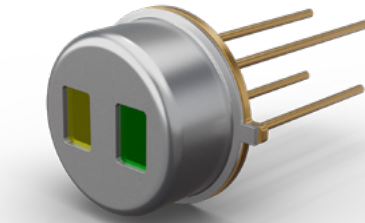




L12/L22 SERIES

Dual-Channel Current Mode Pyroelectric Detectors



Our L12/L22 series of pyroelectric detectors are a collection of dual-channel LiTaO_3 devices operating in current mode with an integrated Op-Amp.

TFC (Temperature Fluxuation Compensation) is incorporated into all of our L22- series detectors via the use of an optically blind element.

FEATURES

- / Thermal detector, any radiation absorbed produces a signal
- / Wide Spectral Coverage from the UV to LWIR
- / Modular design principle
- / Microphonics reduction as standard
- / Assembled in an ISO:9001 certified facility

APPLICATIONS

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

VERSIONS

- / Integrated Op-Amp
- / Low and high speed devices available
- / Wide range of filter options



DUAL-CHANNEL CURRENT MODE PYROELECTRIC DETECTORS

L12/L22 Series

SPECIFICATIONS

Absolute Maximum Ratings

	Min	Max
Storage temperature [°C]	-25	+60 ¹
Operating temperature [°C]	-20	+85
Soldering temperature, 5 sec [°C]	+280	+300
ESD damage threshold, Human Body Model Class ... ² [V]	0	< 250

1 Limited by packing materials

2 ANSI/ESD STN5.1-2007

	L1200D1810	L2200D1810
Element size [mm]	1.8x1.0	1.8x1.0
Aperture size ¹ [mm]	2.7x1.8	2.7x1.8
Package	TO-39 4 pin	TO-39 4 pin
Absorber	Organic Black	Organic Black
Feedback Resistor [GOhm]	27	100
Amplifier	Op-Amp 7	Op-Amp 7
-3dB Freq [Hz]	TBD	TBD
Supply Voltage [V]	1.8 – 5.5V (3V recommended)	1.8 – 5.5V (3V recommended)
Responsivity [V/W] ²	Min: 25,000 Typ: 35,000	Min: 60,000 Typ: 120,000
D* [Jones] ²	Min: 2×10^8 Typ: 3×10^8	Min: 3×10^8 Typ: 5×10^8
Noise Density [$\mu\text{V}/\sqrt{\text{Hz}}$]	Max: 20	Max: 50
NEP [$\text{W}/\sqrt{\text{Hz}}$]	Max: 4×10^{-10}	3.85×10^{-10}
Output Polarity	Negative	Negative
Circuit Diagram		

1 Please refer to »Filters + Windows« datasheet for all available options (aperture size depends on filter/window option choosen)

