

## D31 / LT31 Series

### Single Channel Voltage Mode Pyroelectric Detectors

#### Description

Our D31 and LT31 series of pyroelectric detectors are a collection of high end single channel devices based on DLaTGS or thin LTO material operating in voltage mode with an integrated JFET.

#### Features

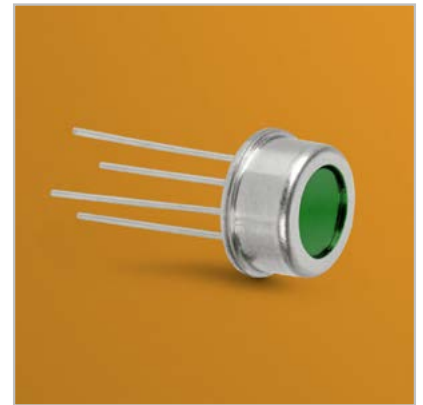
- Thermal based detector, any radiation absorbed produces a signal
- Wide spectral coverage from the UV to LWIR
- Modular design principle
- Assembled in an ISO:9001 certified facility
- Microphonics reduction as standard
- Typ. higher  $D^*$  than standard LTO

#### Applications

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

#### Versions

- Low and high speed devices available
- 11 standard window options



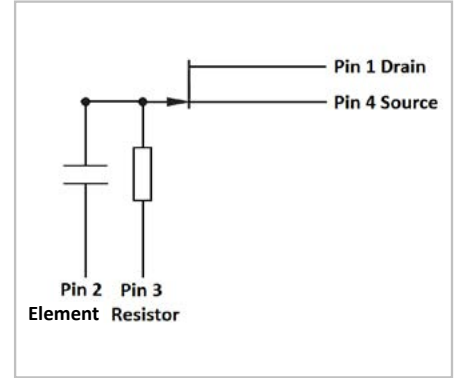
**D3110X**

- Single channel pyroelectric detector
- Voltage mode
- Without TFC
- Low frequencies

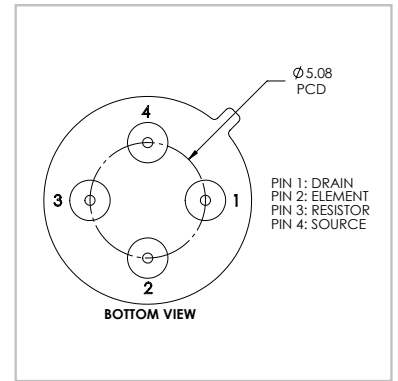
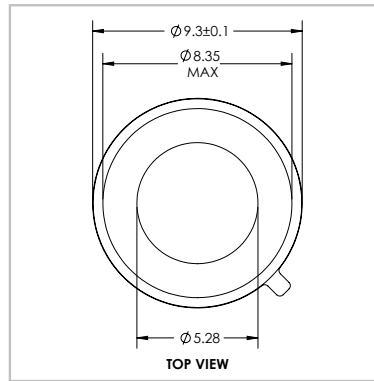
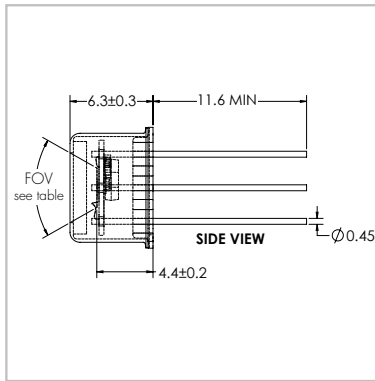
Isometric Drawing



Circuit Diagram



Technical Drawing



Part	Element Size	Aperture Size*	Package	Absorber
D3110X2000	Dia. 2.0 mm	Dia. 5.3 mm	TO-39 4-pin	Metal black
D3110X2010	Dim. 2.0 x 1.0 mm <sup>2</sup>			

Load Resistor	Amplifier	Supply Voltage [V]	Polarity
100 GOhm	JFET 1	+9 V (recommended) (max. 25 V)	Negative

Part	Responsivity** [V/W]	D* (Jones) @ 10 Hz		FOV [°]	NEP [W/√Hz]
		Min.	Typ.		
D3110X2000	2000	9.5E+08	1.5E+09	80	3.0E-10
D3110X2010	3200	9.0E+08	1.0E+09	-	2.7E-10

