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## D31 / L31 / LT31 Series Single Channel Voltage Mode Pyroelectric Detectors

### Description

Our D31, L31, and LT31 series of pyroelectric detectors are a collection of high end single channel devices based on DLaTGS, LTO, or thin LTO material operating in voltage mode with an integrated JFET.

### Features

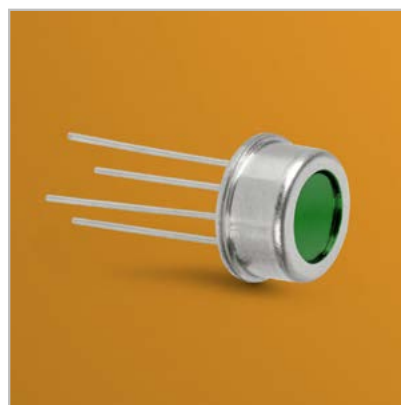
- Thermal based detector, any radiation absorbed produces a signal
- Wide spectral coverage from the UV to LWIR
- Modular design principle
- Assembled in an ISO:9001 certified facility
- Microphonics reduction as standard
- Typ. higher  $D^*$  than standard LTO

### Applications

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

### Versions

- Low and high speed devices available
- Wide range of filter and window options



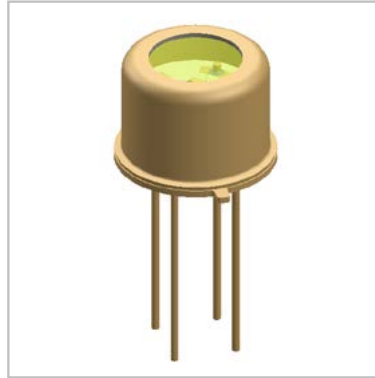
# D31 / L31 / LT31 Series

## Single Channel Voltage Mode Pyroelectric Detectors

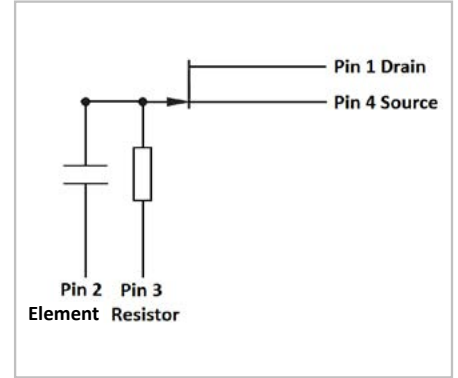
### LT3111X

- Single channel thin chip Lithium Tantalate pyroelectric detector
- Low frequency optimized (4 Hz – 200 Hz)
- Voltage mode
- Without TFC

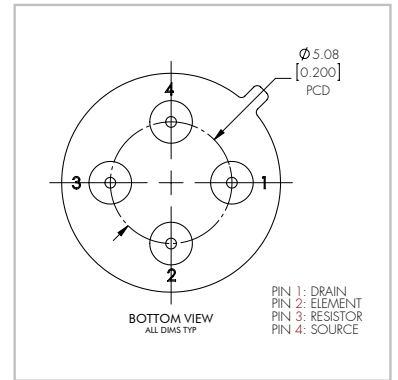
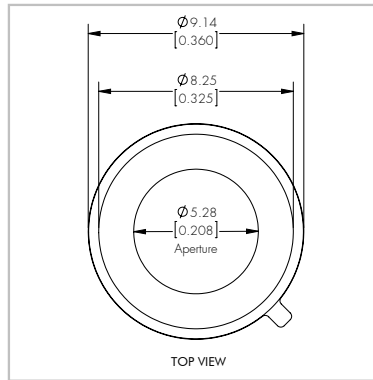
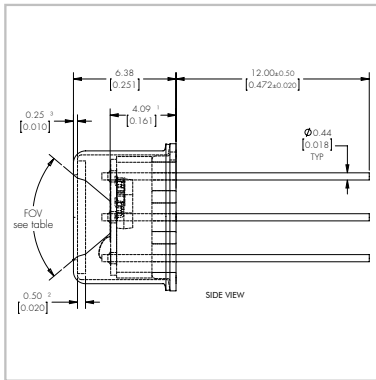
Isometric Drawing



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	
	Load Resistor	Amplifier	Supply Voltage [V]	Polarity	
	100 GOhm	JFET 1A	+9 V (recommended) (max. 25 V)	Positive	
Part	Responsivity** [V/W]	D* (Jones)		FOV [°]	NEP
		Min.	Typ.		[W/√Hz]
LT3111X2020 @10 Hz	500	3.2E+09	4.0E+09	80	4.0E-11
LT3111X2020 @100 Hz	50	5.5E+08	1.0E+09		1.0E-10

