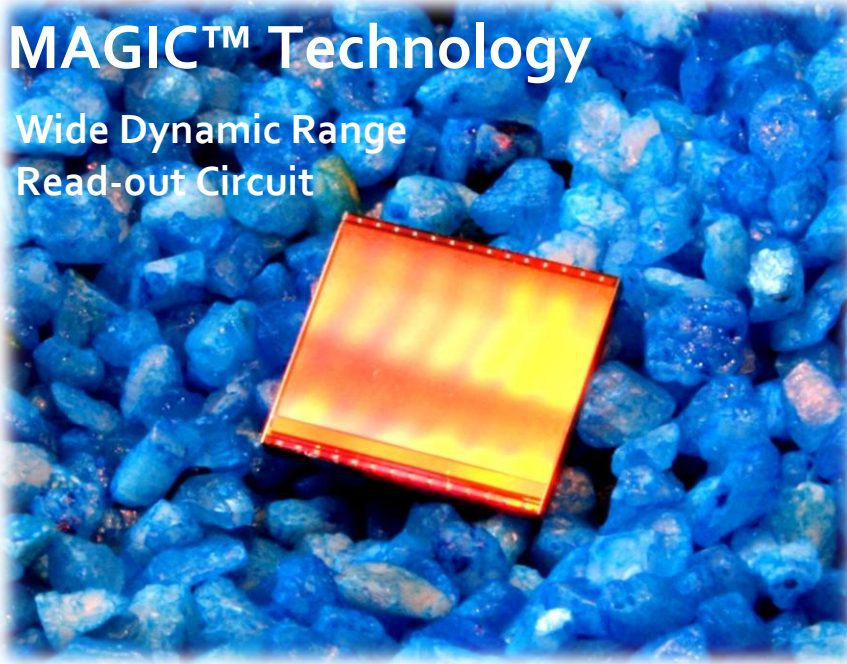


# MAGIC™ Technology

## Wide Dynamic Range Read-out Circuit



Multipurpose Wide Dynamic Range Voltage Mode Readout Circuit

## Ease your design with Native WDR™



### Key Features

- **Native WDR™:** Provide intrinsic 120 dB dynamic range when used with any junction photodiode
- **Voltage Read out Mode :** No integration and no bias – allows to sense voltage levels into an almost infinite impedance amplifier
- **QVGA resolution,** 320 x 256 active pixels, 25 µm square pixels, 10.24mm diagonal
- **Adapted** to any photodiode polarity (P-on-N or N-on-P)
- **Ultra Low power consumption :** less than 170mW full frame
- **Indium Bump** hybridization ready, compatible with most ROIC's from other vendors.

### Applications

- **X Ray** Sensors and imaging
- **UV** sensing
- **IR** Focal plane arrays
- **Terahertz** Sensor design
- **Automotive** vision
- **Intelligent Transportation** Systems
- **Biometric** and medical imaging
- **Helmet** mounted cameras

**NSCo803** is a 320 x 256 pixels resolution multipurpose readout circuit which operates in Voltage sensing mode. There is no bias or integration into a capacitor. The circuit input impedance is almost infinite allowing to sense very low power signals.

When connected to a junction photodiode array, **NSCo803** offers a true logarithmic response versus optical illumination without saturation with more than 120 dB true dynamic range. The logarithmic response is intrinsic to the sensor thanks to the Solar Cell pixel structure, therefore there is no need to program any register or change setup according to illumination conditions. Moreover **NSCo803** delivers a **stable contrast indexed image** that is independent of the ambient illumination. **NSCo803** operates in rolling shutter mode.

### Technical Specifications

• <b>Pixel Size:</b>	25µm x 25µm	• <b>Readout Mode:</b>	Rolling shutter
• <b>Diagonal:</b>	10.24 mm	• <b>Digital Controls:</b>	8 bits CMOS
• <b>Array Format (active):</b>	320H x 256V, 10.24mm diagonal	• <b>Windowing:</b>	Full frame 320 x 256
• <b>Imaging Area:</b>	8mm x 6.4mm	• <b>Supply Voltage:</b>	2.8-3.3V
• <b>Interconnection pads</b>	10µm x 10µm square shape of top metal – 5µm x 5µm clear-of-nitride window	• <b>Power Consumption:</b>	<170mW at full frame
• <b>Dynamic Range:</b>	>120dB	• <b>Operating Temp. Range:</b>	80°K to 300°K
• <b>Signal Output:</b>	Buffered analog differential	• <b>Package:</b>	Provide as a full 8'' wafer (300 Readout Circuits)

Picture taken from an InGaAs camera based on Magic Voltage Mode Readout Circuit

