

Pyroelectric and Multispectral Detectors

Standard Products



LIE-200

LIE-201

LIE-202

LIE-216

LIE-235

LIE-241

LIE-245

LIE-251

LIE-302

LIE-316

LME-300

LME-301

LME-302

LME-316

LME-335

LME-341

LME-345

LME-351

LME-500

LME-501

LME-502

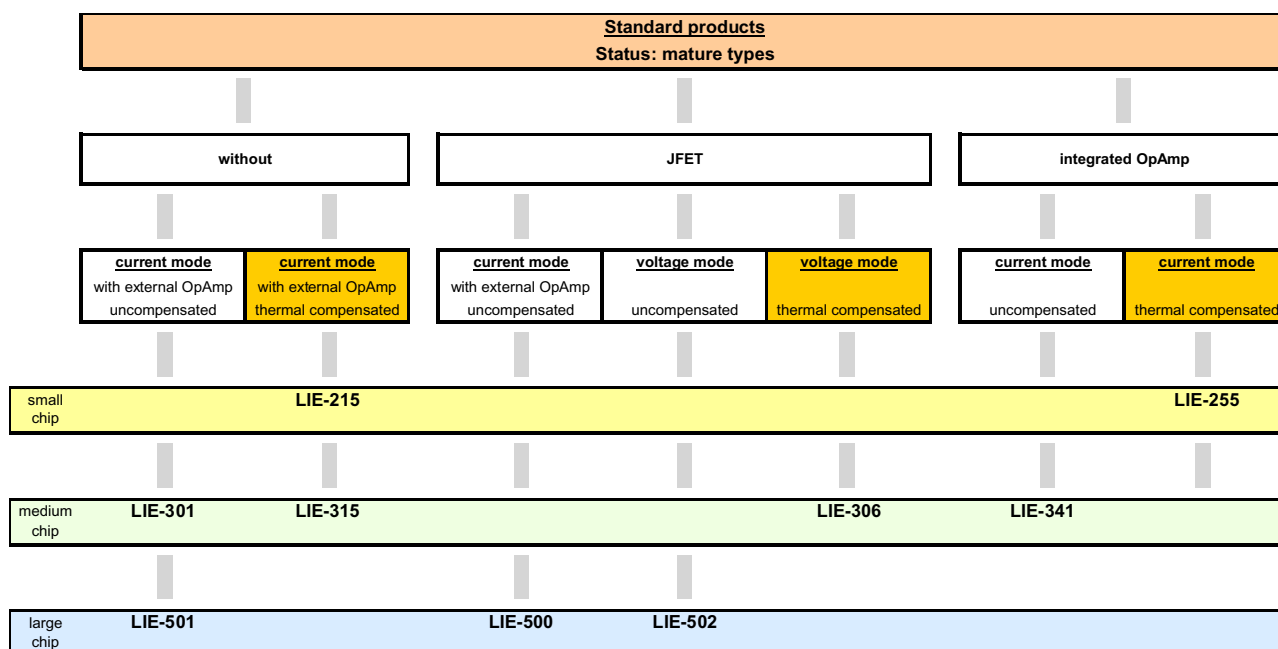
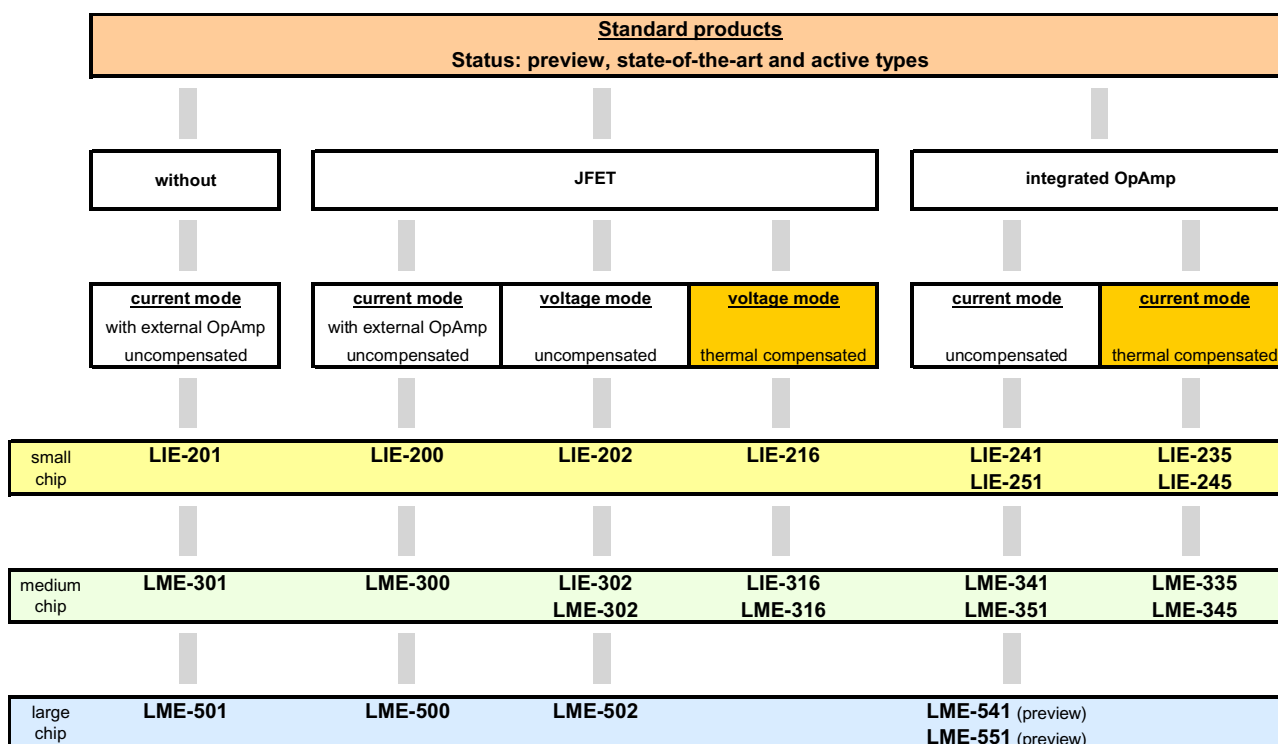
LME-541

LME-551

Standard Products

Pyroelectric and Multispectral Detectors

Standard Products
Selection guide



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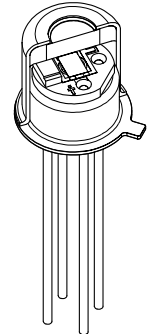
LIE-200-#

1.4 x 1.0 mm² fast pyroelectric IR detector
for 1Hz to 1kHz modulation, TO18 housing

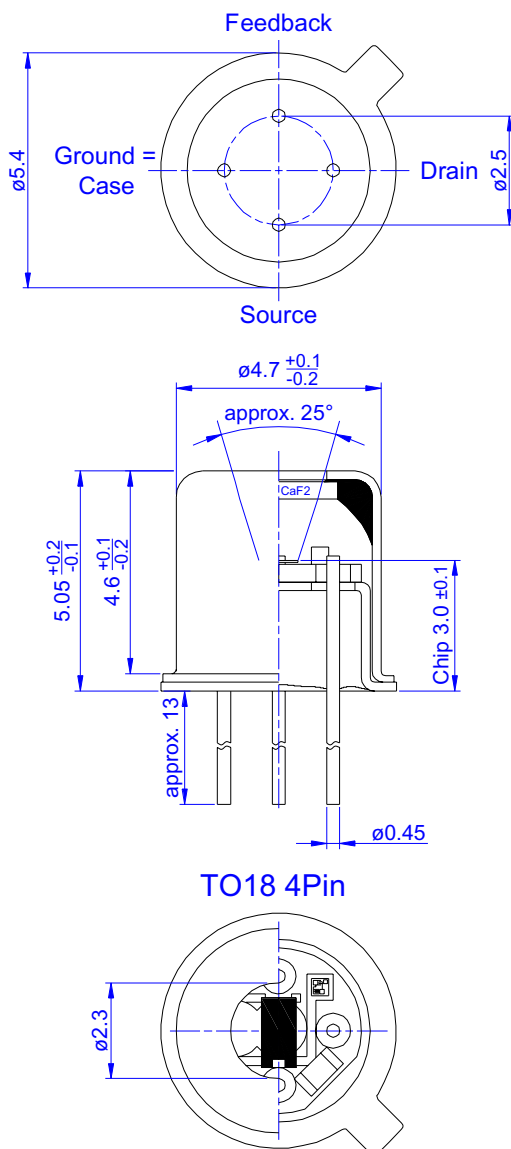
Description: LIE-200-#

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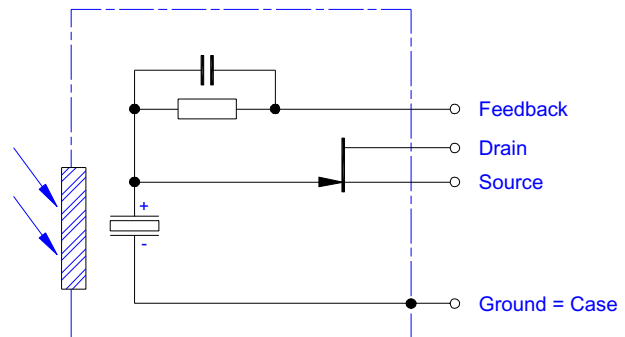
single element, area 1.4x1.0mm²; for current mode, with JFET;
feedback R 1GOhm $\pm 10\%$ // C 0.47 ± 0.1 pF



Housing:

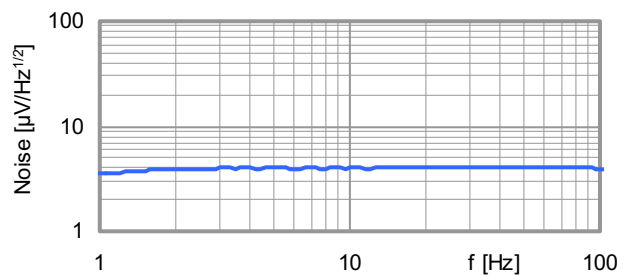
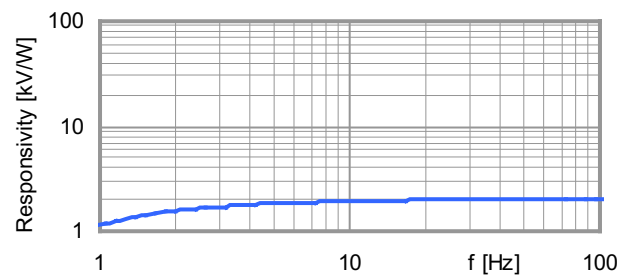


Pin assignment:



Standard Products

Frequency response:

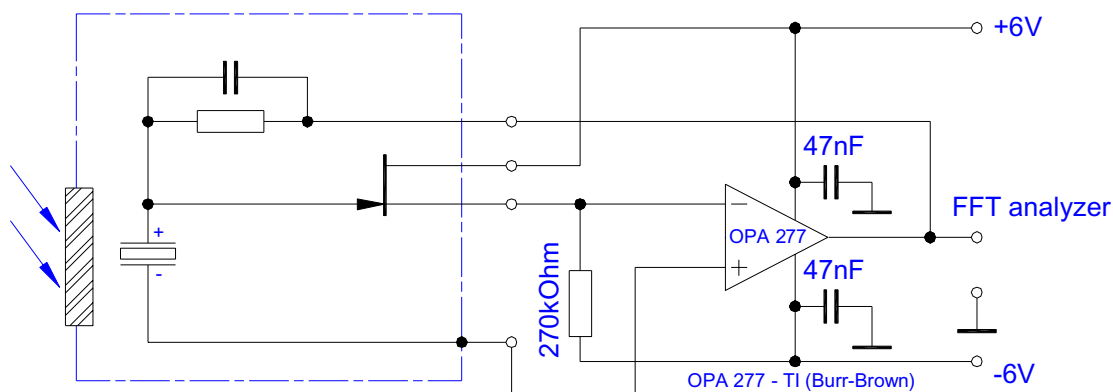


LIE-200-#

1.4 x 1.0 mm² fast pyroelectric IR detector
for 1Hz to 1kHz modulation, TO18 housing