2 Without filter/window



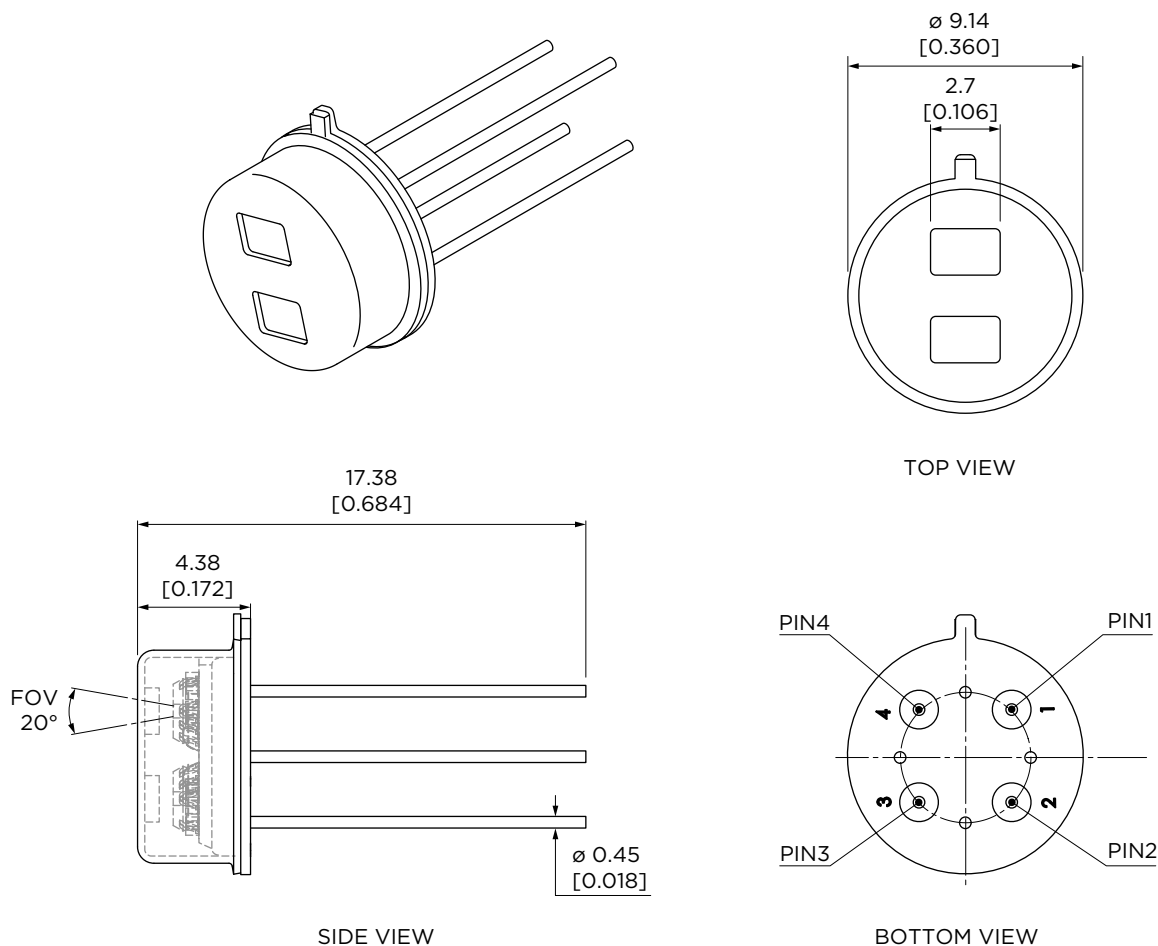


DUAL-CHANNEL CURRENT MODE PYROELECTRIC DETECTORS

L12/L22 Series

TECHNICAL DRAWING

L1200D1810



L1200D1810-DH

Pin out:

1. OUTPUT 1
2. V+
3. OUTPUT 2
4. GND/CASE

Units: mm [inch]

Dimensions are in millimeters - [inches] and are for reference only.