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

\*\* without window/filter

# D31 / L31 / LT31 Series

## Single Channel Voltage Mode Pyroelectric Detectors

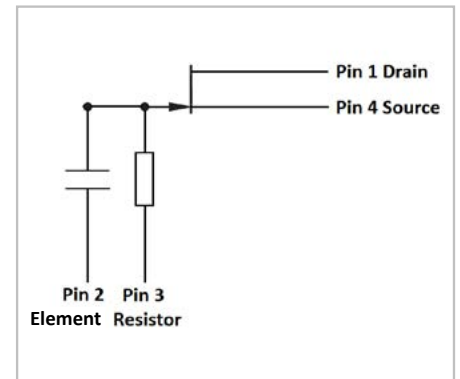
### D3151X

- Single channel DLaTGS pyroelectric detector
- Voltage mode
- Without TFC
- For FTIR, TDLS
- High frequency applications

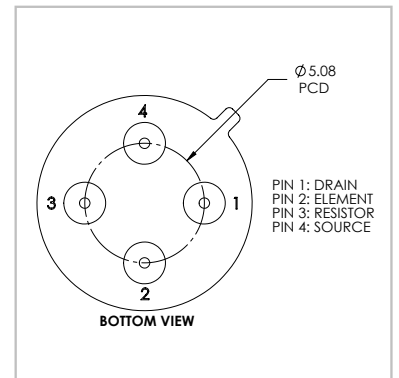
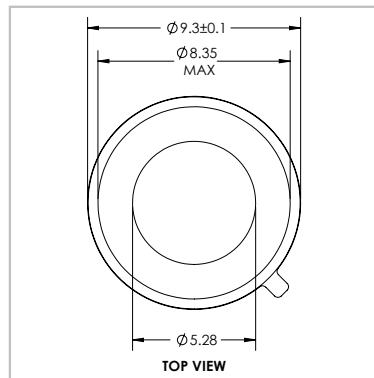
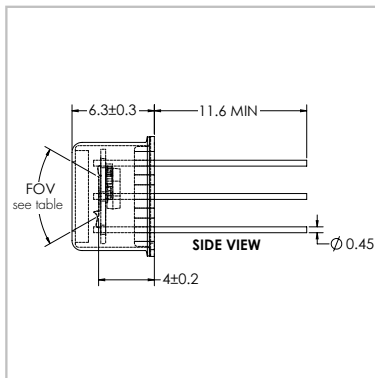
Isometric Drawing



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 GΩ	JFET 2	+9 V (recommended) (max. 25 V)	Negative

Part	Responsivity** [V/W]	D* (Jones) @ 1 kHz		FOV [°]	NEP [W/√Hz]
		Min.	Typ.		Typ.
D3151X1300	55	2.0E+08	2.7E+08	80	4.5E-10
D3151X2000	25	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

# D31 / L31 / LT31 Series

## Single Channel Voltage Mode Pyroelectric Detectors

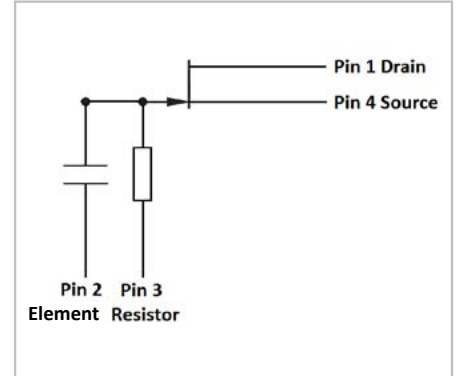
### L3151X

- Single channel LTO pyroelectric detector
- Voltage mode
- Without TFC
- For FTIR, TDLS
- High frequency applications
- Alternative to DLATGS for FTIR applications