Test circuit:

Signal and noise measurement @ 10Hz



Parameters:

Element size / type	nom	1.4x1.0 mm ² lithium-tantalate with black layer
Aperture	nom	ø2.3 mm
Thermal time constant	typ	150 ms
Feedback resistor	nom	1 GOhm ±10%
Feedback capacitor	nom	470±100 fF
Polarity (referred to output of test circuit)	nom	negative signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	1,400 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	5.0 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	3.3*10 ⁸ cmHz ^{1/2} /W
Offset voltage (feedback to source) {I _{Dopt.} = 10-100µA}	nom	-0.4 ... -1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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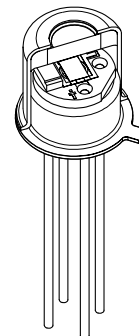
LIE-201-#

1.4 x 1.0 mm² pyroelectric IR detector
potential-free TO18 housing

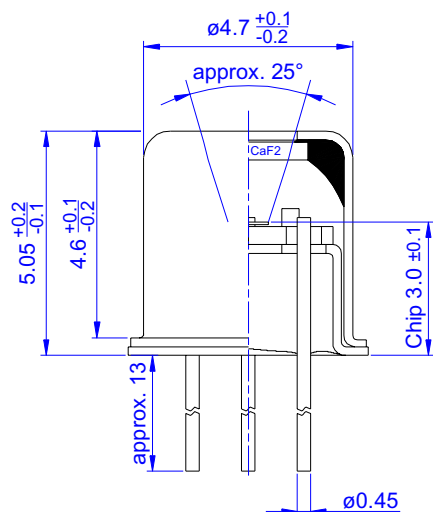
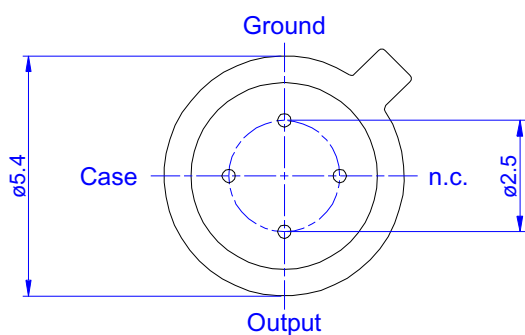
Description: LIE-201-#

[# = extension code]

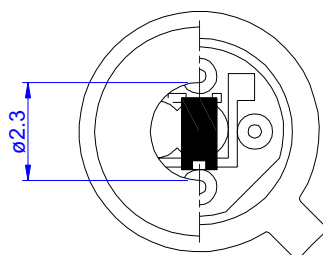
single element, area 1.4x1.0mm²; for current mode



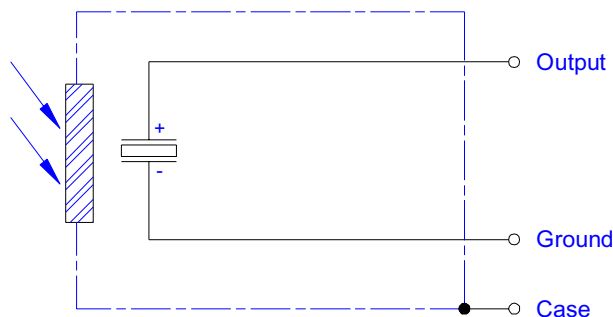
Housing:



TO18 4Pin



Pin assignment:

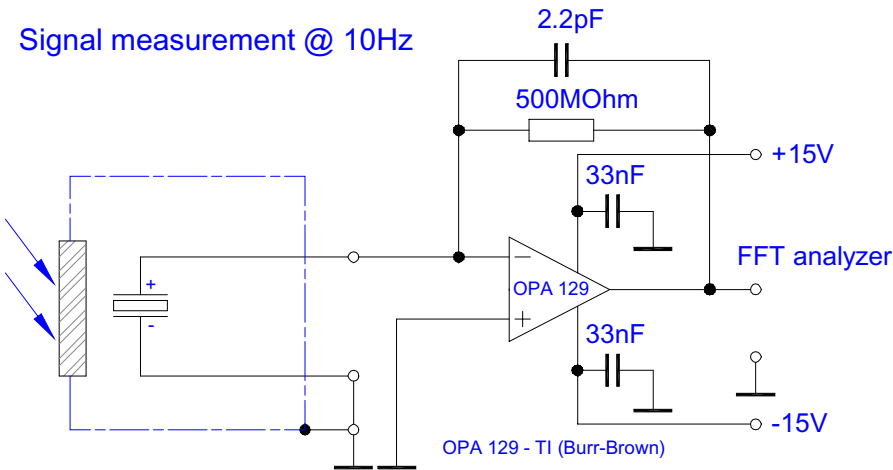


Standard Products

LIE-201-#

1.4 x 1.0 mm² pyroelectric IR detector
potential-free TO18 housing

Test circuit:



Parameters:

Element size / type	nom	1.4x1.0 mm ² lithium-tantalate with black layer
Aperture	nom	ø2.3 mm
Thermal time constant	typ	150 ms
Polarity	nom	positive signal by positive IR flux change
Current responsivity (element only) {500K, 10Hz, 25°C, without window}	min	1.6 µA/W
Element capacitance {1kHz, 1V, 25°C}	typ	20 pF
Element dielectric loss {1kHz, 1V, 25°C}	max	0.001
Potential of detector case	nom	selectable potential between -24 ... +24V to Ground {EMC requires low-impedance coupling}
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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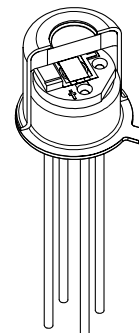
LIE-202-#

1.4 x 1.0 mm² pyroelectric IR detector
potential-free TO18 housing

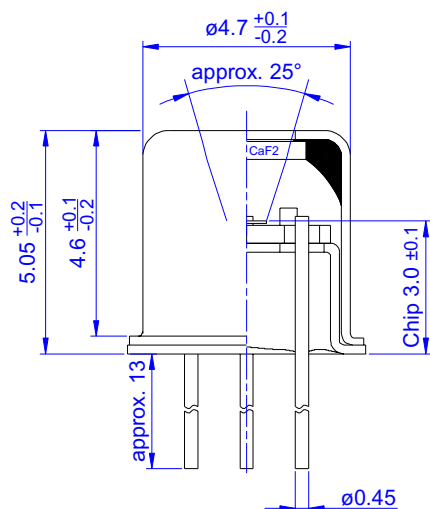
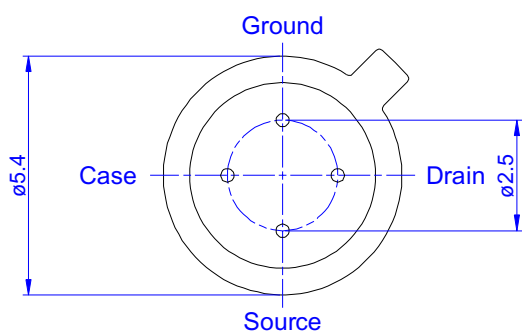
Description: LIE-202-#

single element, area 1.4x1.0mm²; for voltage mode

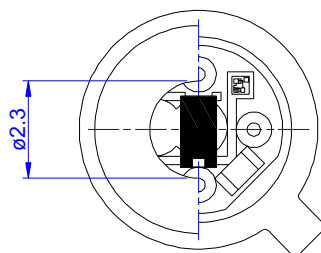
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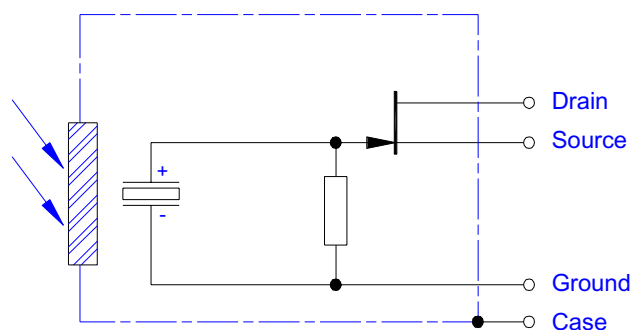
Housing:



TO18 4Pin

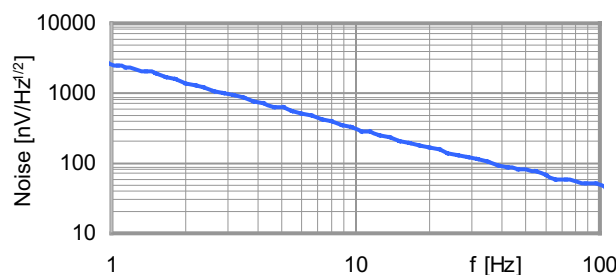
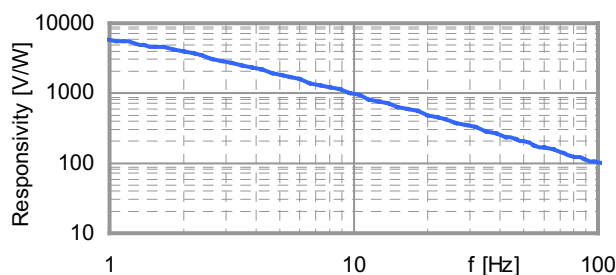


Pin assignment:



Standard Products

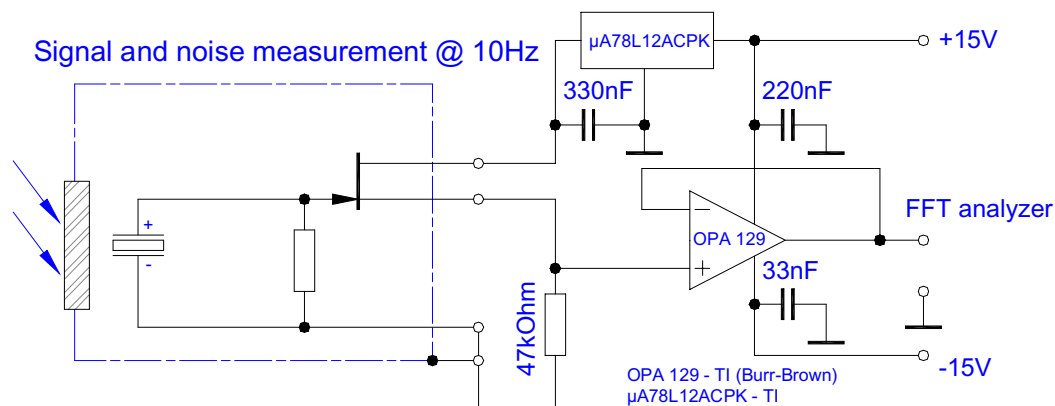
Frequency response:



LIE-202-#

1.4 x 1.0 mm² pyroelectric IR detector
potential-free TO18 housing

Test circuit:



Parameters:

Element size / type	nom	1.4x1.0 mm ² lithium-tantalate with black layer
Aperture	nom	ø2.3 mm
Thermal time constant	typ	150 ms
Electrical time constant	typ	2 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	900 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	350 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	3.0*10 ⁸ cmHz ^{1/2} /W
Offset voltage {I _{Dopt.} = 10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Potential of detector case	nom	selectable potential between -24 ... +24V to Ground {EMC requires low-impedance coupling}
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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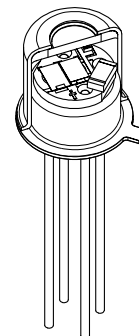
LIE-216-#

1.4 x 1.0 mm² pyroelectric IR detector
thermal compensated, potential-free TO18 housing

