



Cardinal 640 Low Noise

640 x 512, 15 μ m, InGaAs Detector
with digital ROIC



General Description

Cardinal 640 is a state-of-the-art Planar In GaAs P-I-N diode array with a Digital Low Noise ROIC. The detector can be supplied in two types of package:

- Metallic package which includes a Thermo-Electric Cooler (TEC)
- Ceramic TEC-less package

The metallic package can be supplied with a low power proximity board which provides:

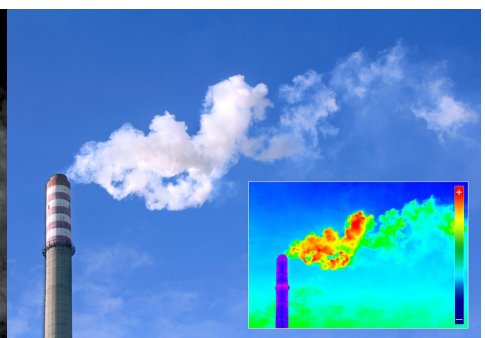
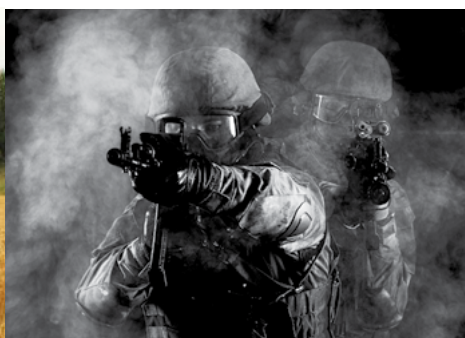
- Timing and ROIC power supply
- Camera Link® Interface
- TEC controlled electronics

Main Features

- Very low floor noise mode ($15e^-$)
- Active imaging oriented
- Gated imaging capability
(100ns time constant @ 64x64 ROI)
- High frame rate with global shutter
- Digital interface
- Low power Camera Link® interface

Applications

- Low light level imaging
- Active imaging
- Gated imaging
- High quality daylight SWIR imaging
- Image intensifier replacement
- Hand held goggles
- Weapon Sights
- Industrial/Scientific Imaging





Typical Performance

Parameter	Value
Format & Pitch	640 x 512, 15µm
Spectral Range	0.6-1.7 (VIS-SWIR)
Quantum Efficiency	>80% at 1550nm
Dark current	< 1 fA @ 283K
Pixel Operability	> 99.5%
Operating Modes and well capacity	High gain (for Low Light Level imaging) – 15Ke Low gain (for high quality daylight imaging) – 0.3Me
Maximum FR at full window (low gain mode)	360 F/s @ 13 bit resolution Global Shutter
ROIC Noise (typical)	High gain 15e ⁻ (with CDS) Low gain 170e ⁻
Windowing	Flexible, 2 row step
Active Imaging time constant	600nsec @ full frame 100nsec @ 64x64 block
FPA power dissipation	~ 100mW @ 60 F/s
Ambient operating temperature	-40c to 71c
Package	Metallic (vacuum tight), 30x30 mm ² Ceramic TEC-less (Inert Gas) low SWaP,
Cooling capability (metallic package only)	25x20mm ² -10C @ 30C environment
Proximity electronics (optional for metallic package)	Camera Link® interface Power dissipation: < 1.7W @ 60Hz, 25c environment temperature (without TEC) TEC control circuitry Frame CDS support EMC compatibility to MIL-STD-461C

Specifications are subject to change without notice



SCD.USA Infrared/ Colorado
T (321) 652-8056 / www.scdusa-ir.com
contactus@scdusa.com

SCD Israel / Haifa
T (972) 4 9902535 / www.scd.co.il
marketing@scd.co.il