACTERISTICS

PARAMETER	Ruby 1.3M USV
Resolution – pixels	1280 x 1024
Pixel size	5.3 μ m
Pixel type	Global shutter
Image diagonal	8.7 mm
Aspect ratio	5:4
Optical format	1/1.8"
Frame rate	60 fps @ full format
Dynamic range	55 dB GS 60 dB ERS
SNR max	39 dB
QE	> 55% @ 550 nm
Bit depth	10 bits
Package type	CLCC
Package size	12.7 x 12.7 mm
Power consumption	< 200 mW
Output	Parallel
Communication interface	SPI controls

EMBEDDED FUNCTIONS

- Multi-ROI (MIMR or SIMR)
- Image histograms and context output
- Sub-sampling, windowing
- Flipping
- Pixel binning
- Defective pixel correction
- High dynamic range capability