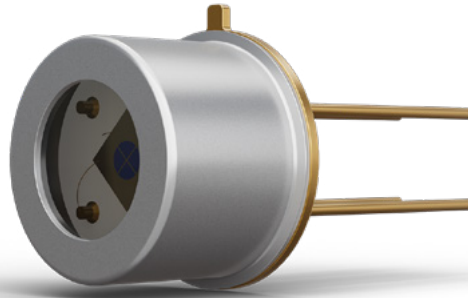


## DD31 SERIES VOLTAGE MODE DIFFERENTIAL DLaTGS Pyroelectric Detectors



Our DD31 series pyroelectric detectors are offered with a DLaTGS crystal element operating in voltage mode with an integrated low noise 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
- / 1.3mm diameter with absorbing metal black
- / Two source output with opposite polarity
- / Variety of infrared windows available

### APPLICATIONS

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

**SPECIFICATIONS DD3151X**

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

All values are typical, except for Combined Responsivity which is the minimum value.

Part	DD3151X1300
Element size Ø [mm]	1.3
Aperture size Ø [mm] <sup>1</sup>	5.3
Package	TO-39 4-pin
Absorber	Metal black
Load Resistor [GOhm]	10
Amplifier	JFET 2
Supply Voltage [V]	+9 (recommended; max. 25)
Combined Noise Density [nV/Hz <sup>1/2</sup> ]	40
Responsivity Channel 1 [V/W]	25
Responsivity Channel 2 [V/W]	25
Combined Responsivity [V/W]	45
Combined Detectivity D* [cmHz <sup>1/2</sup> /W]	2.0 E+08

<sup>1</sup> Please refer to »Filters and Windows« datasheet for all available options (aperture size depends on filter/window option chosen)

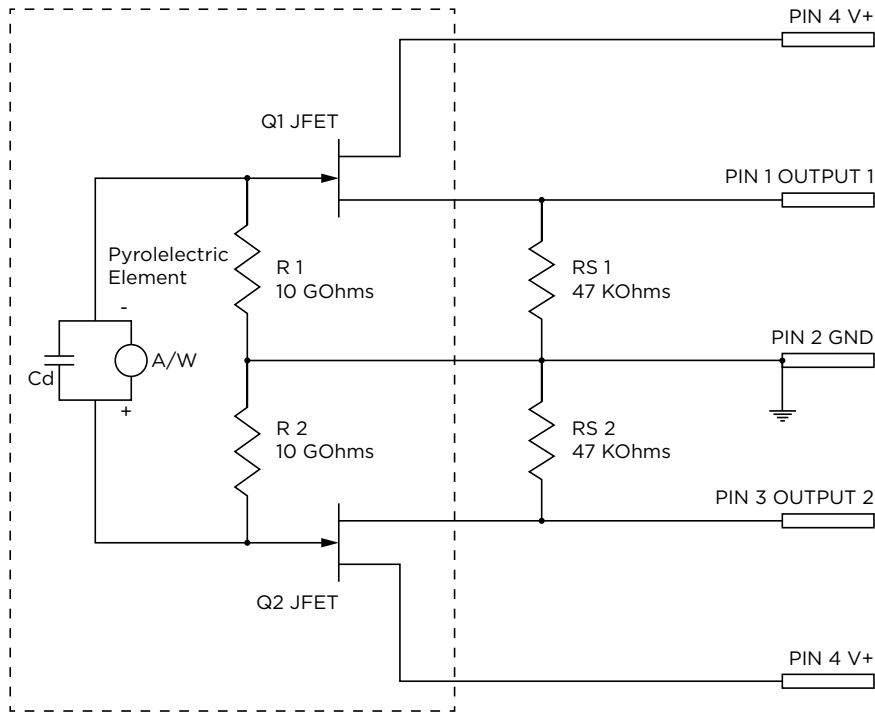
**Absolute Maximum Ratings**

	Min.	Max.	
		D31/DD31	L31/LT31
Storage temperature [°C]	-25	+40 <sup>3</sup>	+60 <sup>2</sup>
Operating temperature [°C]	-20	+55	+85
Soldering temperature, 5 seconds [°C]	280	+300	+300
ESD damage threshold, Human Body Model Class .... <sup>1</sup> [V]	0	<250	

