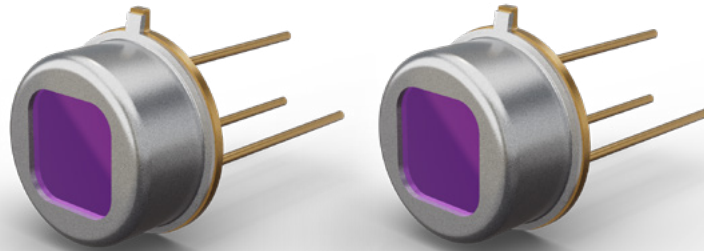


L31/41 SERIES

Single Channel Voltage Mode Pyroelectric Detectors



Our L31/41 series of pyroelectric detectors are a collection of single channel LiTaO_3 devices 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 facility
- / Microphonics reduction as standard

APPLICATIONS

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

VERSIONS

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

/ **Germany and Other Countries** LASER COMPONENTS Germany GmbH Tel +49 8142 2864-0 info@lasercomponents.com www.lasercomponents.com
 / **France** LASER COMPONENTS S.A.S. Tel +33 1 39 59 52 25 info@lasercomponents.fr www.lasercomponents.fr
 / **United Kingdom** LASER COMPONENTS (UK) Ltd. Tel +44 1245 491 499 info@lasercomponents.co.uk www.lasercomponents.co.uk
 / **Nordic Countries** LASER COMPONENTS Nordic AB Tel +46 31 703 71 73 info@lasercomponents.se www.lasercomponents.se
 / **USA** LASER COMPONENTS USA, Inc. Tel +1 603 821-7040 info@laser-components.com www.laser-components.com

L31/41 SERIES

Single Channel Voltage Mode Pyroelectric Detectors



SPECIFICATIONS

Absolute Maximum Ratings

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]	200	

* ANSI/ESD STN5.1-2007

** Limited by packing materials

Version	L3100X2020	L4100X2020
	Single channel Pyroelectric detector	
	Voltage mode	
	Without TFC	With TFC
Element Size [mm]	2x2	
Aperture Size [mm²]*	3.5 / 5.0	
Package	TO-39 3-pin	
Absorber	Organic Black	
Load Resistor [GOhm]	100	
Amplifier	JFET 3	
-3dB Frequency [Hz]	TBD	
Supply Voltage [V]	Max. +30 (9 recommended)	
Responsivity [V/W]	Min: 340 / Typ: 400	Min: 160 / Typ: 200
D* (Jones) @ 10 Hz	Min: 6×10^8 / Typ: 9×10^8	Min: 4×10^8 / Typ: 5×10^8
Noise Density [$\mu\text{V}/\sqrt{\text{Hz}}$]	Max: 0.15	Max: 0.13
NEP [$\text{W}/\sqrt{\text{Hz}}$]	Max: 3.4×10^{-10}	Max: 6×10^{-10}
Polarity	Positive	
Circuit Diagram		