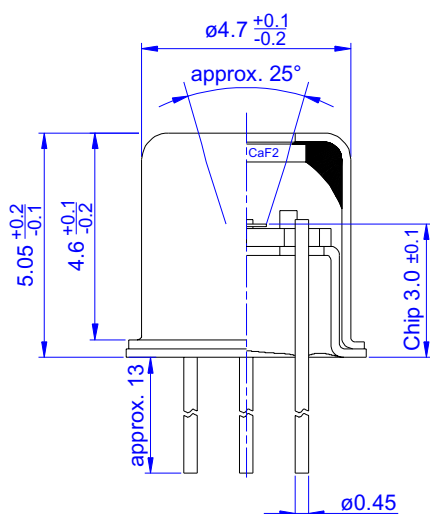
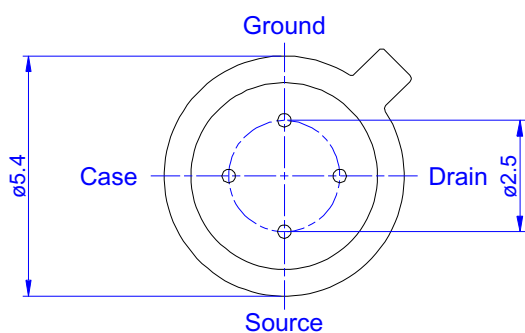
Description: LIE-216-#

[# = extension code]

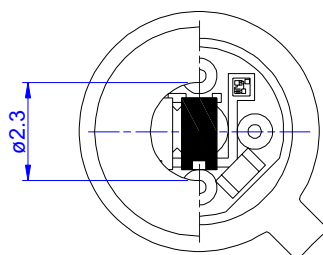
single element, area 1.4x1.0mm², thermal compensation; for voltage mode



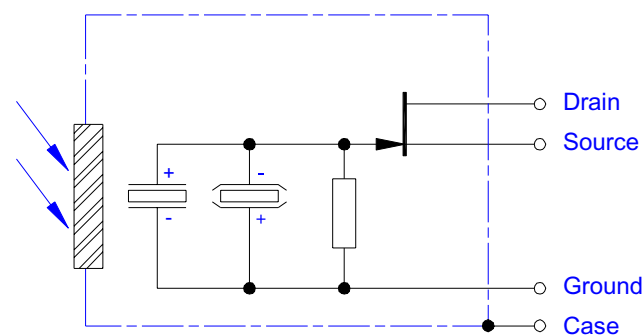
Housing:



TO18 4Pin

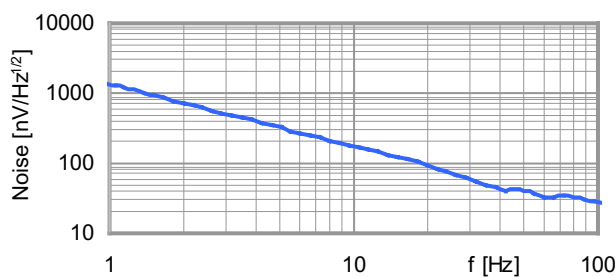
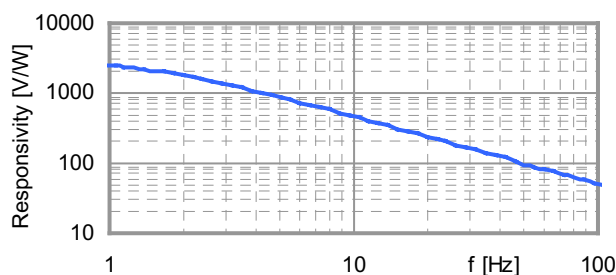


Pin assignment:



Standard Products

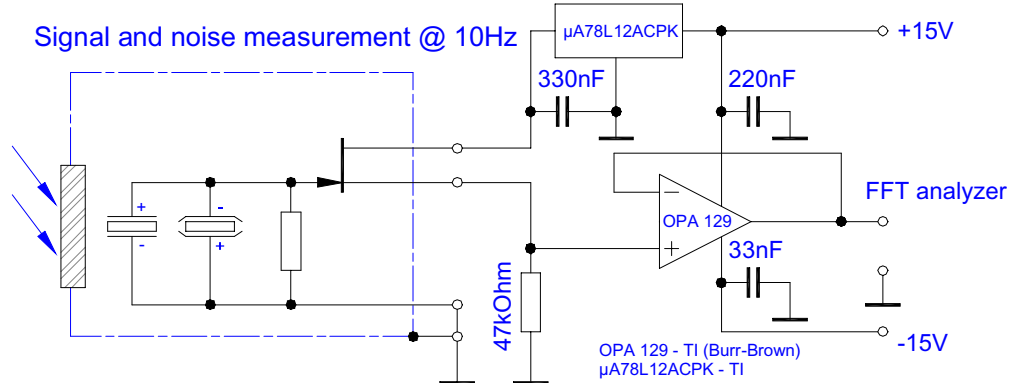
Frequency response:



LIE-216-#

1.4 x 1.0 mm² pyroelectric IR detector
thermal compensated, potential-free TO18 housing

Test circuit:



Parameters:

Element size / type	nom	1.4x1.0 mm ² lithium-tantalate with black layer
Aperture	nom	ø2.3 mm
Thermal time constant	typ	150 ms
Electrical time constant	typ	4 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	450 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	220 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	2.4*10 ⁸ cmHz ^{1/2} /W
Offset voltage {I _{Dopt.} =10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Potential of detector case	nom	selectable potential between -24 ... +24V to Ground {EMC requires low-impedance coupling}
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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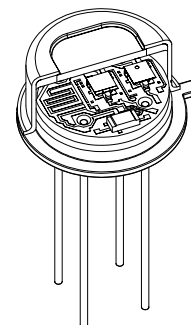
LIE-235-#

1.3 x 1.3 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier

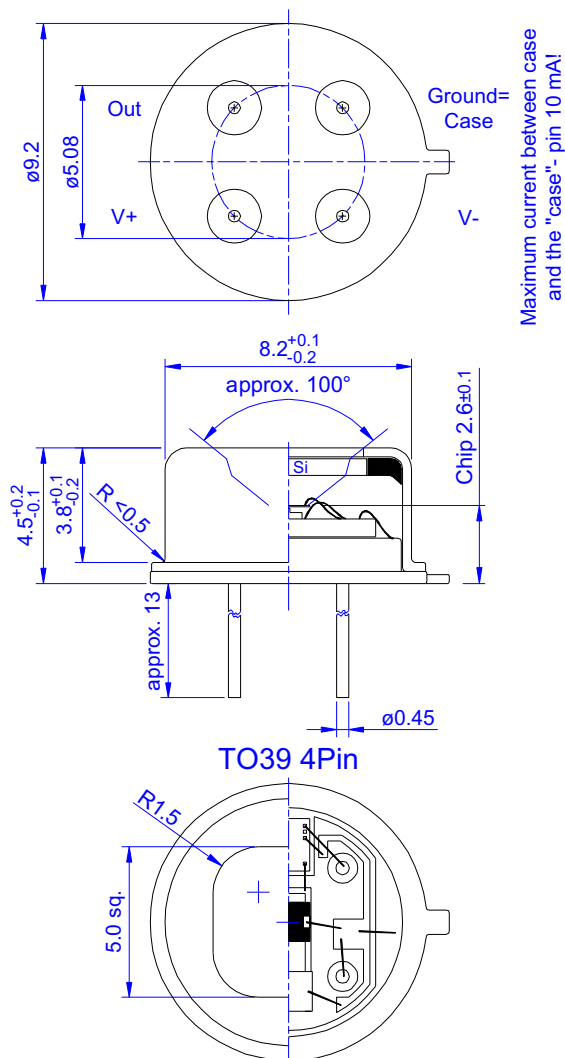
Description: LIE-235-#

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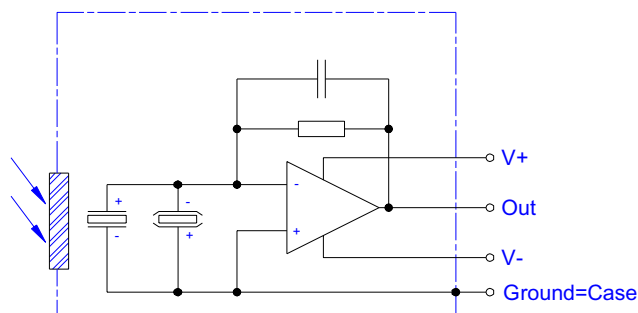
single element, area 1.3x1.3mm², thermal compensation;
for current mode, with micro power OpAmp; feedback R 100GOhm ±20% // C 0.20±0.1pF;
very high gain



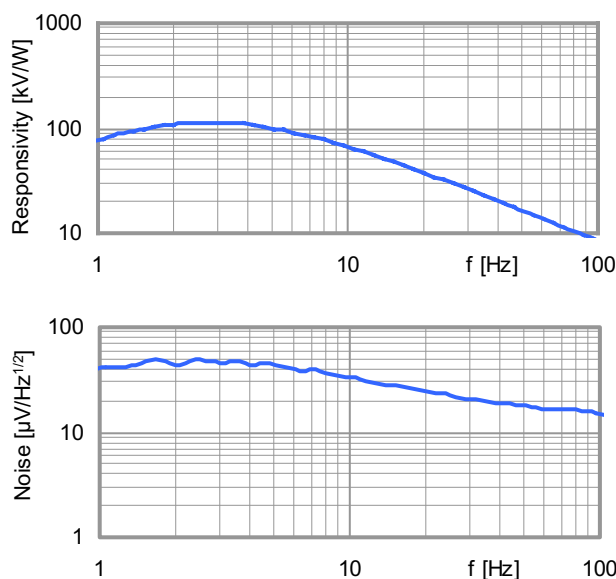
Housing:



Pin assignment:

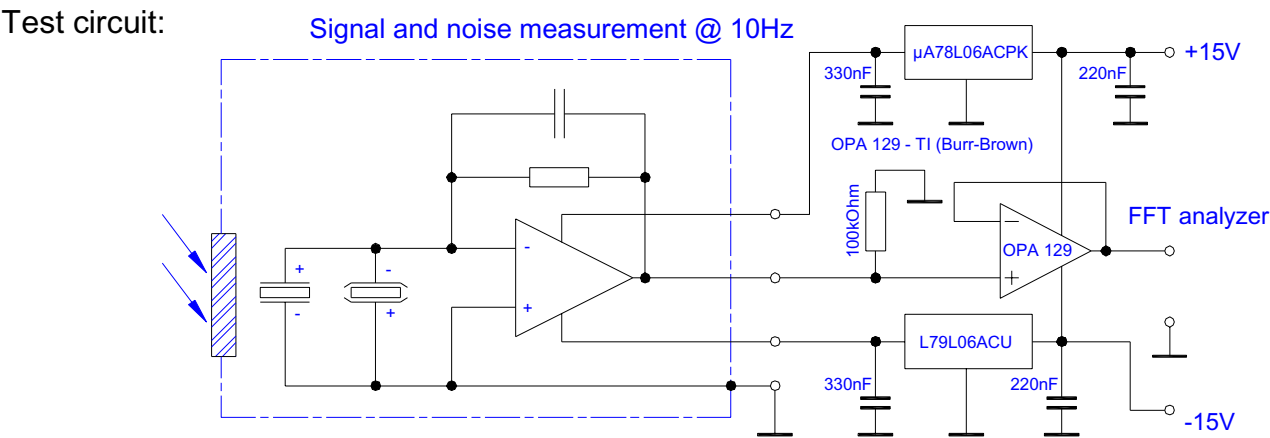


Frequency response:



LIE-235-#

1.3 x 1.3 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier



Parameters:

Element size / type	nom	1.3x1.3 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	100 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	65,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	45 µV/Hz ^½
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	1.9*10 ⁸ cmHz ^½ /W
CMOS operational amplifier	nom	OpAmp1 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+3.5 ... 8.0 V / -1.5 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -5 V
Supply current {output load 1MOhm}	max	50 µA
Offset voltage {25°C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	100 kOhm
Absolute output current	max	± 2 mA
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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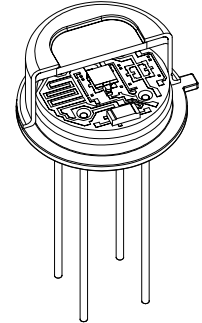
LIE-241-#