DUAL-CHANNEL CURRENT MODE PYROELECTRIC DETECTORS

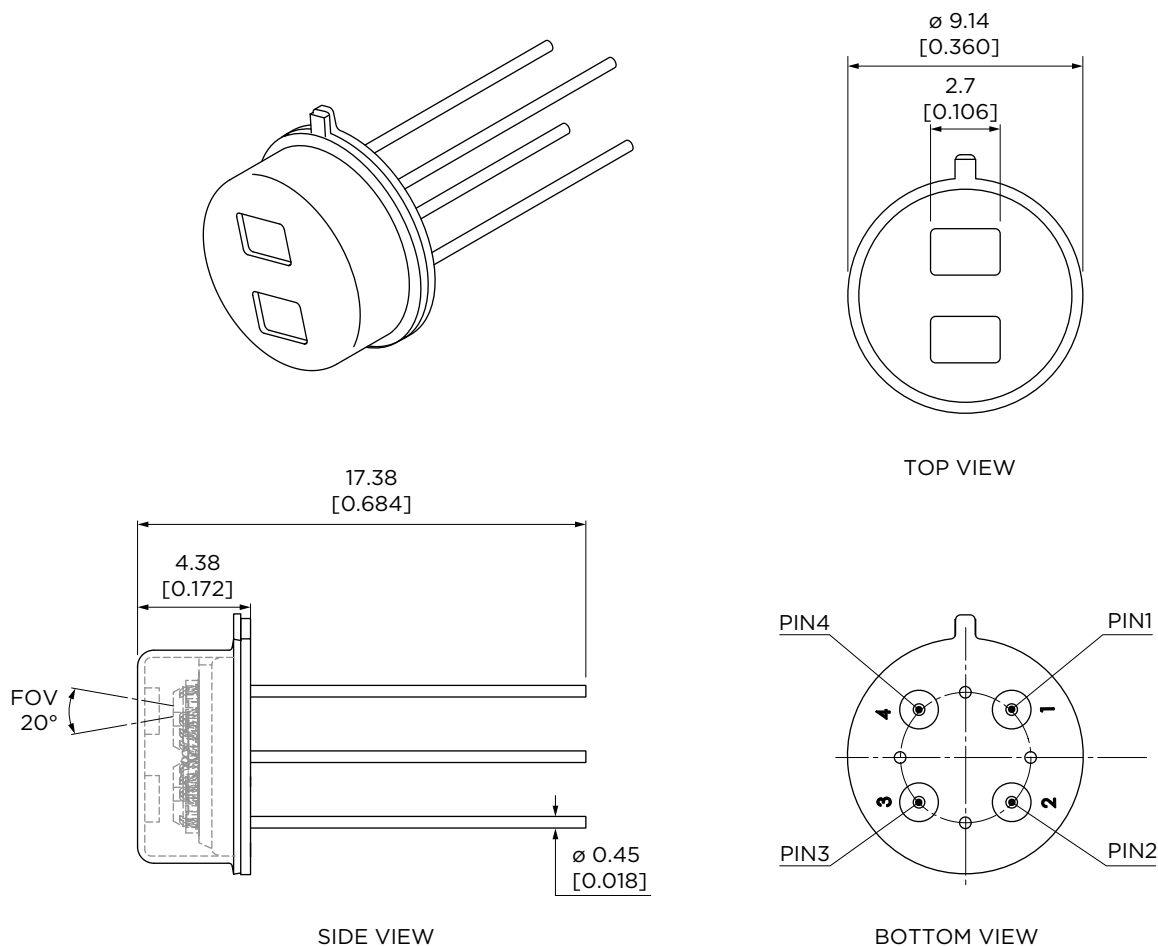
L12/L22 Series

TECHNICAL DRAWING

L2200D1810



**LASER
COMPONENTS®**



L2200D1810-GH

Pin out:

1. OUTPUT 1
2. V+
3. OUTPUT 2
4. GND/CASE

Units: mm [inch]

Dimensions are in millimeters - [inches] and are for reference only.



DUAL-CHANNEL CURRENT MODE PYROELECTRIC DETECTORS

L12/L22 Series

ORDERING CODE



Material	Type	Channels	Version-Number	Mount	Element Size	Filter Code
X	X	X	XX	X	XXXX	X
L = LiTaO ₃ LD = LiTaO ₃ Differential LT = LiTaO ₃ thin chip D = DLaTGS DD = DLaTGS Differential	0 = Chip only 1 = Current mode 2 = Current mode + TFC 3 = Voltage mode 4 = Voltage mode + TFC	1 = Single 2 = Dual 3 = Triple 4 = Quad		X = Standard T = TEC D = SMD	1000 = Ø1.0 mm 1300 = Ø1.3 mm 2000 = Ø2.0 mm 1810 = 1.8x1.0 mm ² 2020 = 2.0x2.0 mm ² 3030 = 3.0x3.0 mm ²	See »Filters + Windows« Datasheet

PRODUCT CHANGES AND LIABILITY

LASER COMPONENTS reserves the right to make changes to the product specifications and/or discontinue products without prior notice. While every effort has been made to ensure the accuracy and reliability of the information provided in this datasheet, LASER COMPONENTS accepts no liability for any errors, omissions, or the consequences of product use. It is the responsibility of the customer to ensure that the product is suitable for their specific application and to comply with all applicable laws and regulations.

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

Custom designed products are available on request.

SAFETY AND HANDLING INFORMATION

Handling Precautions

Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Use proper ESD handling precautions.



L14/L24 Series Quad-Channel Current Mode Pyroelectric Detectors

Description

Our L14/L24 series of pyroelectric detectors are a collection of quad-channel LiTaO_3 devices operating in current mode with an integrated Op-Amp.

TFC (Temperature Fluxuation Compensation) is incorporated into all of our L24-series detectors via the use of an optically blind element.

