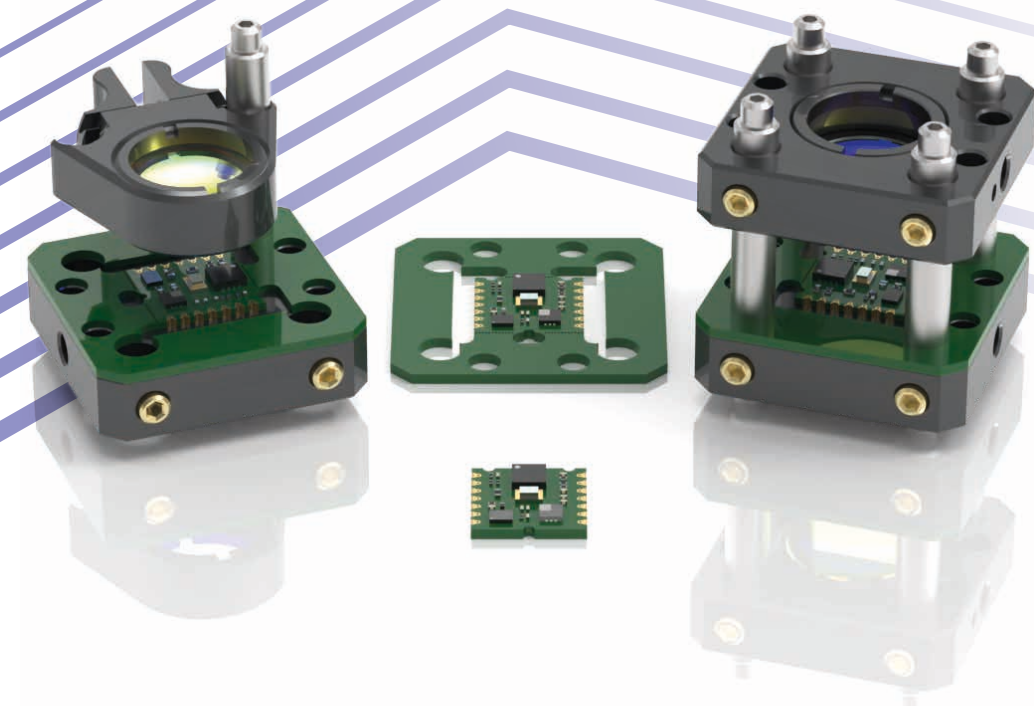




AM03461-01 Digital IR Detection Module

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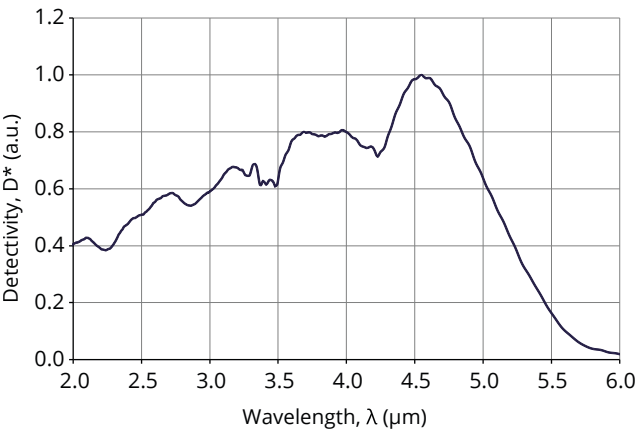
INFRARED DETECTION MODULE WITH A 150 kSps, 24-bit ADC AND PGA

FEATURES

- RoHS-compliant III-V material
- Spectral range: 2.0 to 5.6 μm
- Active area diameter: 1 mm
- Bandwidth:
 - analog up to 1 MHz
 - digital 150 kSps, 24-bit resolution
- Single, low-voltage power supply: 2.7 to 3.6 V
- ADC MCP3565R
- Integrated PGA (0.33x to 64x)
- 20 MHz SPI-compatible interface
- Small dimensions: 10 mm $\times$ 10 mm
- Compatible with THORLABS 16 mm cage system

SPECTRAL RESPONSE

(Typ., norm., $T_{\text{amb}} = T_{\text{chip}} = 293\text{ K}$)



APPLICATIONS

- Gas detectors with MEMS, LED, or laser sources
 - Temperature sensors
- Embedded systems
 - Portable devices

RELATED PRODUCTS

- **AM03100-02** RoHS-compliant detection module
 - **AMS-3140-01, AMS-DIG-PROC** RoHS-compliant detection module with digital processing board
- **PVA-5-d1-SMD-NW-115** RoHS-compliant detector

DEDICATED ACCESSORIES

- **SP03** - Compact Cage Plate with 16 mm Aperture for a 16 mm Cage System
 - **SP02** - $\varnothing 1/2"$ lens holder - Compact Cage Plate with SM05 Thread for a 16 mm Cage System
 - **QRC05A** - quick-release lens holder - SM05-Threaded Quick-Release Cage Mount for the 16 mm Cage System
- **LA5315** - $\varnothing 1/2"$ CaF2 Plano-Convex Lens, $f = 20\text{ mm}$, Uncoated
 - **SR1** - Compact Cage Assembly Rod, 1" and 2" Long, $\varnothing 4\text{ mm}$
 - **SR2** - Compact Cage Assembly Rod, 1" and 2" Long, $\varnothing 4\text{ mm}$

SPECIFICATION

(Typ., +3.0 V supply, $T_{\text{amb}} = T_{\text{chip}} = 293\text{ K}$, $R_{\text{load}} = 1\text{ M}\Omega$ to ground, unless otherwise noted)

Parameter	Value	Unit
SPECTRAL CHARACTERISTICS		
Cut-on wavelength, $\lambda_{\text{cut-on}}$ (10%)	2.0	μm
Peak wavelength, λ_{peak}	4.5	μm
Cut-off wavelength, $\lambda_{\text{cut-off}}$ (10%)	5.6	μm
Responsivity, R_v (λ_{peak})	346.67200	V/W
Detectivity, D^* (λ_{peak} , 1 kHz)	1.0×10^9	$\text{cm} \cdot \text{Hz}^{1/2} / \text{W}$
OPTICAL		
Active area diameter, d_A	1	mm
Acceptance angle, Φ	180	deg.
DIGITAL OUTPUT PERFORMANCE		
Resolution	24	bit
Maximum sample rate	153.6	kSps
PDA gain	0.33..64	V/V
Oversampling	32..98304	-
ANALOG OUTPUT PERFORMANCE		
Output offset (no radiation)	1.0	V
PeakDetector	0.3	ms
Output impedance, R_{out}	0	Ω
Output voltage swing, negative	0.01	V
Output voltage swing, positive	2.9	V
Low cut-off frequency, f_{lo} (DC coupling)	0	Hz
High cut-off frequency, f_{hi}	1.0	MHz
POWER SUPPLY		
Supply current on V_{amp} and GND pins ($R_{\text{load}} = 50\Omega$)	20	mA