1.3 x 1.3 mm² pyroelectric IR detector
CMOS preamplifier

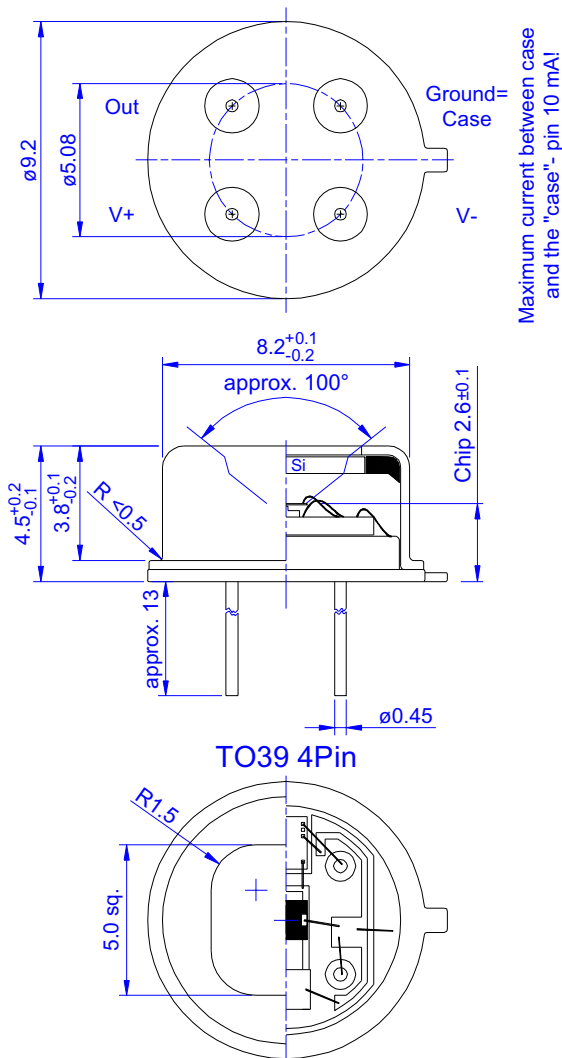
Description: LIE-241-#

[# = extension code]

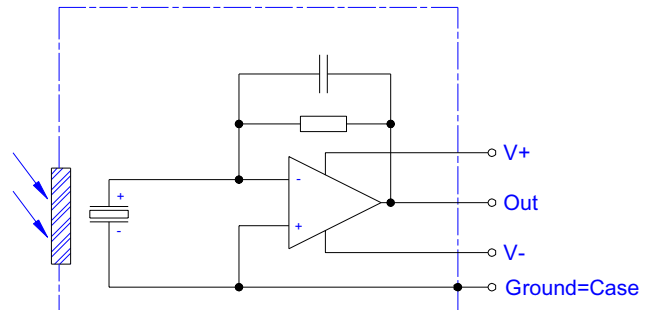
single element, area 1.3x1.3mm²;
for current mode, with micro power OpAmp; feedback R 24GOhm ±10% // C 0.20±0.1pF; high gain



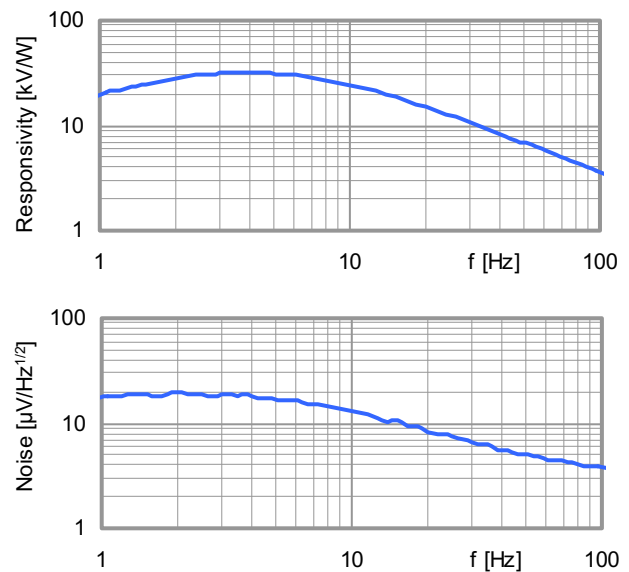
Housing:



Pin assignment:



Frequency response:

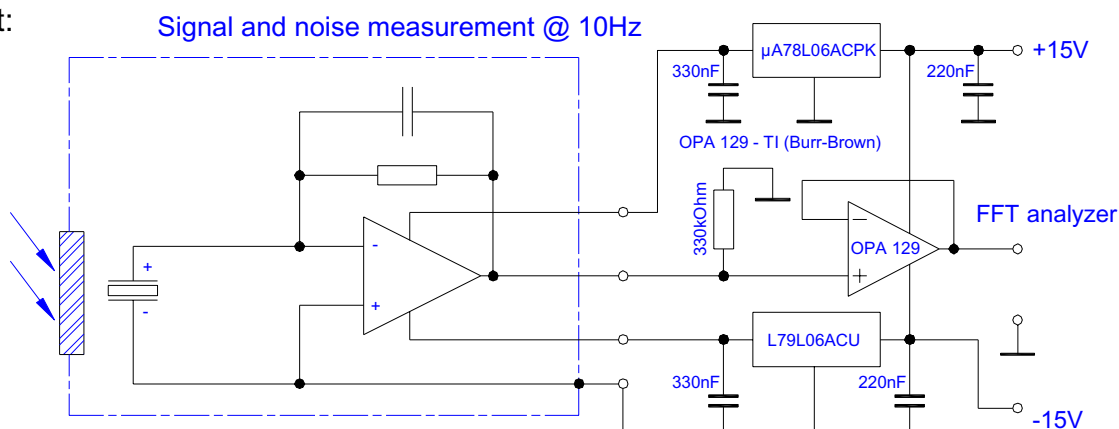


Standard Products

LIE-241-#

1.3 x 1.3 mm² pyroelectric IR detector
CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	1.3x1.3 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	24 GOhm ±10%
Feedback capacitor	nom	0.68±0.1 pF
Polarity	nom	negative signal by positive IR flux change
Voltage Responsivity {500K, 10Hz, 25°C, without window}	min	22,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	18 µV/Hz ^½
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	1.6*10 ⁸ cmHz ^½ /W
CMOS operational amplifier	nom	OpAmp1 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+3.5 ... 8.0 V / -1.5 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -5 V
Supply current {output load 1MOhm}	max	50 µA
Offset voltage {25°C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	100 kOhm
Absolute output current	max	± 2 mA
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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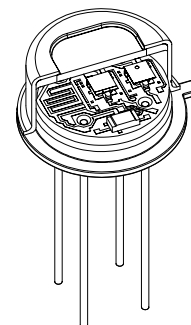
LIE-245-#

1.3 x 1.3 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier

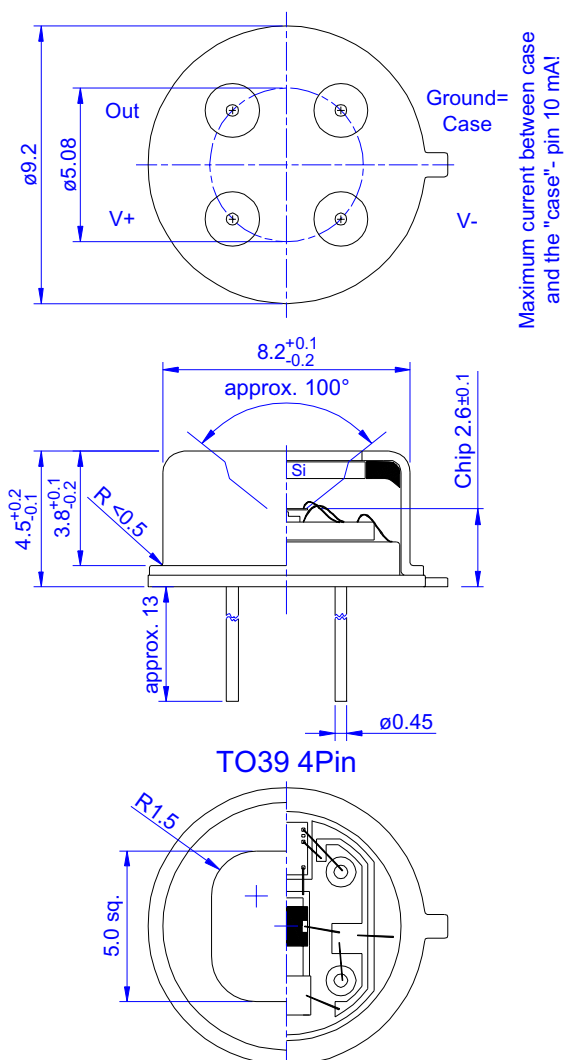
Description: LIE-245-#

[# = extension code]

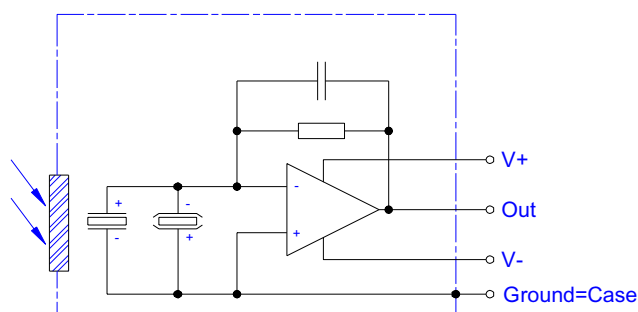
single element, area 1.3x1.3mm², thermal compensation;
for current mode, with micro power OpAmp; feedback R 24GOhm $\pm 10\%$ // C 0.68 ± 0.1 pF; high gain



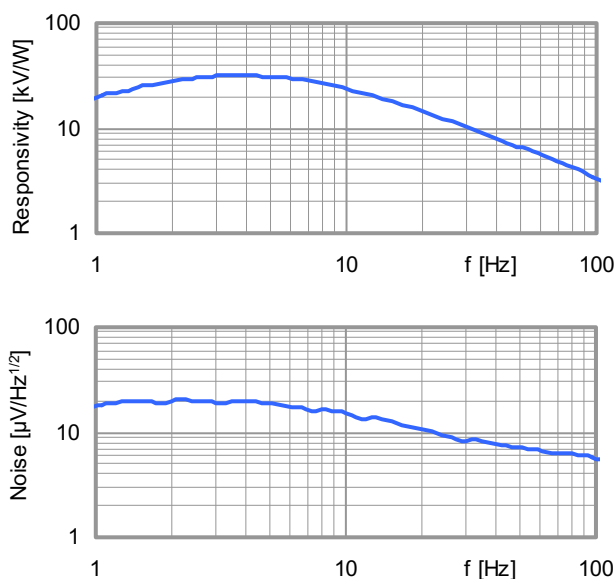
Housing:



Pin assignment:



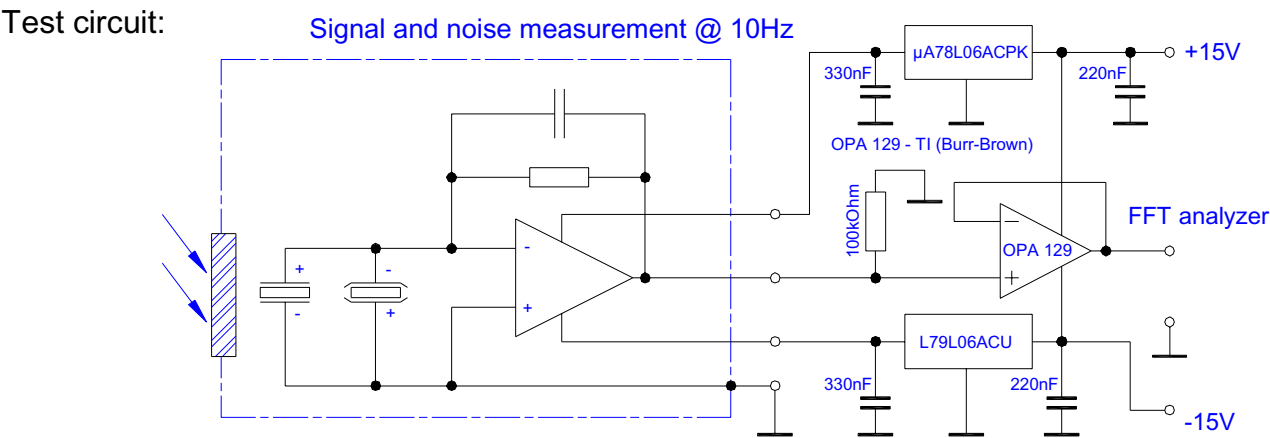
Frequency response:



Standard Products

LIE-245-#

1.3 x 1.3 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier



Parameters:

Element size / type	nom	1.3x1.3 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	24 GOhm ±10%
Feedback capacitor	nom	0.68±0.1 pF
Polarity	nom	negative signal by positive IR flux change
Voltage Responsivity {500K, 10Hz, 25°C, without window}	min	22,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	20 µV/Hz ^½
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	1.4*10 ⁸ cmHz ^½ /W
CMOS operational amplifier	nom	OpAmp1 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+3.5 ... 8.0 V / -1.5 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -5 V
Supply current {output load 1MOhm}	max	50 µA
Offset voltage {25°C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	100 kOhm
Absolute output current	max	± 2 mA
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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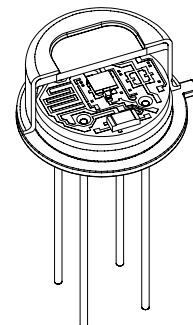
LIE-251-#

1.3 x 1.3 mm² pyroelectric IR detector
CMOS preamplifier

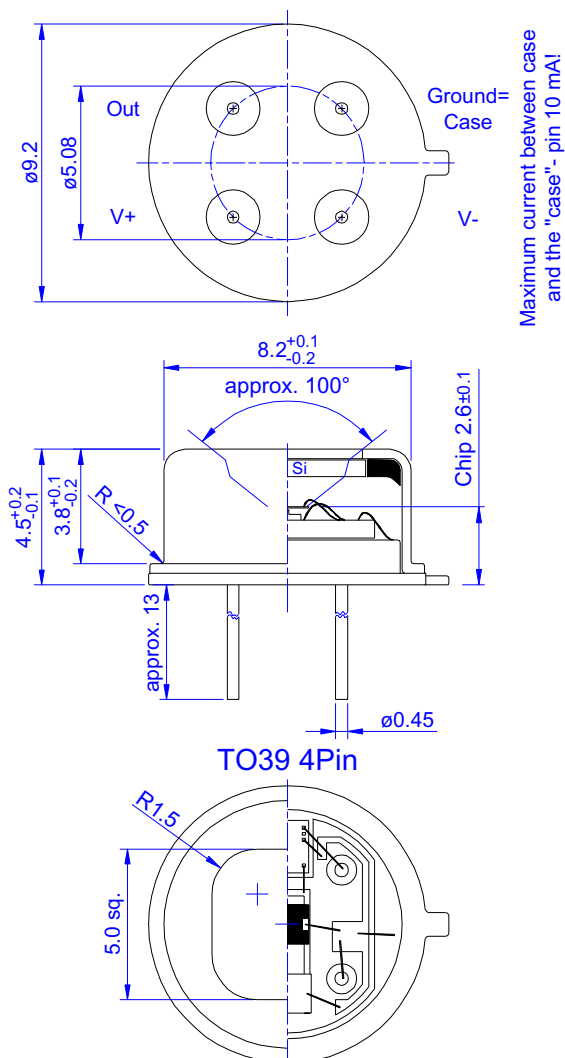
Description: LIE-251-#

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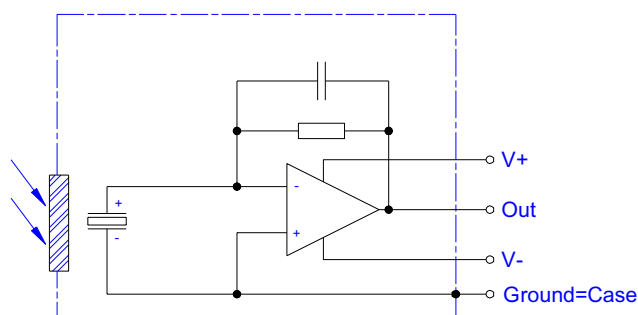
single element, area 1.3x1.3mm²;
for current mode, with micro power OpAmp; feedback R 5GOhm ±10% // C 0.20±0.1pF; medium gain



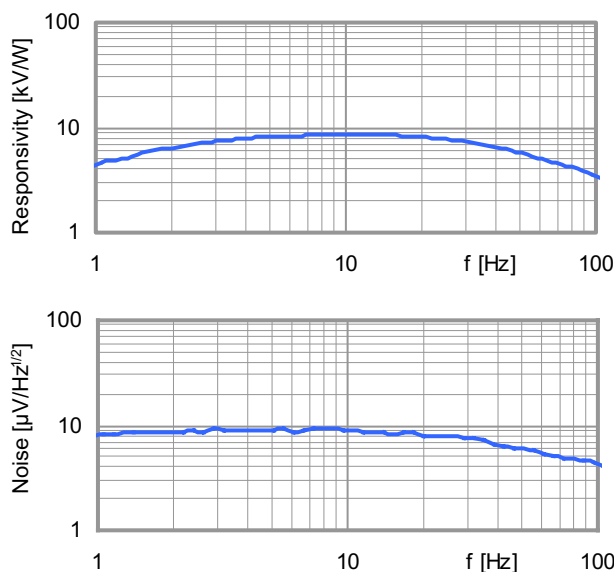
Housing:



Pin assignment:



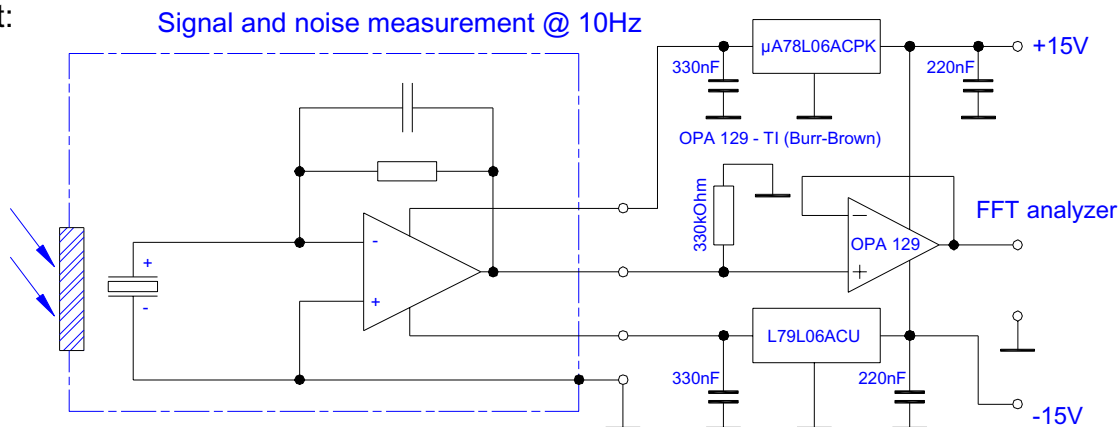
Frequency response:



LIE-251-#

1.3 x 1.3 mm² pyroelectric IR detector
CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	1.3x1.3 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	5 GOhm ±10%
Feedback capacitor	nom	0.68±0.1 pF
Polarity	nom	negative signal by positive IR flux change
Voltage Responsivity {500K, 10Hz, 25°C, without window}	min	7,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	12 μV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	7.6*10 ⁷ cmHz ^{1/2} /W
CMOS operational amplifier	nom	OpAmp1 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+3.5 ... 8.0 V / -1.5 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -5 V
Supply current {output load 1MOhm}	max	50 μA
Offset voltage {25°C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	100 kOhm
Absolute output current	max	± 2 mA
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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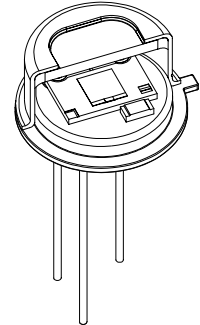
LIE-302-#

2.0 x 2.0 mm² pyroelectric IR detector
JFET

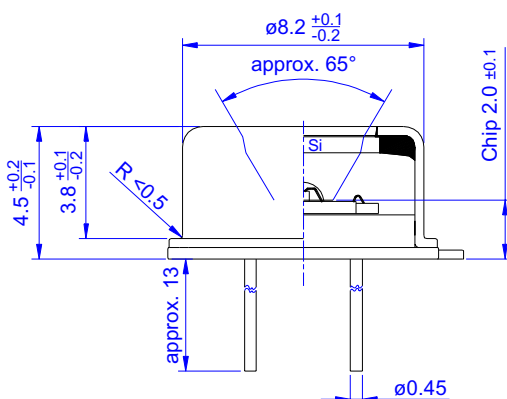
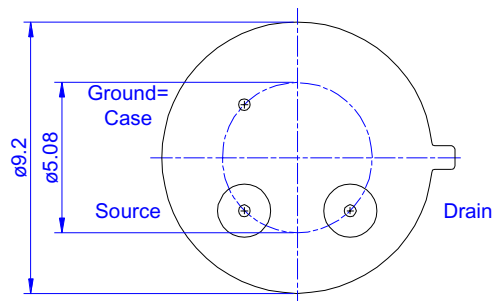
Description: LIE-302-#

[# = extension code]

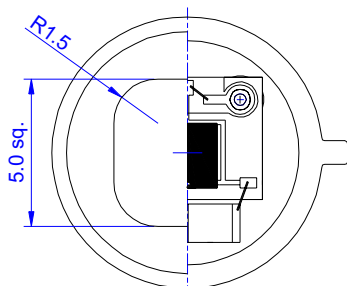
single element, area 2x2mm²; for voltage mode



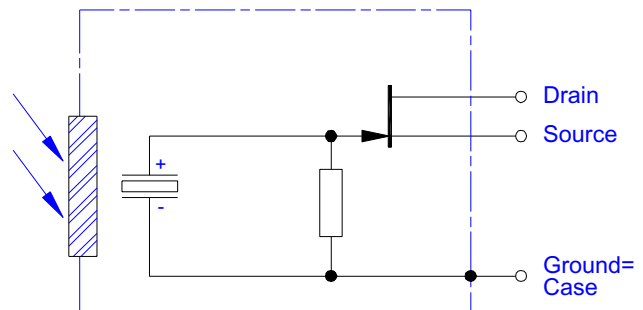
Housing:



TO39 3Pin



Pin assignment:

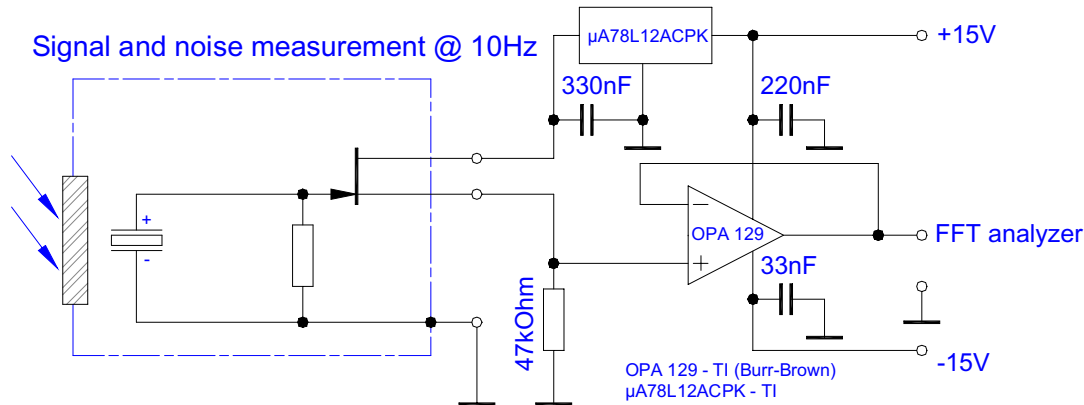


Standard Products

LIE-302-#

2.0 x 2.0 mm² pyroelectric IR detector
JFET

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Electrical time constant	typ	5 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	300 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	150 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	4.0*10 ⁸ cmHz ^{1/2} /W
Offset voltage {I _{Dopt.} = 10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