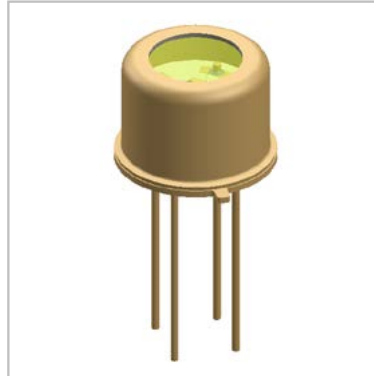
\* Please refer "Filters and Windows" datasheet for all available options  
(aperture size depends on filter/window option chosen)

\*\* without filter/window

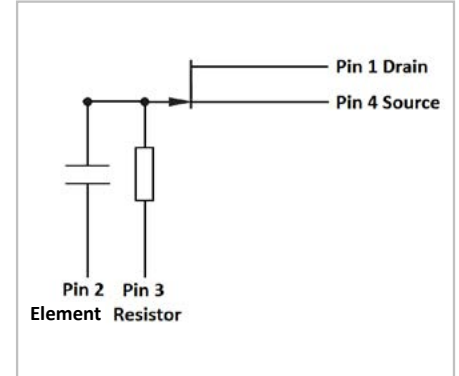
**LT3111X**

- Single channel thin chip pyroelectric detector
- Low frequency optimized (10 Hz – 200 Hz)
- Voltage mode
- Without TFC

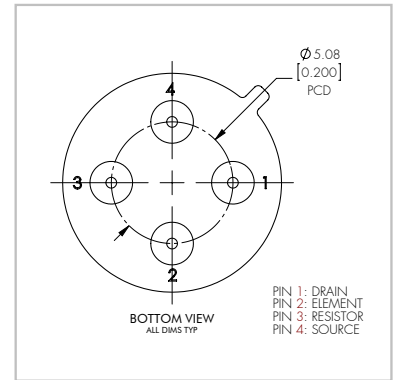
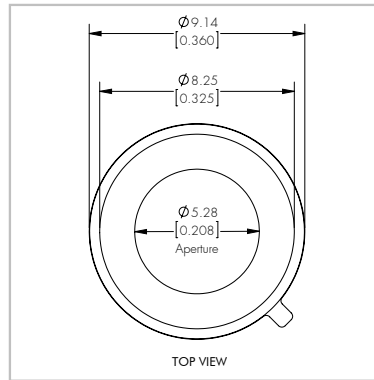
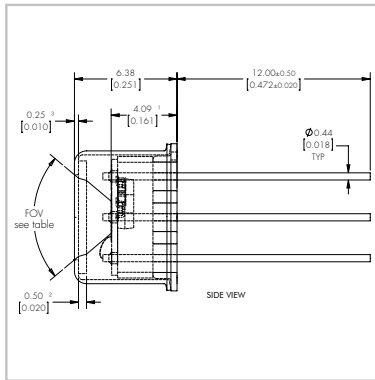
**Isometric Drawing**



**Circuit Diagram**



**Technical Drawing**



Part	Element Size	Aperture Size*	Package	Absorber	
LT3111X2020	Dim. 2.0 x 2.0 mm <sup>2</sup>	Dia. 5.3 mm	TO-39 4-pin	Metal black	
	<b>Load Resistor</b>	<b>Amplifier</b>	<b>Supply Voltage [V]</b>	<b>Polarity</b>	
	100 GOhm	JFET 1A	+9 V (recommended) (max. 25 V)	Positive	
Part	Responsivity** [V/W]	D* (Jones) @ 10 Hz		FOV [°]	NEP [W/√Hz]
		Min.	Typ.		Typ.
LT3111X2020 @10 Hz	275	3.2E+09	4.0E+09	80	4.5E-10
LT3111X2020 @100 Hz	35	5.5E+08	6.2E+08		2.8E-10