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

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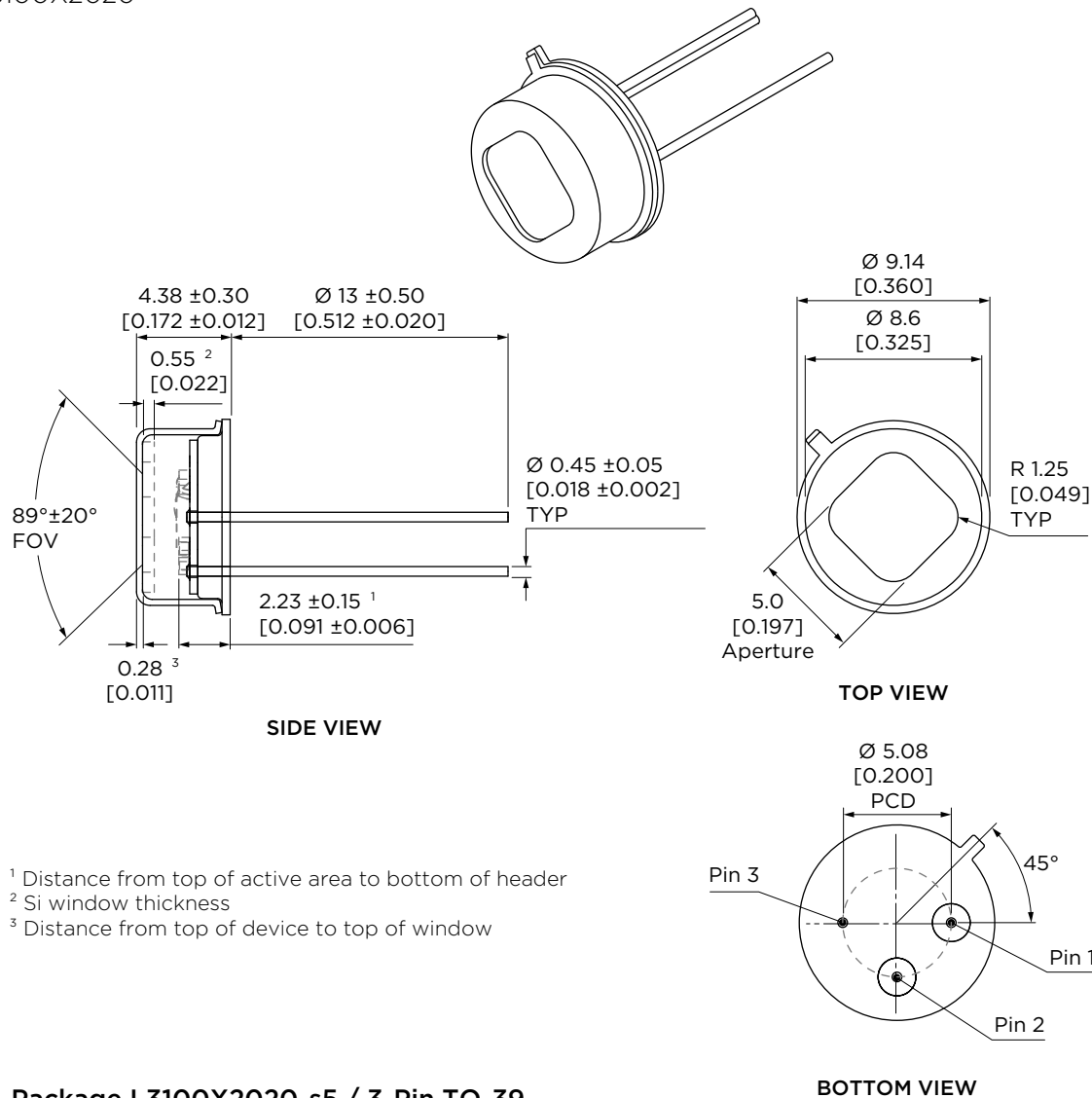
L31/41 SERIES

Single Channel Voltage Mode Pyroelectric Detectors



TECHNICAL DRAWING

L3100X2020



¹ Distance from top of active area to bottom of header

² Si window thickness

³ Distance from top of device to top of window

Package L3100X2020-s5 / 3-Pin TO-39

Pin out:

1. Drain
2. Source
3. Ground/Case

Units: mm [inch]

