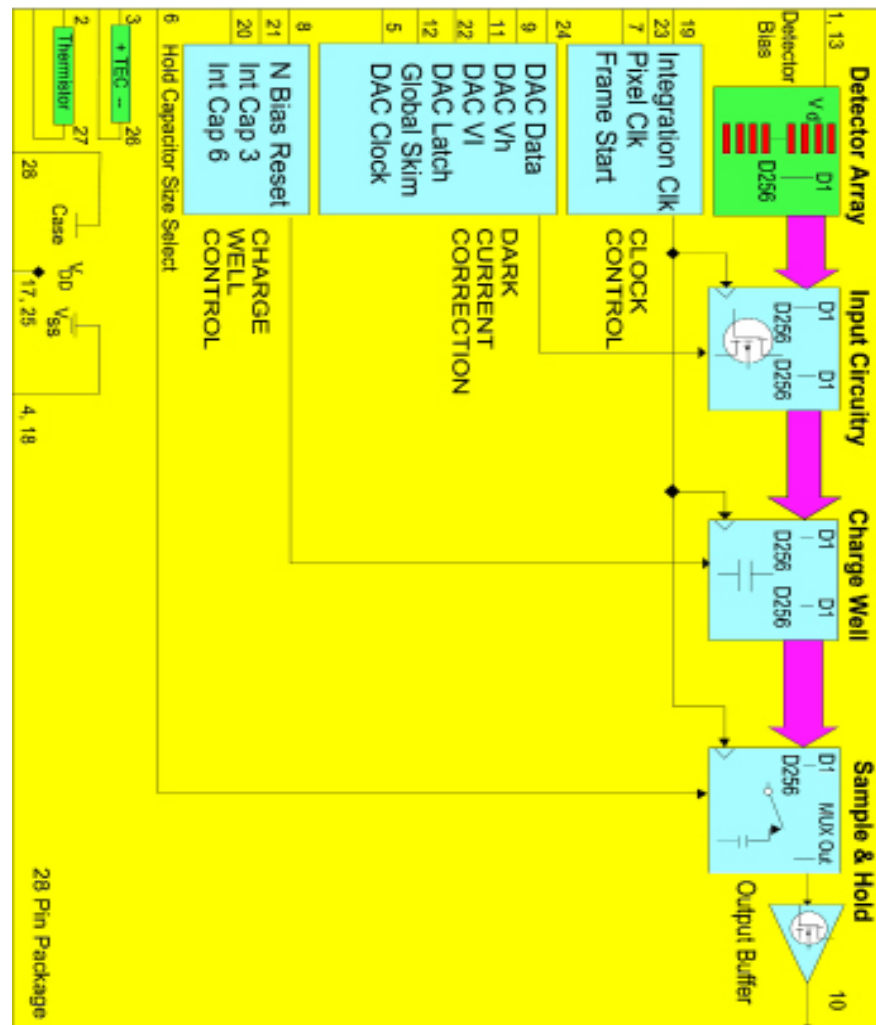


## Cal Sensors 256 Element Multiplexed Array Functional Diagram



### USB Interface Board Features & Specifications

- USB interface to controller
  - Can be controlled by software commands with supplied driver
- Simple command structure interface
- On-board microcontroller controls all multiplexed array functions
  - Cooler control to set point temperature
  - All multiplexed timing and control voltages
  - Detector bias voltage
  - A/D converter control
  - Storage of all control and correction coefficients in non-volatile memory
  - Automatic reload at power-up
- 16 bit A/D converter at 500k samples/sec
- Efficient, high current PWM cooler drive FET requires no additional heatsinking
  - Synchronization with A/D conversion ensures low noise
- Simple power requirements
  - 12V@100mA
  - 4 to 6 volts @1.5A
- Small size: 2.1" x 1.4" x 0.4"
- Direct interface to standard 28 pin package

