



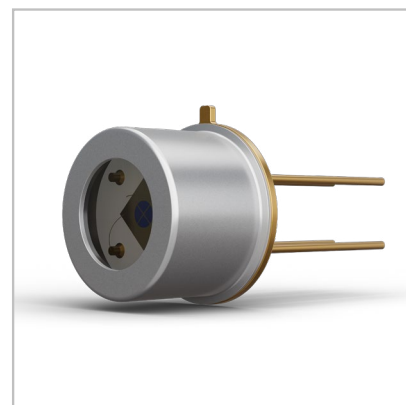
ALT31/ALUT31 Series Advanced Single Channel Voltage Mode Pyroelectric Detectors

Description

Our ALT31/ALUT31 series of pyroelectric detectors are high end single channel devices based on thin and ultrathin LTO material operating in voltage mode with an integrated JFET.

Features

- Thermal based detector, any radiation absorbed produces a signal
- Wide spectral coverage from the UV to LWIR
- Modular design principle
- Assembled in an ISO:9001 certified facility
- Microphonics reduction as standard
- Typically higher D^* than standard LTO
- **Advanced technology:**
sub-pixel binning segmentation results in a Signal to Noise improvement of 2x (compared to unsegmented detectors)



Applications

- FTIR spectroscopy
- Non-dispersive infrared spectroscopy
- THz detection

Versions

- Wide range of filter and window options
- Full spectrum IR through THz options available

ALT31/ALUT31 Series

Advanced Single Channel Voltge Mode

Pyroelectric Detectors

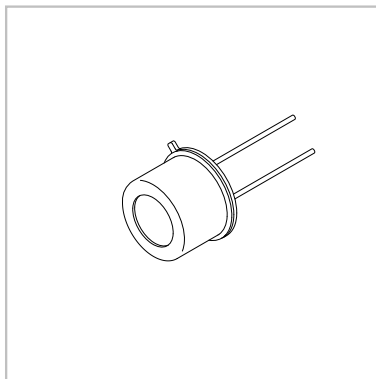


PRELIMINARY

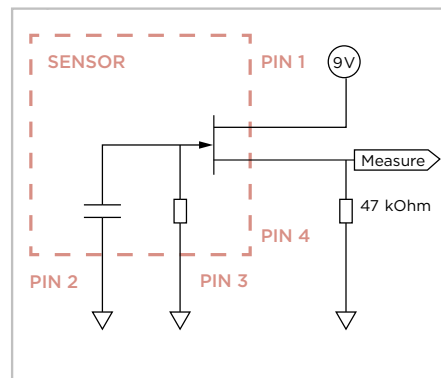
ALT3151X

- Single channel thin chip LTO pyroelectric detector
- Voltage mode
- Without TFC
- For FTIR, TDLs
- High frequency applications
- Alternative to DLaTGS for FTIR applications
- Fast response to IR flux change

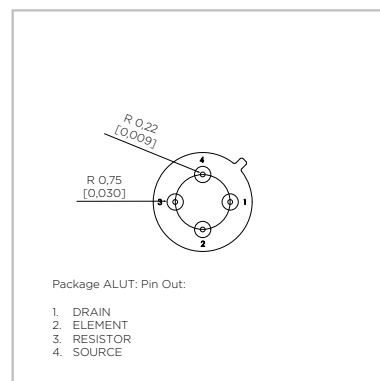
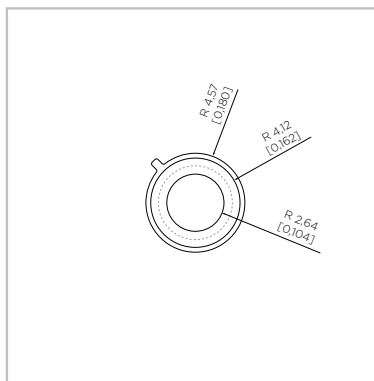
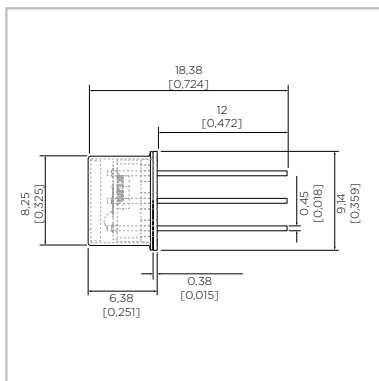
Isometric Drawing