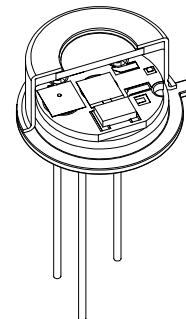
LIE-316-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, JFET

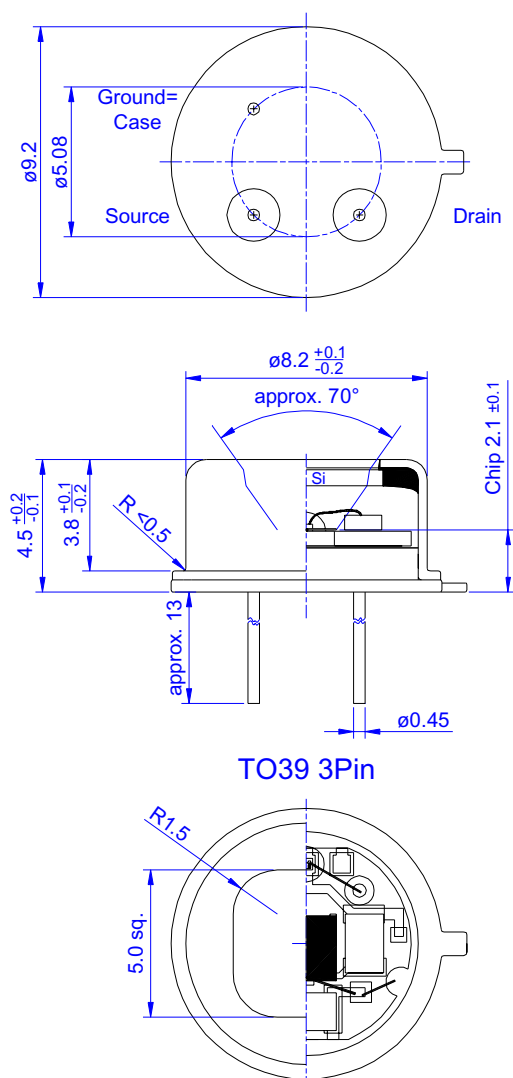
Description: LIE-316-#

[# = extension code]

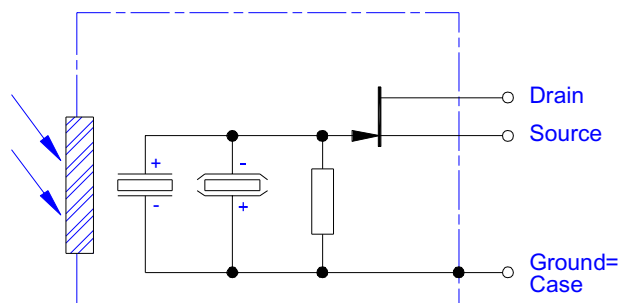
single element, area 2.0x2.0mm², thermal compensation; for voltage mode



Housing:



Pin assignment:

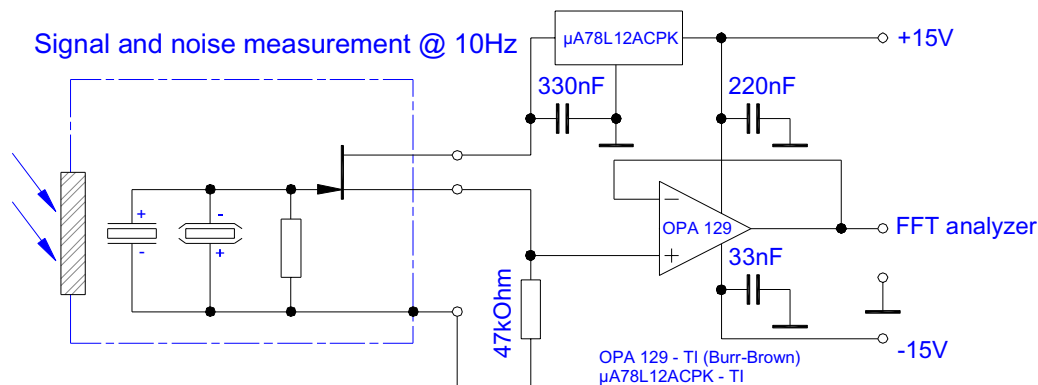


Standard Products

LIE-316-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, JFET

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Electrical time constant	typ	4 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	150 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	130 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	2.3*10 ⁸ cmHz ^{1/2} /W
Offset voltage {I _{Dopt.} = 10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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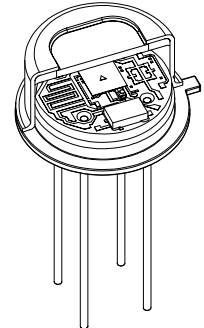
LME-300-#

2.0 x 2.0 mm² pyroelectric IR detector
current mode, JFET

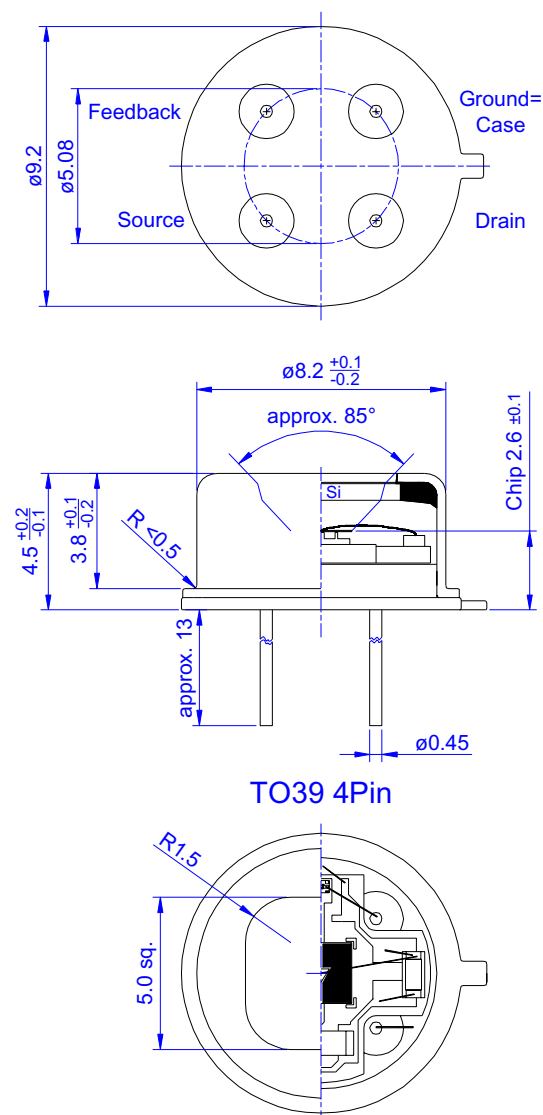
Description: LME-300-#

[# = extension code]

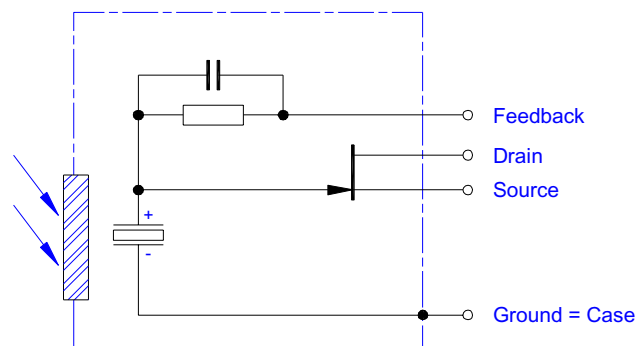
single element, area 2.0x2.0mm², ultra low microphonic effect;
for current mode, with JFET; feedback R 24GOhm ±10% // C 0.47±0.1pF



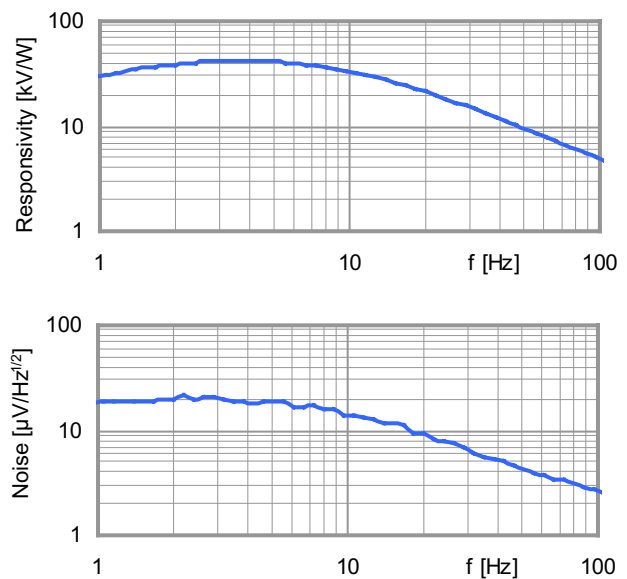
Housing:



Pin assignment:



Frequency response:



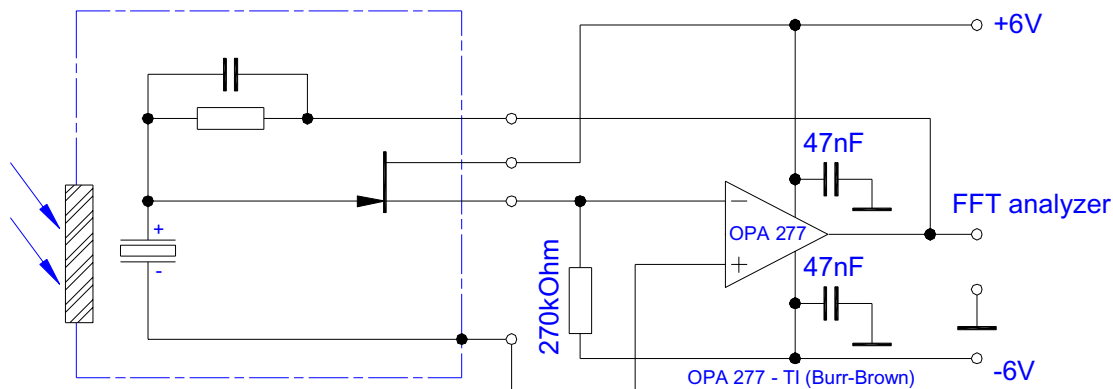
Standard Products

LME-300-#

2.0 x 2.0 mm² pyroelectric IR detector
current mode, JFET

Test circuit:

Signal and noise measurement @ 10Hz



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	24 GOhm ±10%
Feedback capacitor	nom	470±100 fF
Polarity (referred to output of test circuit)	nom	negative signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	30,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	20.0 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	3.0*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	120 µV/g; g=9.81m/s ²
Offset voltage (feedback to source) {I _{Dopt.} = 10-100µA}	nom	-0.4 ... -1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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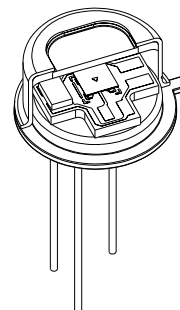
LME-301-#