Features

- Thermal detector, any radiation absorbed produces a signal
- Wide spectral coverage from the UV to LWIR
- Modular design principle
- Microphonics reduction as standard
- Assembled in an ISO:9001 certified facility

Applications

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

Versions

- Integrated Op-Amp
- Low and high speed devices available
- Wide range of filter options

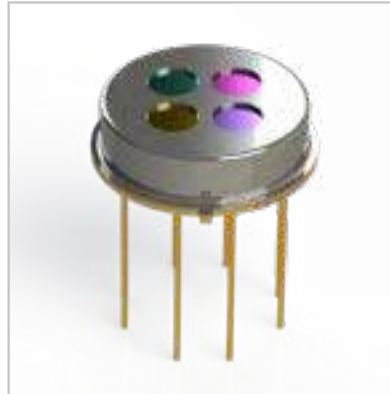




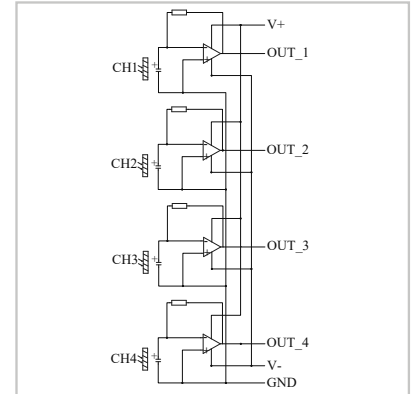
L1410D2020

- Quad channel Pyroelectric detector
- Current mode
- Dual supply
- Without TFC

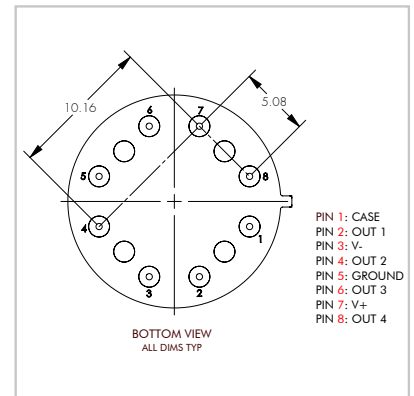
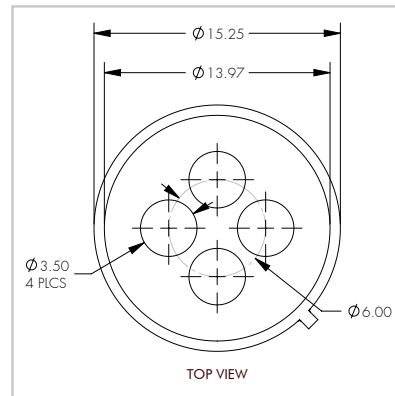
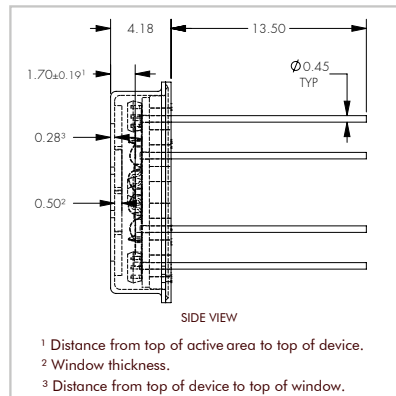
Isometric Drawing



Circuit Diagram



Technical Drawing



Element Size	Aperture Size*	Package	Absorber	
2.0 mm x 2.0 mm	dia. 3.5 mm	TO-8	Organic Black	
Feedback Resistor	Amplifier	-3dB Freq [Hz]	Supply Voltage [V]	
27 GOhm	Op-Amp 7	TBD	Dual Supply $\pm 0.9 - \pm 2.75$ V (± 2.5 V recommended)	
Responsivity [V/W]**	D* [Jones]** @ 10 Hz	Noise Density [μ V/ $\sqrt$ Hz]	NEP [W/ $\sqrt$ Hz]	Output Polarity
Min: 40,000 Typ: 45,000	Min: 3×10^8 Typ: 3.8×10^8	Max: 30	N/A	Negative

