PRELIMINARY

LD11/21 Series
Single Channel Current Mode Differential Pyroelectric Detectors

Features

- Revolutionary differential amplification scheme
- Charge Harvesting from top and bottom of chip
- Thermal based detector, any radiation absorbed produces a signal
- Integrated Op-Amp
- Wide spectral coverage from the UV to LWIR
- Modular design principle
- Assembled in an ISO:9001 facility
- Microphonics reduction as standard

Applications

- Non-dispersive infrared gas analysis
- Flame and fire detection
- Non-contact temperature measurement
- Flame control
- Moisture monitoring

Versions

- True differential with differential output for full flexibility in reduction of EMI or common mode rejection and ground noise
- Diff2 with integrated two stage differential amplifier for retrofit
- 17 standard filter options (including small and large apertures)
- 9 Standard window options

11/18 / V02 / HW / lc-pyros/ld11-21-cm-pyros

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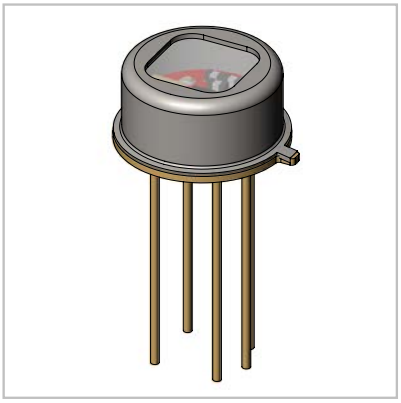
LD11/21 Series
Single Channel Current Mode
Differential Pyroelectric Detectors

PRELIMINARY

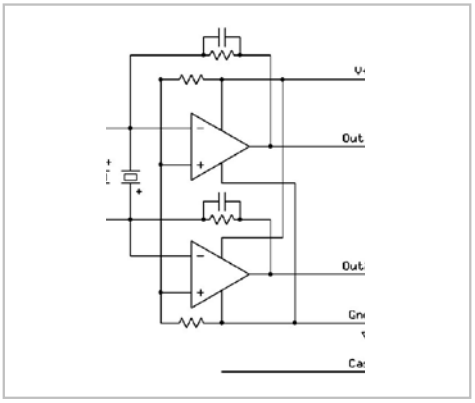
LD2100X2020

- Single channel Pyroelectric detector
- True differential output
- Current mode
- Single supply
- TFC

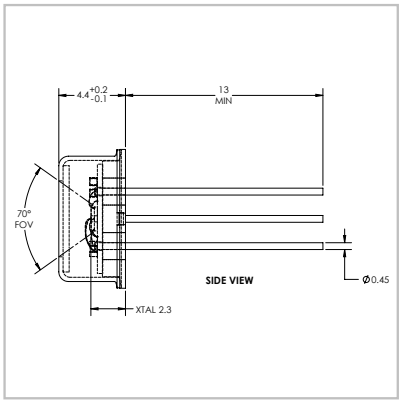
Isometric Drawing (with cutaway)

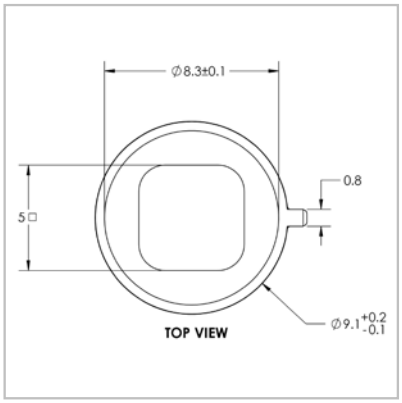


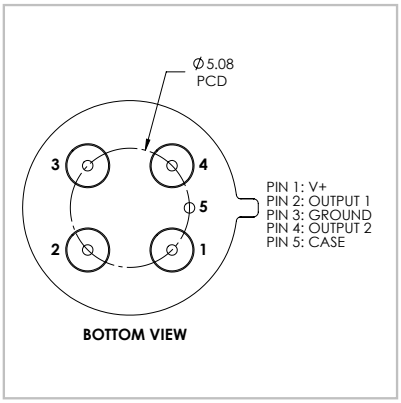
Circuit Diagram



Technical Drawing







Element Size		Aperture Size*	Package	Absorber
2 mm x 2 mm	***	3.5 mm Sq.	TO-39 isolated	Organic Black
	**	5.0 mm Sq.	4 + 1 pin	

Feedback Resistor	Amplifier	-3dB Freq [Hz]	Supply
100 GOhm	Op-Amp 5	< 1 Hz – 18 Hz (typical)	2.7 – 10 V (3 V recommended) 1.7 – 2.5 mA