1 ANSI/ESD STN5.1-2007  
 2 Limited by packing materials  
 3 High Temperatures can cause depoling of the DLaTGS crystal

PRELIMINARY

**Circuit Diagram**



# PYROELECTRIC DETECTORS

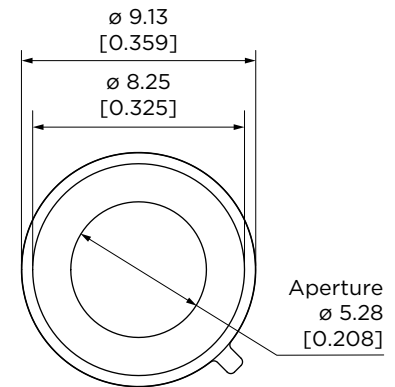
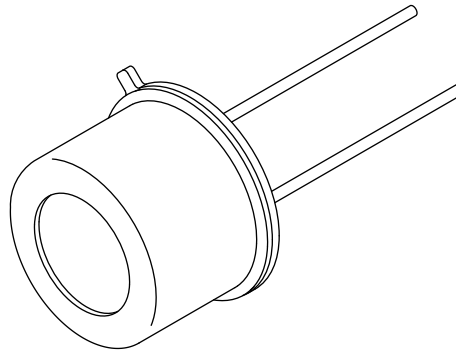
DD31 Series Voltage Mode Differential DLaTGS



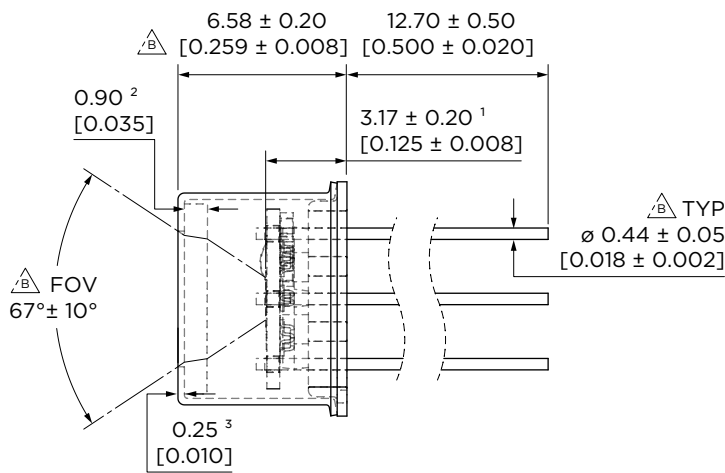
PRELIMINARY

## TECHNICAL DRAWING

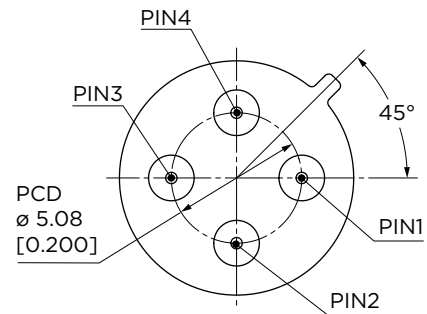
DD3151X1300



Top View



Side View



Bottom View

### 100528-POD

Pin out:

1. Output 1
2. Ground
3. Output 2
4. V+

Units: mm [inch]

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

<sup>1</sup> Distance from top of active area to bottom of header

<sup>2</sup> KBr window thickness, 0.2° wedged, measured at thickest edge

<sup>3</sup> Distance from top of device to top of window

PRELIMINARY

**ORDERING CODE**

Material	Type	Channels	Version Number	Mount	Element Size	Filter Code
<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>L</b> LiTaO <sub>3</sub> <b>LD</b> LiTaO <sub>3</sub> + Differential <b>LT</b> LiTaO <sub>3</sub> Thin Chip <b>D</b> DLaTGS <b>DD</b> DLaTGS + Differential	<b>0</b> Chip only <b>1</b> Current mode <b>2</b> Current mode + TFC <b>3</b> Voltage mode <b>4</b> Voltage mode + TFC	<b>1</b> Single <b>2</b> Dual <b>3</b> Triple <b>4</b> Quad		<b>X</b> Standard <b>T</b> TEC <b>D</b> SMD	<b>1000</b> Ø1.0mm <b>1300</b> Ø1.3mm <b>2000</b> Ø2.0mm <b>1810</b> 1.8x1.0 mm <sup>2</sup> <b>2020</b> 2.0x2.0 mm <sup>2</sup> <b>3030</b> 3.0x3.0 mm <sup>2</sup>	- see »Filters and Windows« datasheet

**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)  
 Custom designed products are available on request.

**LASER SAFETY**

**Personal Hazard**

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 »Safety of laser products«.



**Handling Precautions**

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

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