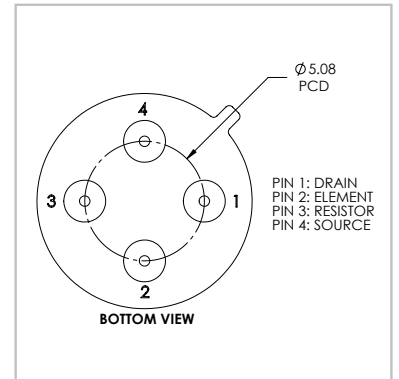
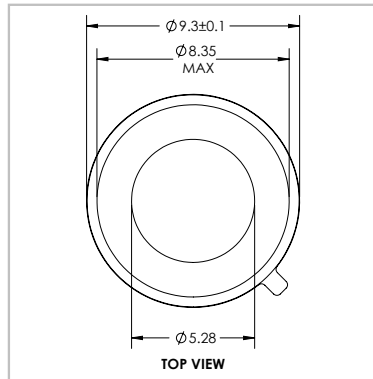
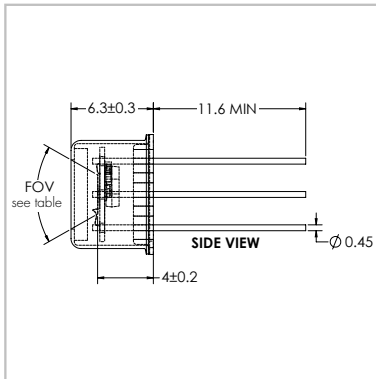
Isometric Drawing



Circuit Diagram



Technical Drawing



Part	Element Size	Aperture Size*	Package	Absorber
L3151X1300	Dia. 1.3 mm	Dia. 5.3 mm	TO-39 4-pin	Metal black
L3151X2000	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] Typ.	D* (Jones) @ 1 kHz		FOV [°]
		Min.	Typ.	
L3151X1300	10	6.0E+07	8.8E+07	80
L3151X2000	6	6.0E+07	7.1E+07	70

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

\*\* without window/filter

## Absolute Maximum Ratings

	Min	Max	
		D3	L31 / LT31
Storage temperature [°C]	- 25	+ 40 ***	+ 60 **
Operating temperature [°C]	- 20	+ 55	+ 85
Soldering temperature, 5 sec [°C]	+ 280	+ 300	+ 300
ESD damage threshold, Human Body Model Class .... * [V]	0	< 250	

\* ANSI/ESD STN5. 1-2007

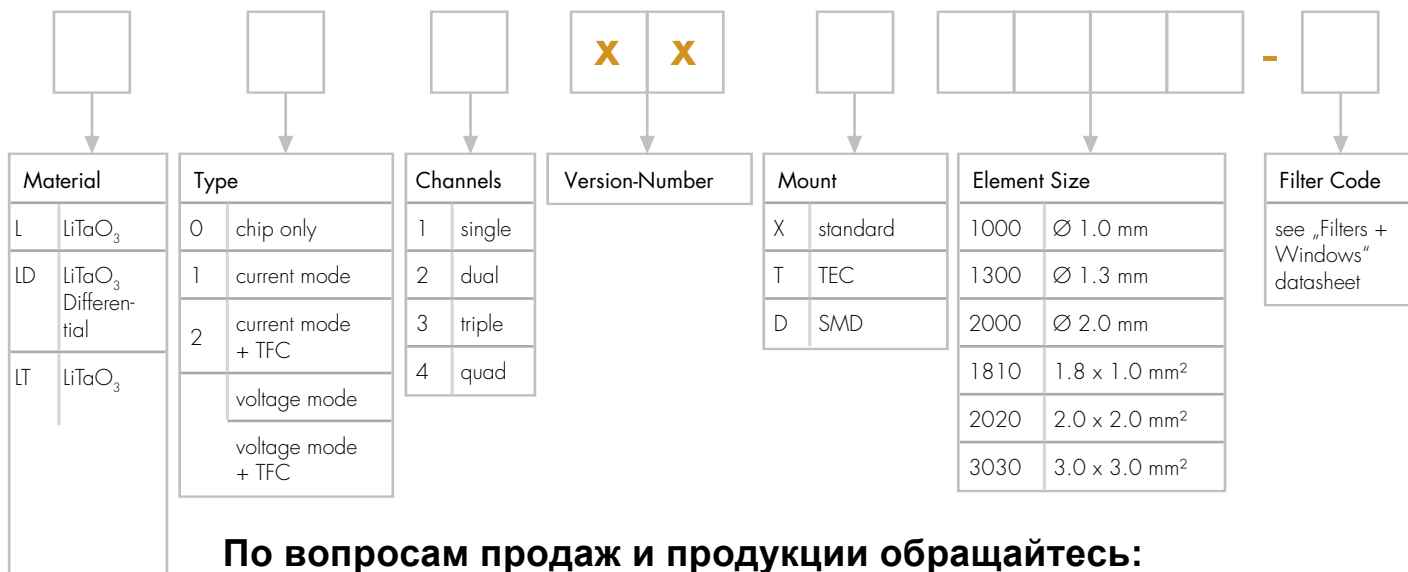
\*\* Limited by packing materials.

\*\*\* High Temperatures can cause depoling of the DLaTGS crystal.

## Handling

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

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