Circuit Diagram



Technical Drawing (Units: mm [inch])



Part	Element Size	Aperture Size*	Package	Absorber
ALT3151X2000	Dia. 2.0 mm	Dia. 5.3 mm	TO-39 4-pin	Nanostructured Metal black

Load Resistor	Amplifier	Supply Voltage [V]	Polarity
10 GOhm	JFET 2	+9 V (recommended) (max. 25 V)	Negative

Part	Responsivity** [V/W] @ 1 kHz Typ.	D* (Jones) @ 1 kHz		FOV*** [°]	NEP [W/√Hz] @ 1 kHz
		Min.	Typ.		Typ.
ALT3151X2000	13	1.0E+08	1.3E+08	82	1.4E-09

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

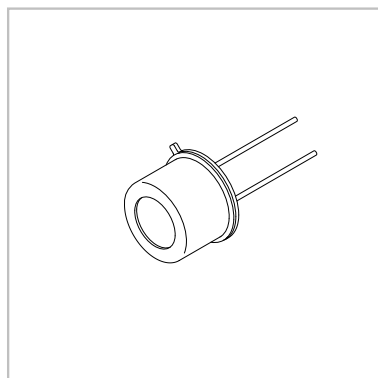
** without window/filter

*** with KBr window



Isometric Drawing

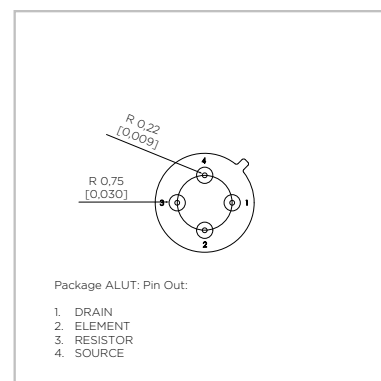
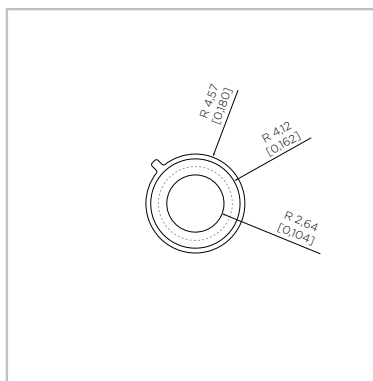
- Single channel ultra thin chip LTO pyroelectric detector
- Voltage mode
- Without TFC
- For FTIR, TDLS
- High frequency applications
- Alternative to DLaTGS for FTIR applications
- Ultra thin LTO (2 microns) active element
- Fast response to IR flux change



The diagram shows a sensor module with four pins: PIN 1 (9V), PIN 2 (ground), PIN 3 (ground), and PIN 4 (47 kOhm resistor to ground). Inside the sensor module, there is a capacitor connected to PIN 2, a resistor connected to PIN 3, and a transistor. The transistor's base is connected to PIN 1, its emitter to PIN 4, and its collector to a 'Measure' output.