## Contact Information:

### Headquarters and Worldwide Sales:

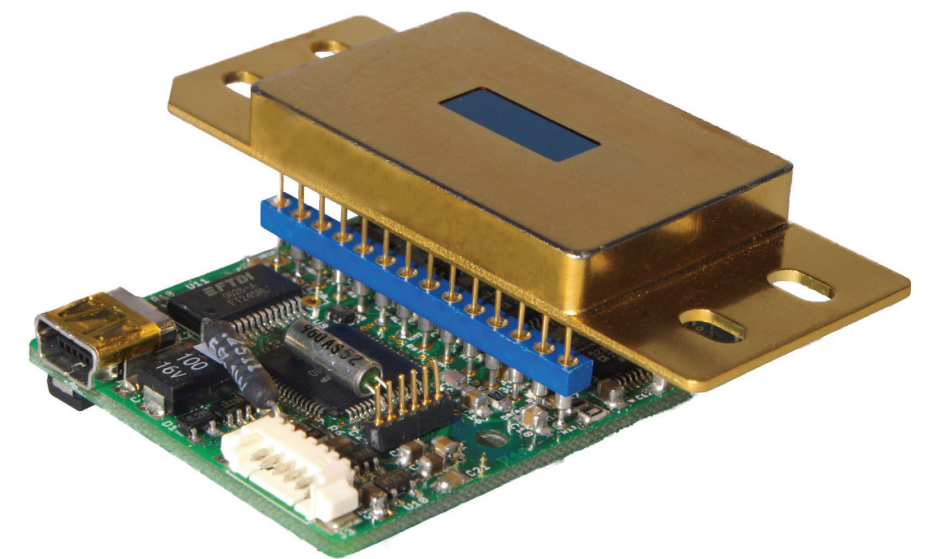
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### Our Sales Representative Near You:

## LIRA<sup>5S</sup>

256 Element Multiplexed Arrays for  
**Thermography and  
Thermal Imaging**



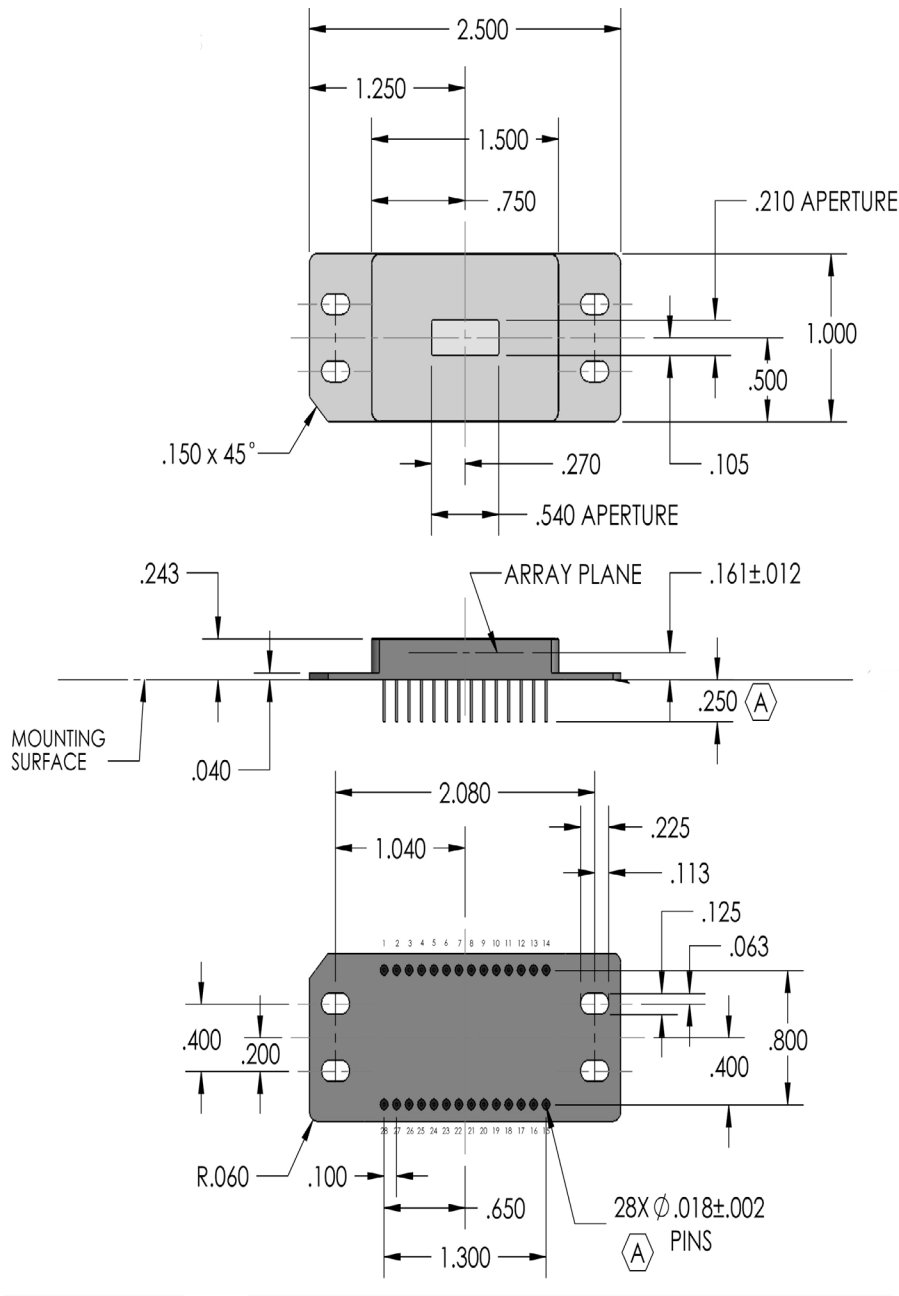
**Lead Selenide (PbSe)**  
**1-5  $\mu$ m**