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

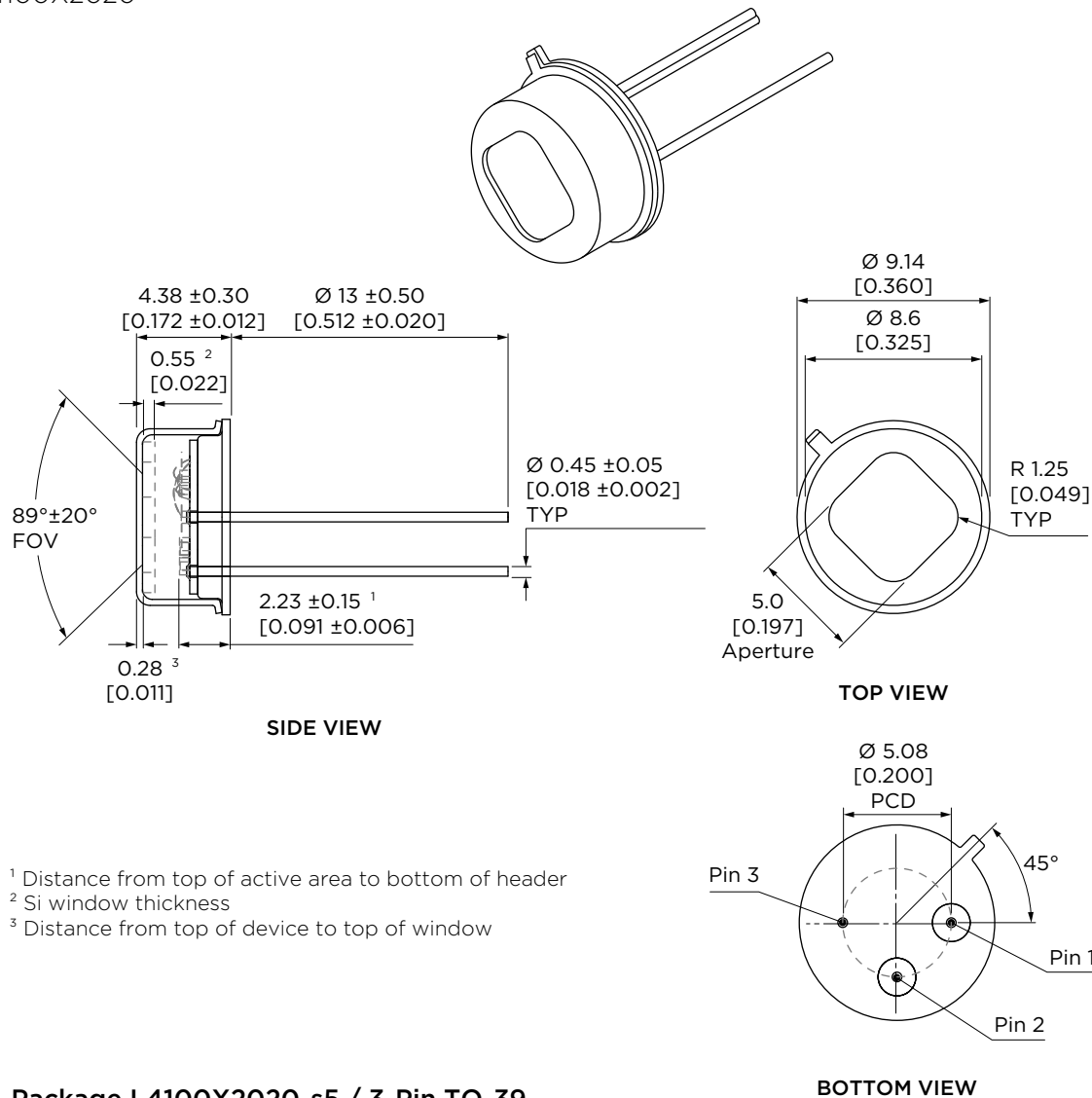
L31/41 SERIES

Single Channel Voltage Mode Pyroelectric Detectors



TECHNICAL DRAWING

L4100X2020



¹ Distance from top of active area to bottom of header

² Si window thickness

³ Distance from top of device to top of window

Package L4100X2020-s5 / 3-Pin TO-39

Pin out:

1. Drain
2. Source
3. Ground/Case

Units: mm [inch]

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

L31/41 SERIES

Single Channel Voltage Mode Pyroelectric Detectors



ORDERING CODE

Material ¹	Type	Channels	Version-Number	Mount	Element Size	Filter Code
X	X	X	XX	X	X	X
L	0 Chip only	1 Single		X Standard	1000 Ø1.0 mm	see »Filters and Windows« datasheet
LD	1 Current mode	2 Dual		T TEC	1300 Ø1.3 mm	
D	2 Current mode + TFC	3 Triple		D SMD	2000 Ø2.0 mm	
DD	3 Voltage mode	4 Quad			3000 Ø3.0 mm	
LT	4 Voltage mode + TFC				1010 1.0x1.0 mm ²	
					1810 1.8x1.0 mm ²	
					2020 2.0x2.0 mm ²	
					3030 3.0x3.0 mm ²	

¹ Foot Note / Abbreviations

L = LiTaO₃

LD = LiTaO₃ Differential

D = DLaTGS

DD = DLaTGS Differential

LT = LiTaO₃ Thin chip

Example: L3100X2020

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.

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

