

**LIM-052-#**

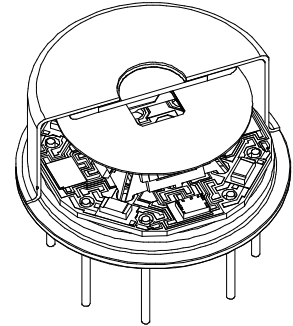
Dual channel pyroelectric multicolor detector  
with integrated beamsplitter and CMOS preamplifier (PyroMid®)

Description: LIM-052-#

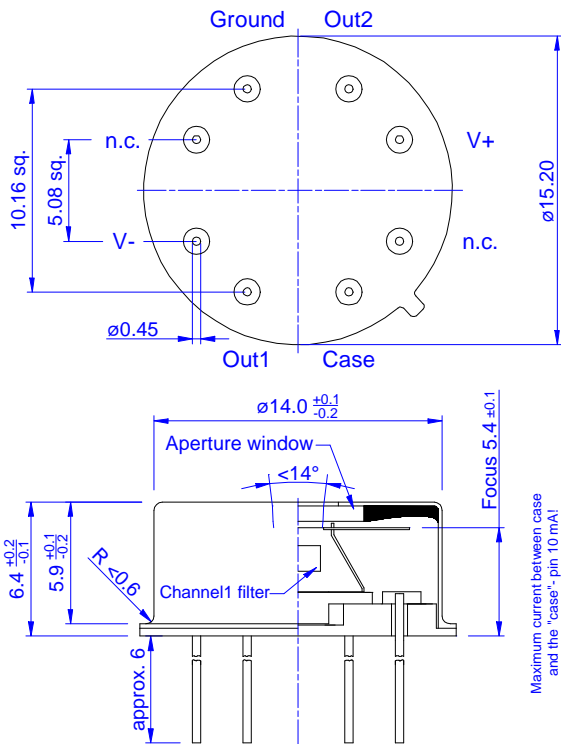
[# = extension code]

dual color, potential-free TO8 housing, with integrated micro groove beamsplitter;  
current mode with micro power OpAmp; feedback R 24GOhm ±20% // C 0.20±0.1pF;  
high gain

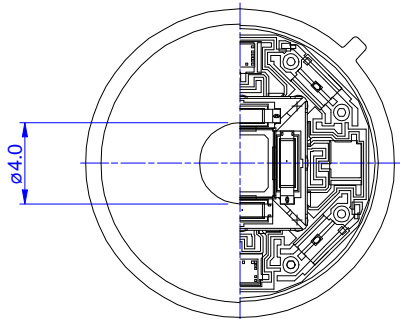
PyroMid® detectors are State-of-the-art, cost effective, multicolor detectors for virtually any infrared application.



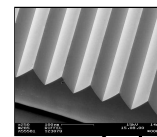
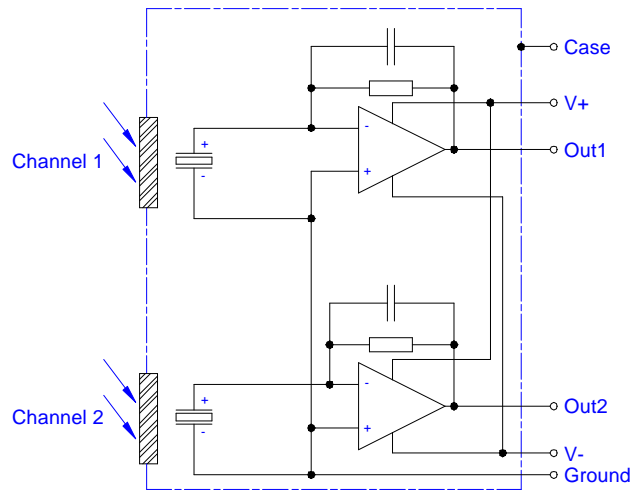
Housing:



TO8 / 0.6" 8Pin

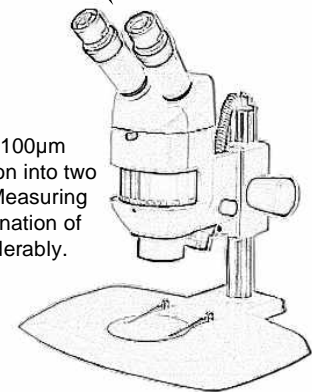


Pin assignment:



SEM photograph of a micro groove beamsplitter

More than 25 micro V-grooves ( $100\mu\text{m}$  pitch) divide the incident radiation into two spectral channels (patented). Measuring errors by an asymmetrical illumination of the aperture are reduced considerably.