Technical drawing of a 4-pin connector. The drawing shows a side view of the connector with four pins. The dimensions are as follows:

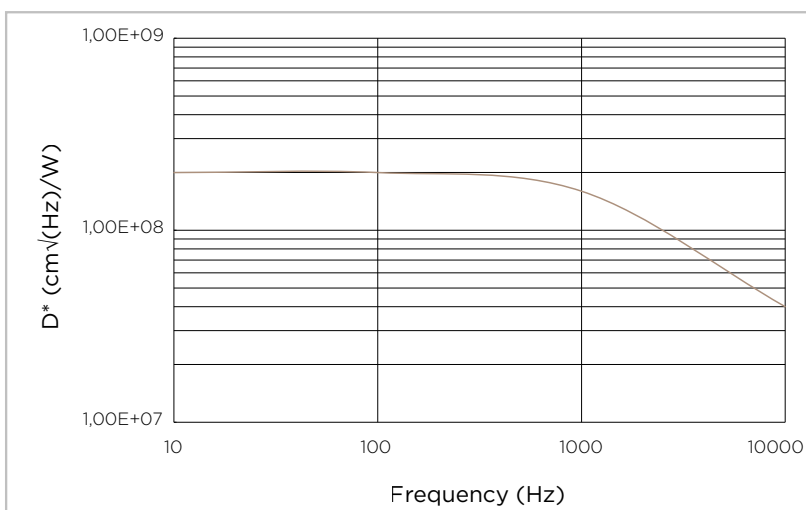
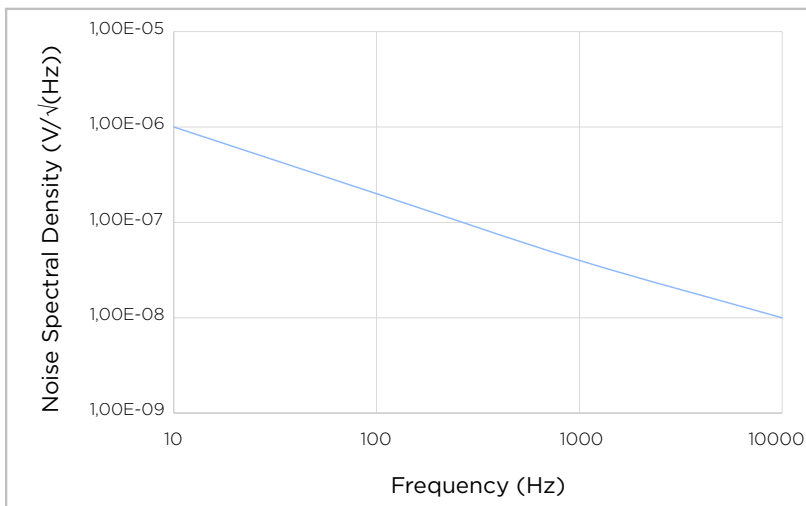
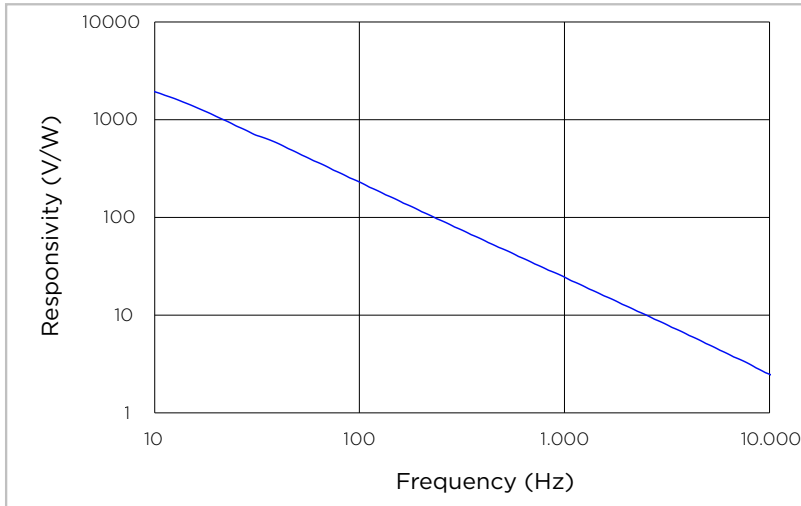
- Overall width: 18.38 [0.724]
- Pin pitch (distance between pins): 12 [0.472]
- Pin diameter: 0.45 [0.018]
- Pin length: 9.14 [0.359]
- Pin thickness: 0.38 [0.015]
- Mounting tab width: 6.38 [0.251]
- Mounting tab thickness: 8.25 [0.325]