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

\*\* without window/filter

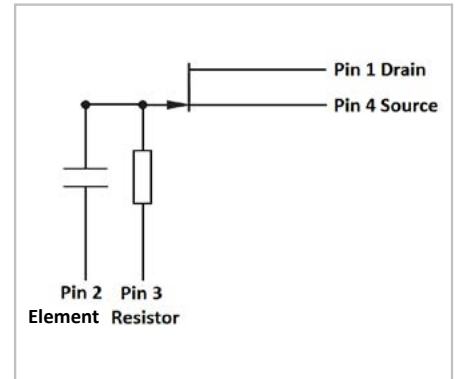
D3150X

- Single channel pyroelectric detector
- Voltage mode
- Without TFC
- Medium speed

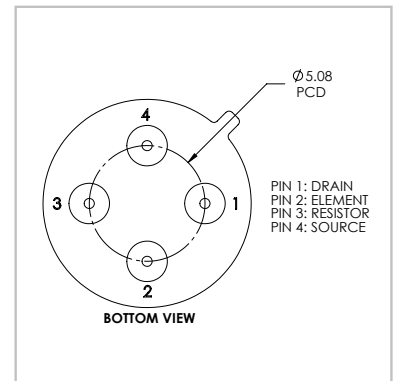
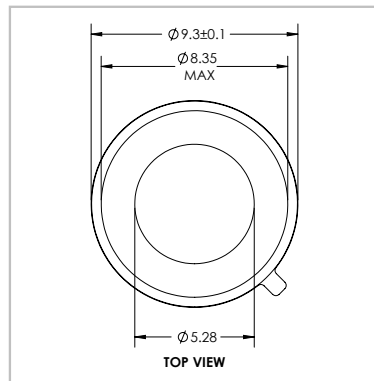
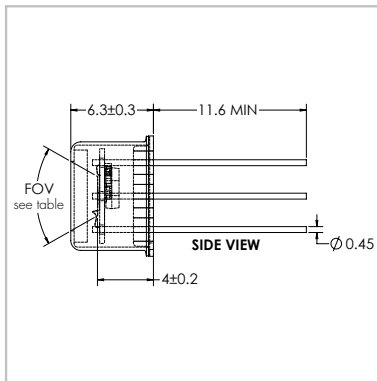
Isometric Drawing



Circuit Diagram



Technical Drawing



Part	Element Size	Aperture Size*	Package	Absorber
D3150X1300	Dia. 1.3 mm	Dia. 5.3 mm	TO-39 4-pin	Metal black
D3150X2000	Dia. 2.0 mm			

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

Part	Responsivity** [V/W]	D* (Jones) @ 1 kHz		FOV [°]	NEP
		Min.	Typ.		[W/√Hz]
D3150X1300	60	2.0E+08	2.7E+08	80	4.5E-10
D3150X2000	30	2.1E+08	2.8E+08	70	6.5E-10

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

\*\* without window/filter

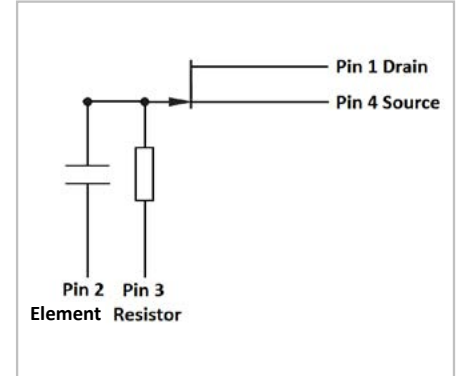
**D3151X**

- Single channel pyroelectric detector
- Voltage mode
- Without TFC
- For FTIR, TDLS