* Please refer "Filters and Windows" datasheet for all available options

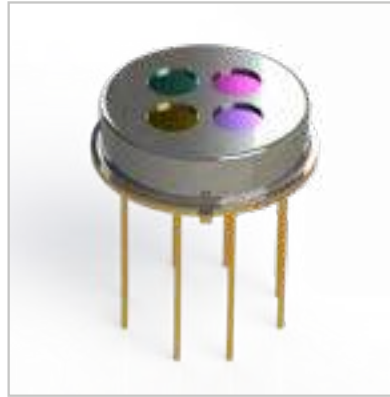
** Without filter / window



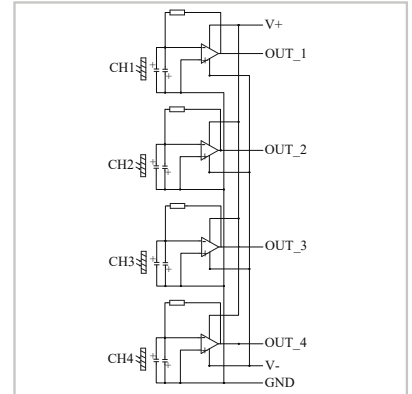
L2410D2020

- Quad channel Pyroelectric detector
- Current mode
- Dual supply
- With TFC

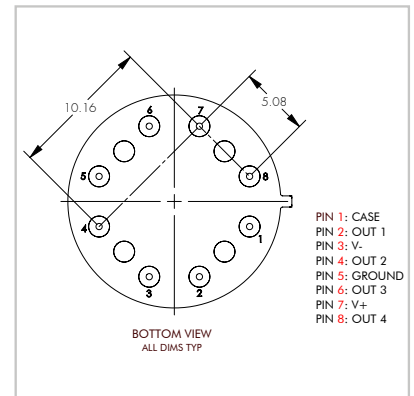
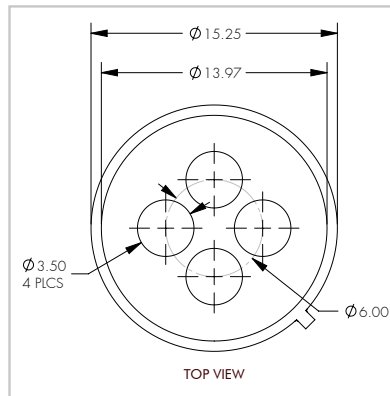
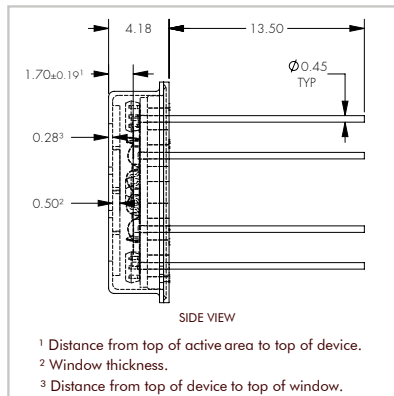
Isometric Drawing



Circuit Diagram



Technical Drawing



Element Size	Aperture Size*	Package	Absorber	
2.0 mm x 2.0 mm	dia. 3.5 mm	TO-8	Organic Black	
Feedback Resistor	Amplifier	-3dB Freq [Hz]	Supply Voltage [V]	
100 GOhm	Op-Amp 7	TBD	Dual Supply $\pm 0.9 - \pm 2.75$ V (± 2.5 V recommended)	
Responsivity [V/W]**	D* [Jones]** @ 10 Hz	Noise Density [μ V/ $\sqrt{\text{Hz}}$]	NEP [W/ $\sqrt{\text{Hz}}$]	Output Polarity
Min: 90,000 Typ: 110,000	Min: 5×10^8 Typ: 6×10^8	Max: 65	N/A	Negative

* Please refer "Filters and Windows" datasheet for all available options

** Without filter / window



Absolute Maximum Ratings

	Min	Max
Storage temperature [°C]	- 25	+ 60 ^{**}
Operating temperature [°C]	- 20	+ 85
Soldering temperature, 5 sec [°C]	+ 280	+ 300
ESD damage threshold, Human Body Model Class* [V]	0	< 250

* ANSI/ESD STN5. 1-2007

** Limited by packing materials.

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 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	
	2 current mode + TFC	3 triple		D SMD	2000 Ø 2.0 mm	
LT LiTaO ₃ thin chip	3 voltage mode	4 quad			1810 1.8 x 1.0 mm ²	
D DLaTGS	4 voltage mode + TFC				2020 2.0 x 2.0 mm ²	
DD DLaTGS Differential					3030 3.0 x 3.0 mm ²	

Product Changes

LASER COMPONENTS reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application.

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