PbSe Multiplexed Array Features:

- The low profile package features a detector with square pixels on 50 micron centers.
- The internal electronics provide variable integration and dark current correction.
- Temperature stabilization is achieved using an internal thermoelectric cooler and thermistor.
- This product is designed for thermography and thermal imaging applications in the 1 to 5 micron wavelength region.
- The internal multiplexer includes a serial readout up to 4 MHz and a global plus 8 bit per pixel dark current correction.
- Signal integration is variable with adjustable well size and can be generated before or during readout.
- The array package is supplied with a compact USB controller board (optional) for easy computer interface.
- Can be supplied as a development system.

256 Element PbSe Multiplexed Array Performance

Parameter:	Typical Performance:
Operating Wavelength Range:	1 to 5 Microns
Number of Elements:	256 detector elements
Element Size:	Pixel size 40 microns square, and pitch 50 microns
Peak Detectivity:	D* : 1.0 x10 <sup>10</sup> (Jones)
Resistance Uniformity (pixel-to-pixel):	±15% of array signal mean
Integration Range:	.01mS to 200mS (on board)
Pixel Clock:	2MHz max. for 4MHz data output
Linearity:	90%
Pixel Operability:	98% minimum
Detector Rise Time:	<10µS
Input Power Requirement:	7 VDC mux, 8VDC cooler 1.7A max



PIN FUNCTION

1 DETECTOR BIAS	10 MUX OUT	19 INT CLK
2 THERMISTOR A	11 DAC V1	20 NC
3 TEC (+)	12 GLOBAL SKIM	21 NC
4 NC	13 DET BIAS	22 DAC LOAD CLK
5 SERIAL CLK	14 NO CONNECTION	23 PIXEL CLK
6 CFG LOAD CLK	15 NO CONNECTION	24 SERIAL DATA
7 FRAME START	16 NO CONNECTION	25 NC
8 N BIAS RST	17 Vdd	26 TEC (-)
9 DAC Vh	18 Vss	27 THERMISTOR B
		28 CASE

See website for descriptions of pin functions.

System Timing Diagrams