Multi-color Products

**InfraTec GmbH**  
Infrarotsensorik und Messtechnik  
Gostritzer Str.61-63  
01217 Dresden / Germany  
E-Mail: sensor@InfraTec.de  
http://www.InfraTec.de

distributed by:

**ELECTRO OPTICAL COMPONENTS, Inc.**  
5460 Skyline Blvd.  
Santa Rosa, California 95403

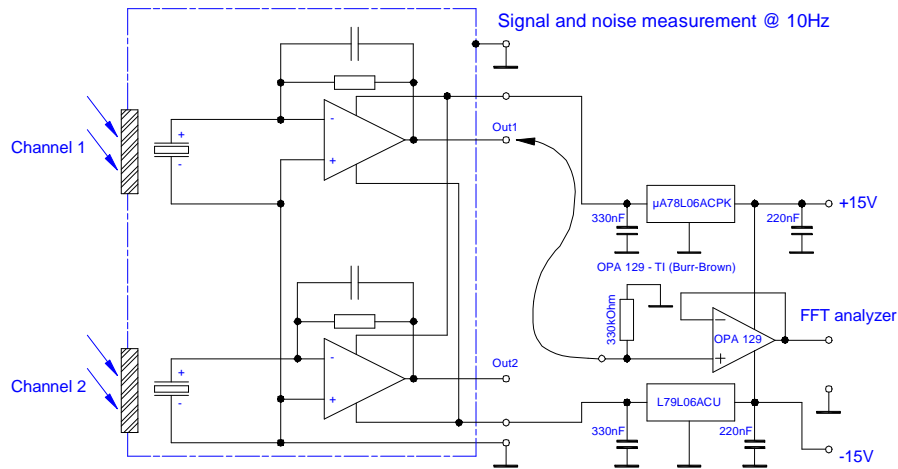


Tel: 707-568-1642  
Fax: 707-568-1652  
E-Mail: info@eoc-inc.com  
http://www.eoc-inc.com

## LIM-052-#

Dual channel pyroelectric multicolor detector  
with integrated beamsplitter and CMOS preamplifier (PyroMid®)

## Test circuit:



## Parameters:

Aperture size	nom	2.8 mm sq.
Element size / type	nom	2.2x1.3 mm <sup>2</sup> lithium tantalate with black layer
Beamsplitter	nom	array of micro grooves
Thermal time constant	typ	250 ms
Feedback resistor	nom	24 GOhm ±20%
Feedback capacitor	nom	0.2±0.1 pF
Polarity	nom	negative signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	6,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	24 µV/Hz <sup>1/2</sup>
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	7.0*10 <sup>7</sup> cmHz <sup>1/2</sup> /W
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V <sup>+</sup> - V <sup>-</sup>	max	16 V
Operating supply voltage V <sup>+</sup> / V <sup>-</sup>		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V <sup>+</sup> = +5 V; V <sup>-</sup> = -5 V
Supply current {output load 1MOhm}	max	150 µA
Offset voltage {25°C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	330 kOhm
Absolute output current	max	± 0.4 mA
Potential of detector case	nom	selectable potential between -8 ... +8V to Ground {EMC requires low-impedance coupling}
Operating / Storage temperature	nom	-25 ... +85°C
Aperture window		CaF <sub>2</sub> 0.4mm thick, customized window upon request.
Channel filters		Combinations of all InfraTec standard narrow band pass filters are available. Customized filters upon request.

InfraTec reserves the right to change these specifications at any time without notification!

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## InfraTec GmbH

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Gostritzer Str.61-63

01217 Dresden / Germany

E-Mail: sensor@InfraTec.de

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