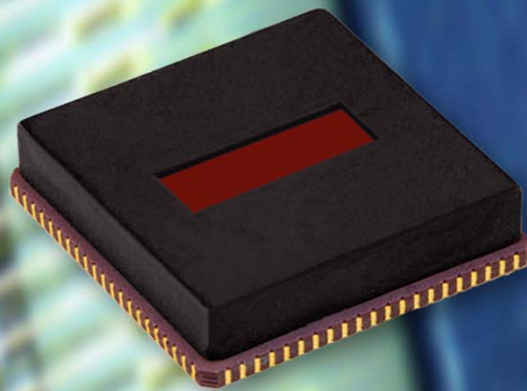




Infrared Materials
The Leader in High Performance IR Detectors

PbS

256 Pixel SWIR Linear Array
1.2 to 3.3 Microns



Integral TEC | -20°C Operation (45 Degrees DT)
256 Channel Multiplexer (MUX)

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707-620-0160



PbS SWIR PHOTOCONDUCTIVE IR ARRAYS | 1.2 - 3.3 MICRONS



Array Mechanical Characteristics			
Optical Interface	84-pin Leadless Chip Carrier (LCC), 0.317" height, 1.150" Square		
Window	0.50 mm Thick Silicon with Long Wave Pass (LWP) Anti-Reflective Coating		
Array Type	PbS Quantum Photoconductor		
	*PbSe versions also available for spectral sensitivity from 1.2 - 5.5 Microns		
Resolution	256 x 1	--	
Pixel Size	0.040 x 0.450	--	mm
Pixel Options	0.040 x 0.040	(Square Pixel)	mm
	0.040 x 4.50	(Long Pixel)	mm
Array Length	12.85	--	mm
Pixel Pitch	0.050	(On centers)	mm
Pixel Operability	> 98%	--	
Cooling Element	Thermoelectric Cooler (TEC)	1-Stage, 10 Watt, RoHS	5.0 VDC @ 2.0 Amps
Field of View (FOV)	> 40	--	Degrees
Readout Electronics (ROIC)			
ADIC PC06 R6 Array Controller	32 Bit microcontroller (80 MHz)	16 Bit A/D Converter	On Board EEPROM
External Hardware Trigger Input	External Shutter Control	Auto Calibration Feature	Integrated TE Cooler Board
Default Temp range -20 to +25°C	Control Stability to ± 5 mK	Array Software & SDK Available	
Readout Method	Multiplexer, 256 Channel, DC Integrating w/ Global & 8 Bit Per Pixel Dark Current Correction		
Readout Control / Windowing	Feature to readout all 256 pixels or a user defined value, e.g., 2, 8, 16, 32, 64, 128, etc.		
Integration Time Range**	4 (Min.)	--	µs
	210 (Max.)	--	ms
	**Digitally selectable in 3.2 µs steps.		
Frame Rate***	Sample rates up to 1700 frames per second, 1 to 64K block selectable		
	***Maximum frame rate achieved at the minimum integration time		
Operating Modes	Integrate While Read (IWR)		
	Integrate Then Read (ITR)		
Compatibility	Windows DLL Software Interface, Linux Compatible		
	Programming languages supported: Visual C#, Visual C++, and more.		
Interface Protocol	USB 2.0 (Ethernet, SPI, RS485 Serial Communication Interfaces Under Development)		
Power Requirement:			
Data Acquisition / TEC Controller	15 VDC	1.6 A	--
Spectral Characteristics			
Operating Range (λ)	1.2**	3.3	Microns
	**Cut-on wavelength is dependent upon the window material		
	Other window options are available for wavelength sensitivity at or below 1.0 Microns.		
Wavelength Peak (λ _{pk})	>= 2.4 (Min.)	<= 2.5 (Max.)	Microns
Electrical Performance Characteristics			
Pixel Resistance Range +25°C (Typ.)	10	11	MΩ
-20°C (Typ.)	50	60	MΩ
D* (D-Star) Detectivity +25°C	>= 1.0 x 10 ¹¹ (Min.)	No Upper Limit	cm Hz ^{1/2} w ⁻¹
Responsivity	2.5 x 10 ⁶ (min.)	5.0 x 10 ⁶ (Typ.)	V/W
Response Uniformity	± 15 of Mean	--	%
Quantum Efficiency (QE)	2	--	%
Time Constant (T _c)	250 @ +25°C (Typ.)	1600 @ -20°C (Max.)	uSec
NEP	No Data	--	pW
General Specifications			
Operating Temperature	-20	--	°C
Operational Temperature Range	-50	+75	°C
Maximum Incident Light	1x10 ⁻³	--	W/cm2
Storage Temperature	-50 (Min.)	+75 (Max.)	°C
Thermistor Resistance	10 ± 5% @ +25°C	Not calibrated	KΩ