Responsivity [V/W]		D* (Jones) @ 10 Hz		Noise Density [µV/sqrt(Hz)]	NEP [W/√Hz]	Polarity
Min:	240,000	Min:	8×10^8	Max: 70	4.5×10^{-10}	Negative
Typ:	280,000	Typ:	1×10^9			

* Please refer "Filters and Windows" datasheet for all available options (aperture size depends on filter/window option choosen)

** Standard with narrow band filters

*** Standard wilth broadband window

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LD11/21 Series
Single Channel Current Mode
Differential Pyroelectric Detectors

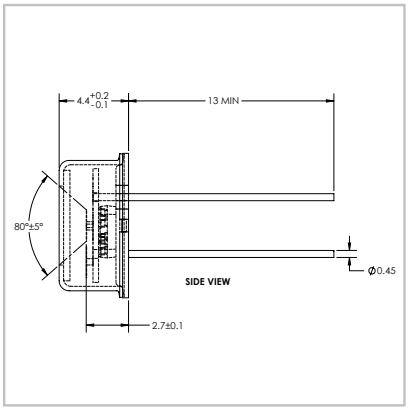
PRELIMINARY

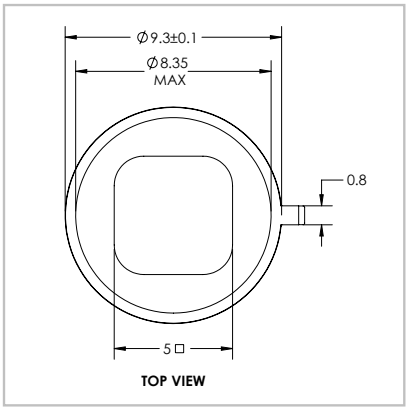
LD 2120X2020

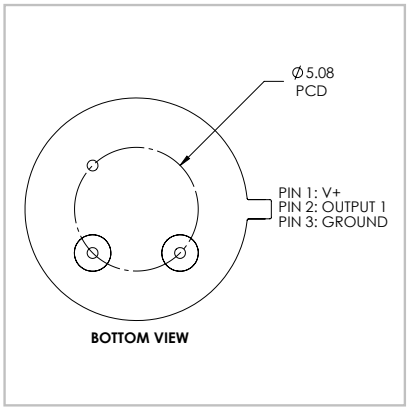
- Single channel pyroelectric detector
- Current mode
- Single supply
- Differential² architecture
  - Double signal by charge harvesting from top and bottom of the chip
  - D* improvement by 50%, (typ)
- With TFC

Isometric Drawing

Technical Drawing







Element Size	Aperture Size*	Package	Absorber
2 mm x 2 mm	5.0 mm Sq. 3.5 mm Sq.	TO-39 3-pin	Organic Black

Feedback Resistor	Amplifier	-3dB Freq [Hz]	Supply
100 GOhm	Op-Amp 5	TBD	2.8 – 10 V (3 V recommended) 3 – 10 mA

Responsivity [V/W]	D* (Jones) @ 10 Hz	Noise Density [µV/sqrt(Hz)]	NEP [W/√Hz]	Polarity
Min: 240.000 Typ: 280.000	Min: 8.0×10^8 Typ: 1.0×10^9	TBD	Max: 4.5×10^{-10} TBD	Negative

* Please refer to the "Filters and Windows" datasheet for all available options (aperture size depends on filter/window option choosen)

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PRELIMINARY

Absolute Maximum Ratings

	Min	Max
Storage Temperature [°C]	- 25	+ 85
Operating Temperature [°C]	- 20	+ 75
Soldering Temperature, 5 sec [°C]	+ 280	+ 300

Handling

ESD sensitive device. High electrostatic discharge can damage or degrade the device.
Use proper ESD handling precautions.

Part Number Designation

Material		Type		Channels		Version-Number	Mount		Element Size		Filter Code
L	$LiTaO_3$	0	chip only	1	single	x x	X	standard	1000	Ø 1.0 mm	see „Filters + Windows" datasheet
LD	$LiTaO_3$ Differential	1	current mode	2	dual		T	TEC	1300	Ø 1.3 mm	
D	DLaTGS	2	current mode + TFC	3	triple				2000	Ø 2.0 mm	
DD	DLaTGS Differential	3	voltage mode	4	quad				1810	1.8 x 1.0 mm²	
		4	voltage mode + TFC						2020	2.0 x 2.0 mm²	
									3030	3.0 x 3.0 mm²	

Product Changes

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Ordering Information

Products can be ordered directly from LASER COMPONENTS or its representatives. For a complete listing of representatives, visit our website at www.lasercomponents.com

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