Part	Responsivity** [V/W] @ 1 kHz Typ.	D* (Jones) @ 1 kHz		FOV*** [°]	NEP [W/√Hz] @ 1 kHz Typ.
		Min.	Typ.		
ALUT3151X1300	23	1.6E+08	1.8E+08	89	7.0E-10

*** with KBr window

ALUT3151X1300-k2: Detector Performance over Modulation Frequency



Absolute Maximum Ratings

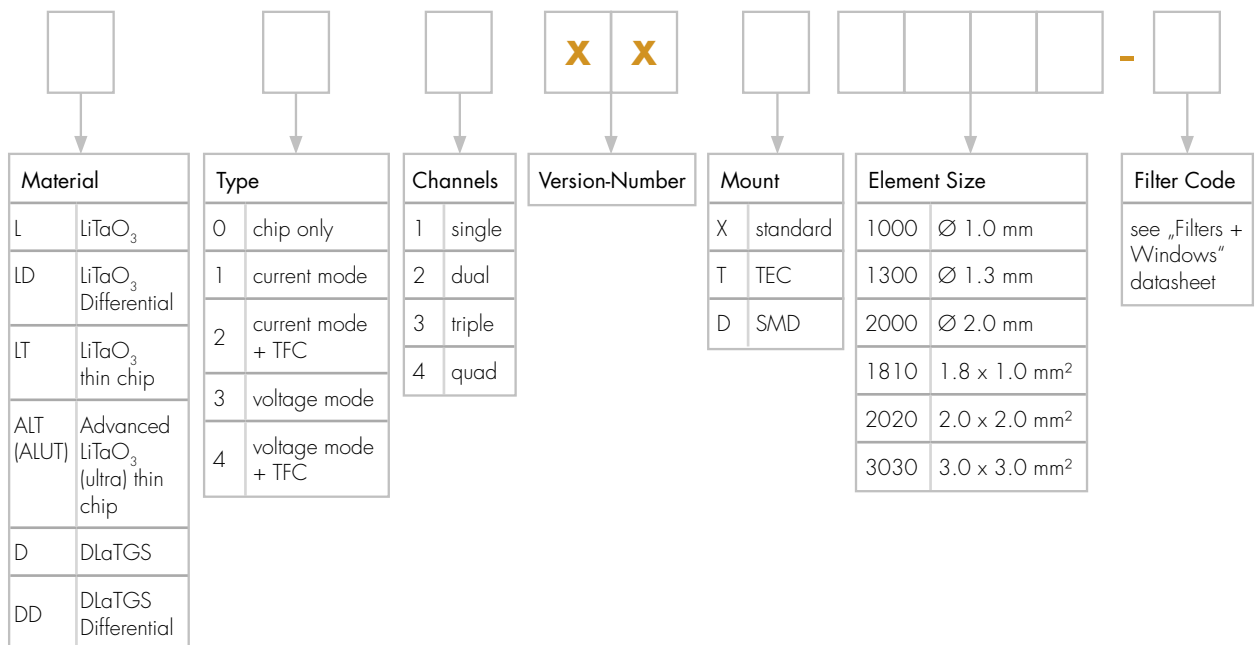
	Min	Max
		ALT31/ALUT31
Storage temperature [°C]	- 25	+ 55
Operating temperature [°C]	- 20	+ 55
Soldering temperature, 5 sec [°C]	+ 280	+ 300
ESD damage threshold, Human Body Model Class* [V]	0	< 250

* ANSI/ESD STN5. 1-2007

Handling

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

Part Number Designation



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

**海纳光学**

电话: 0755-84870203

邮箱: sales@highlightoptics.com