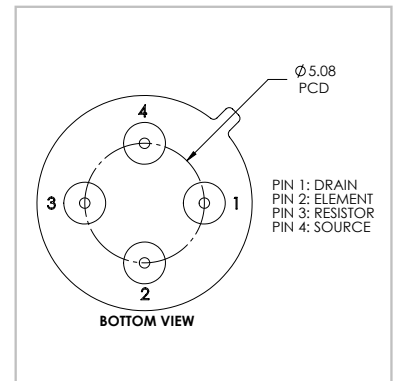
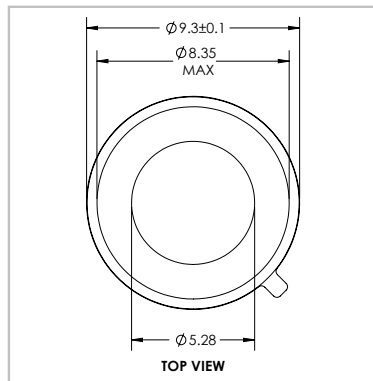
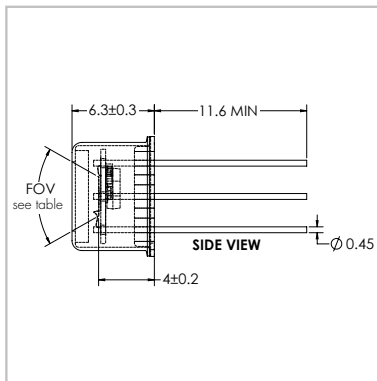
Isometric Drawing



Circuit Diagram



Technical Drawing



Part	Element Size	Aperture Size*	Package	Absorber
D3151X1300	Dia. 1.3 mm	Dia. 5.3 mm	TO-39 4-pin	Metal black
D3151X2000	Dia. 2.0 mm			

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

Part	Responsivity** [V/W]	D* (Jones) @ 1 kHz		FOV [°]	NEP [W/√Hz]
		Min.	Typ.		
D3151X1300	60	2.0E+08	2.7E+08	80	4.5E-10
D3151X2000	30	2.1E+08	2.8E+08	70	6.5E-10

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\*\* without window/filter

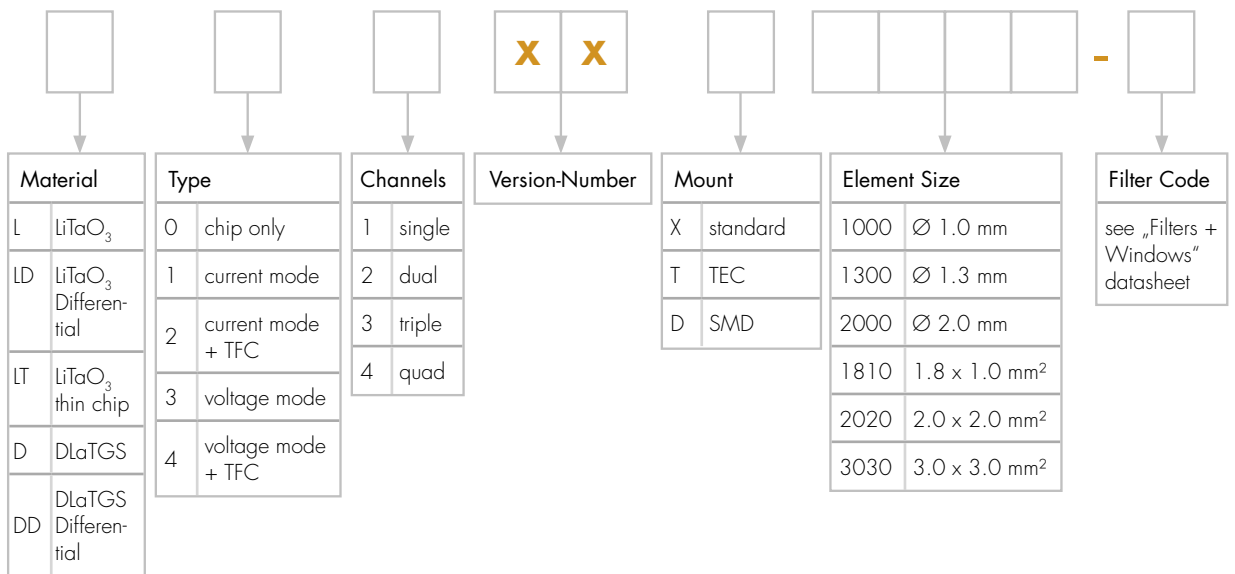
### Absolute Maximum Ratings

	Min	Max	
		D31	LT31
Storage temperature [°C]	- 20	+ 40	+ 60
Operating temperature [°C]	- 20	+ 55	+ 85
Soldering temperature, 5 sec [°C]	+ 280	+ 300	+ 300

### 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](http://www.lasercomponents.com)