2.0 x 2.0 mm² pyroelectric IR detector
without amplifier electronics

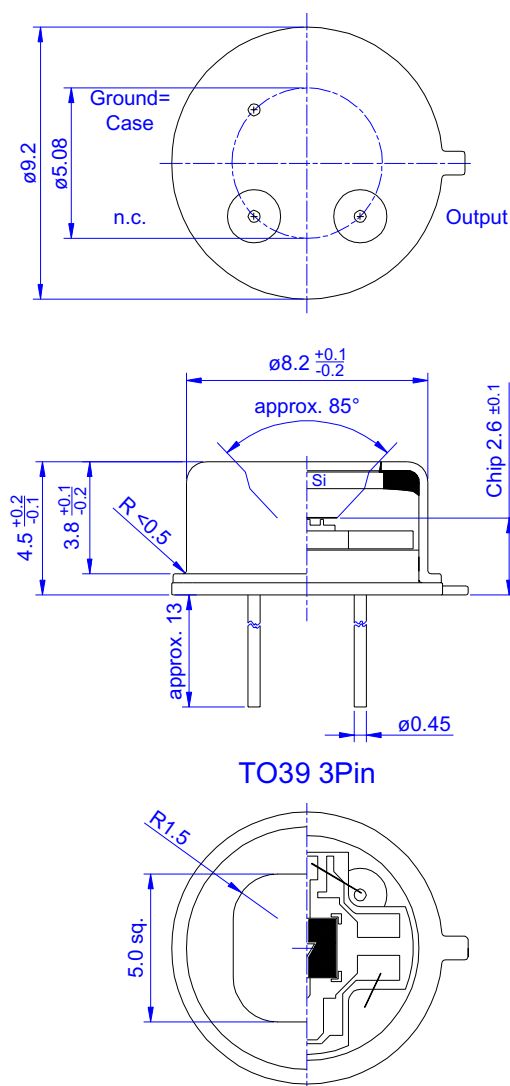
Description: LME-301-#

[# = extension code]

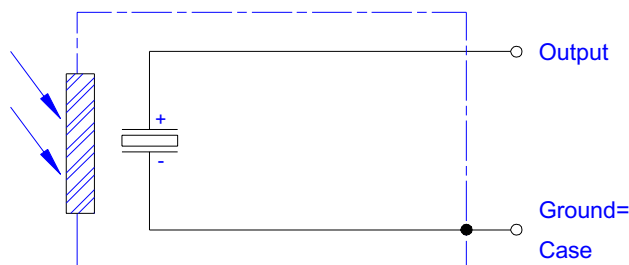
single element, area 2x2mm², ultra low microphonic effect; for current mode



Housing:



Pin assignment:

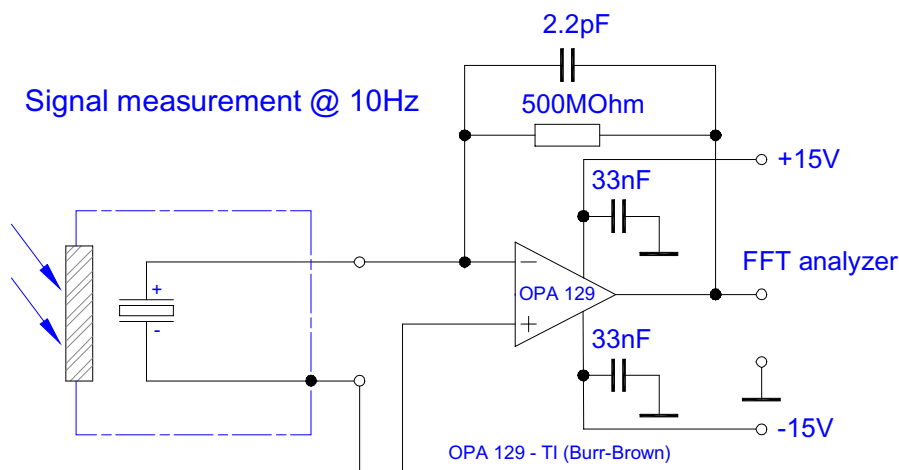


Standard Products

LME-301-#

2.0 x 2.0 mm² pyroelectric IR detector
without amplifier electronics

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Polarity	nom	positive signal by positive IR flux change
Current responsivity (element only) {500K, 10Hz, 25°C, without window}	min	1.6 µA/W
Element capacitance {1kHz, 1V, 25°C}	typ	60 pF
Element dielectric loss {1kHz, 1V, 25°C}	max	0.001
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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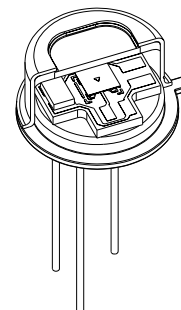
LME-302-#

2.0 x 2.0 mm² pyroelectric IR detector
JFET

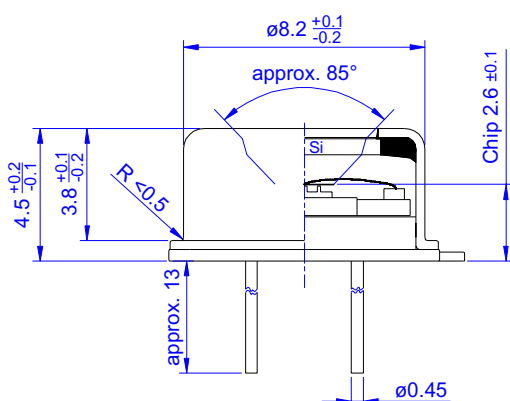
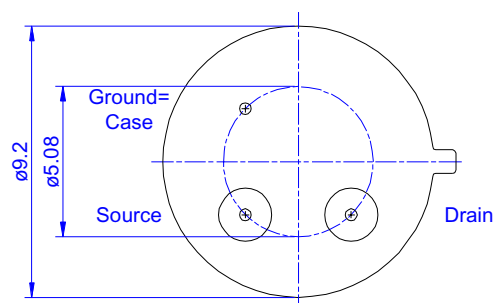
Description: LME-302-#

[# = extension code]

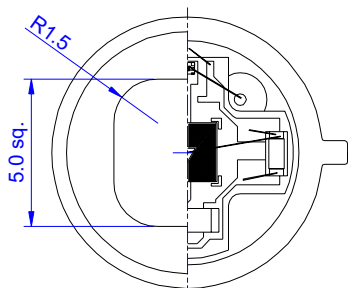
single element, area 2x2mm², ultra low microphonic effect; for voltage mode



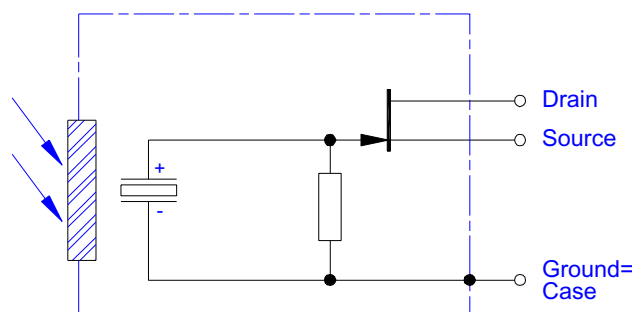
Housing:



TO39 3Pin

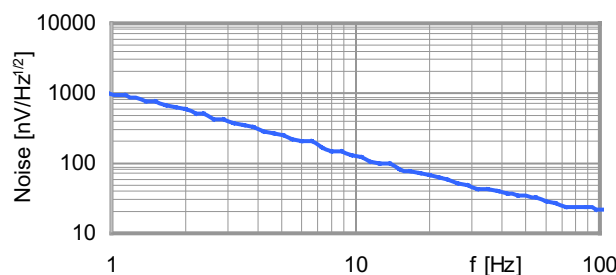
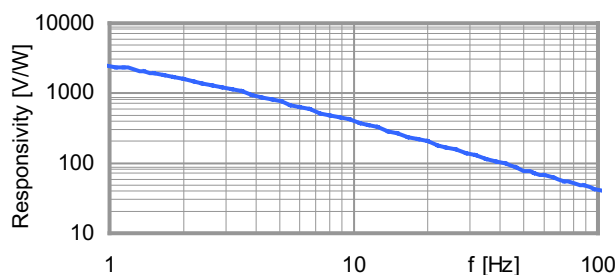


Pin assignment:



Standard Products

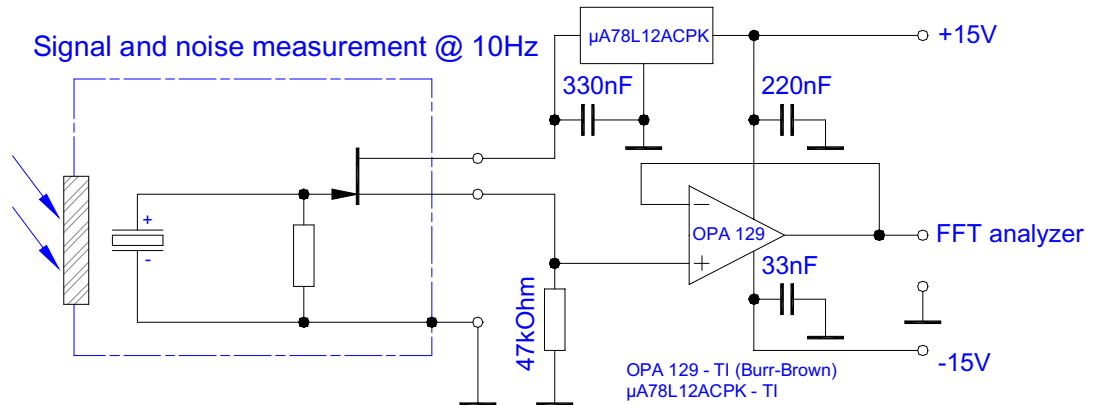
Frequency response:



LME-302-#

2.0 x 2.0 mm² pyroelectric IR detector
JFET

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Electrical time constant	typ	5 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	340 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	150 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	4.5*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	2 μV/g; g=9.81m/s ²
Offset voltage {I _{Dopt.} = 10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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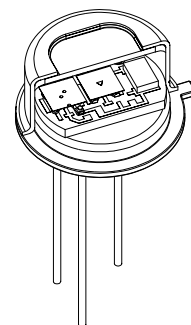
LME-316-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, JFET

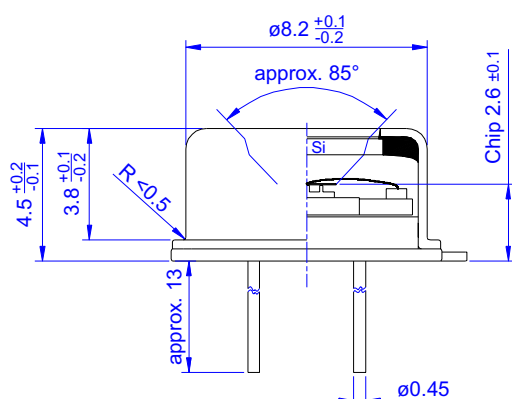
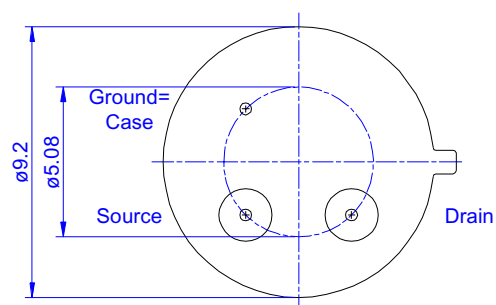
Description: LME-316-#

[# = extension code]

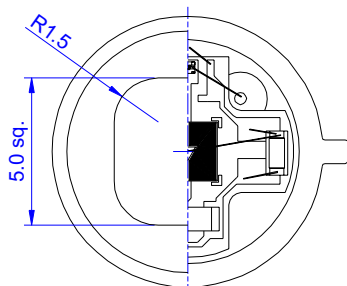
single element, area 2.0x2.0mm², thermal compensation, ultra low microphonic effect;
for voltage mode



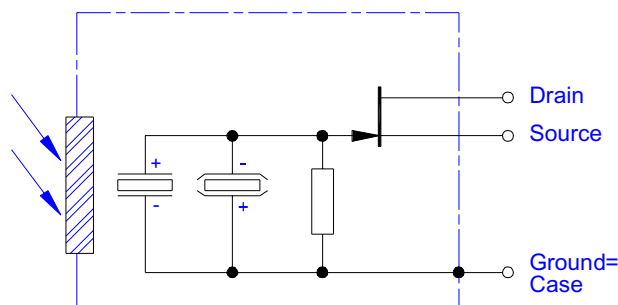
Housing:



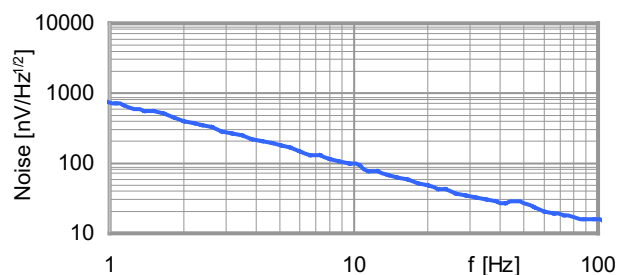
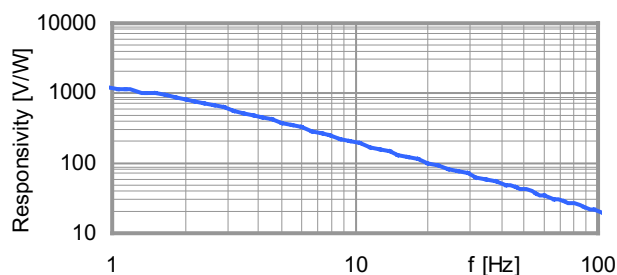
TO39 3Pin



Pin assignment:



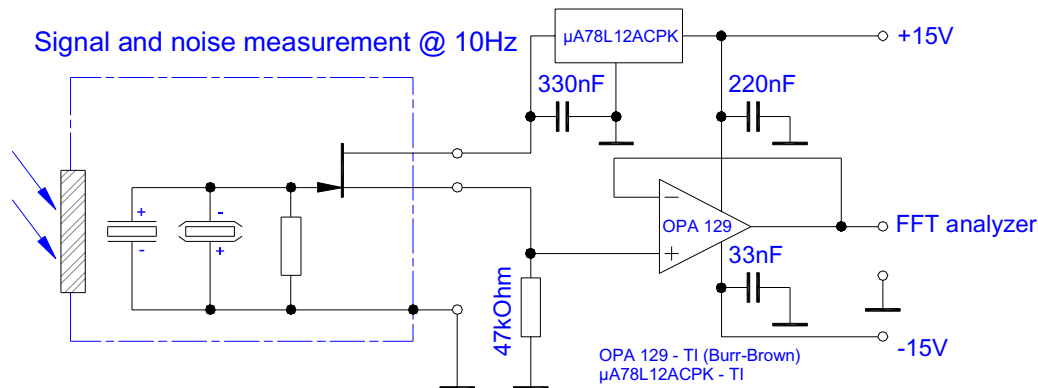
Frequency response:



LME-316-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, JFET

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Electrical time constant	typ	4 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	160 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	130 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	2.5*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	1 μV/g; g=9.81m/s ²
Offset voltage {I _{Dopt.} = 10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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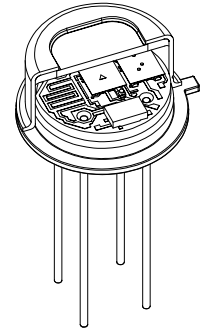
LME-335-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier

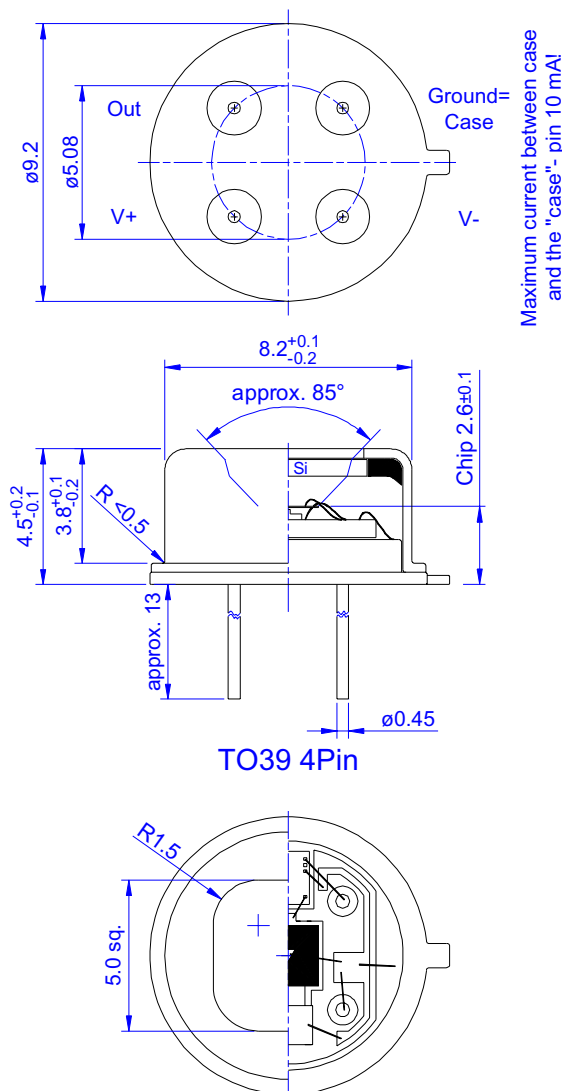
Description: LME-335-#

[# = extension code]

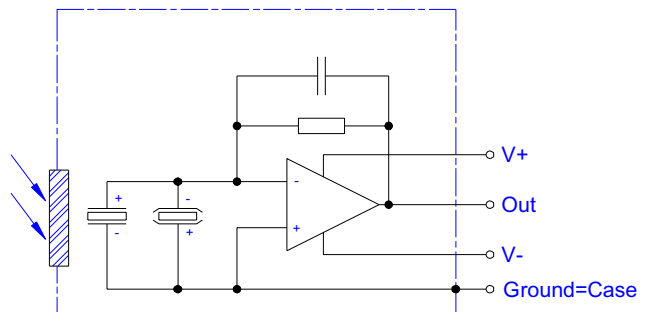
single element, area 2.0x2.0mm², thermal compensation, ultra low microphonic effect;
for current mode, with micro power OpAmp; feedback R 100GOhm $\pm$ 20% // C 0.20 $\pm$ 0.1pF;
very high gain



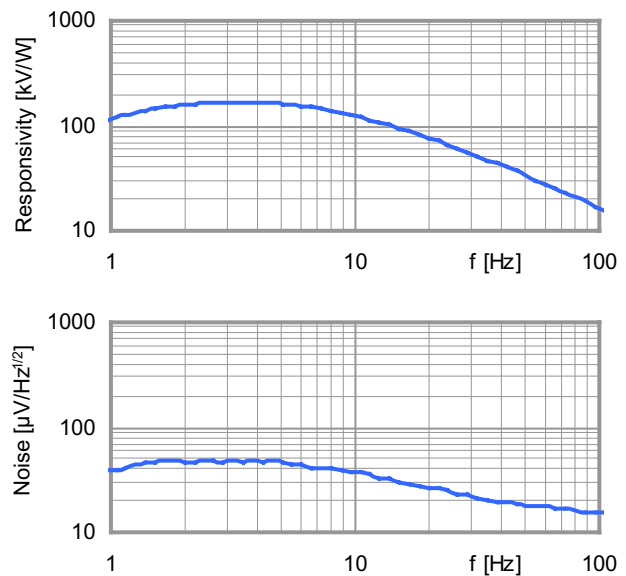
Housing:



Pin assignment:



Frequency response:

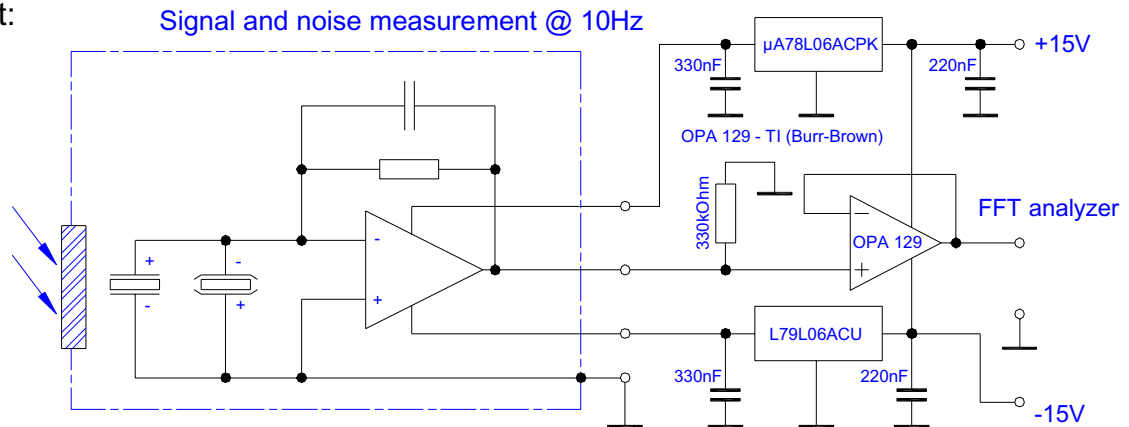


Standard Products

LME-335-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	100 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	90,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	40 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	4.5*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	300 µV/g; g=9.81m/s ²
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -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
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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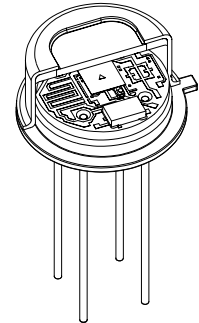
LME-341-#

2.0 x 2.0 mm² pyroelectric IR detector
CMOS preamplifier

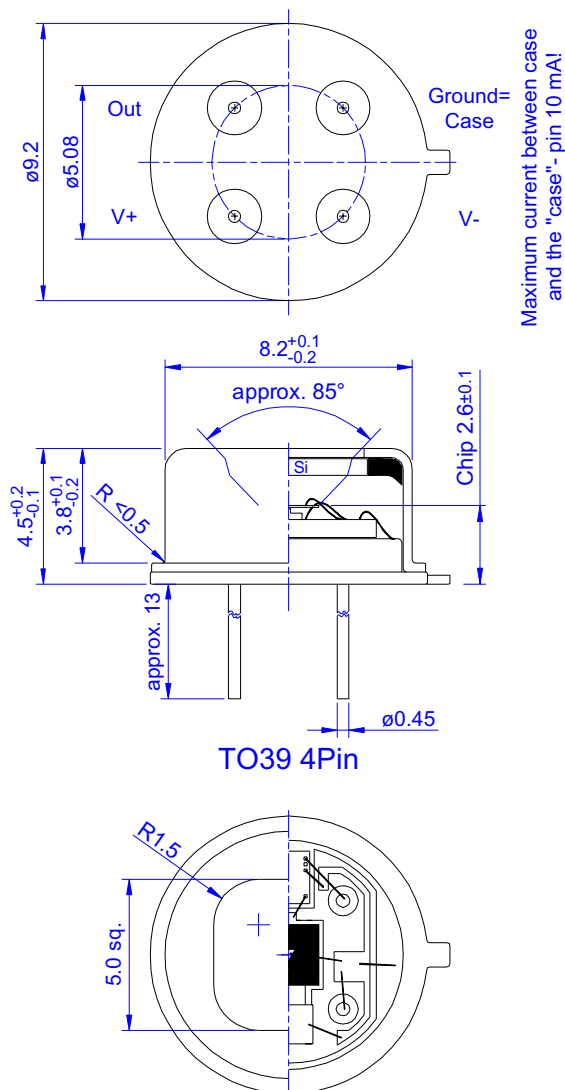
Description: LME-341-#

[# = extension code]

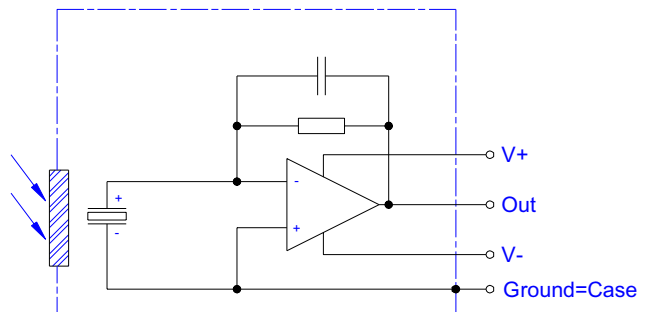
single element, area 2.0x2.0mm², ultra low microphonic effect;
for current mode, with micro power OpAmp; feedback R 24GOhm $\pm 10\%$ // C 0.20 ± 0.1 pF; high gain



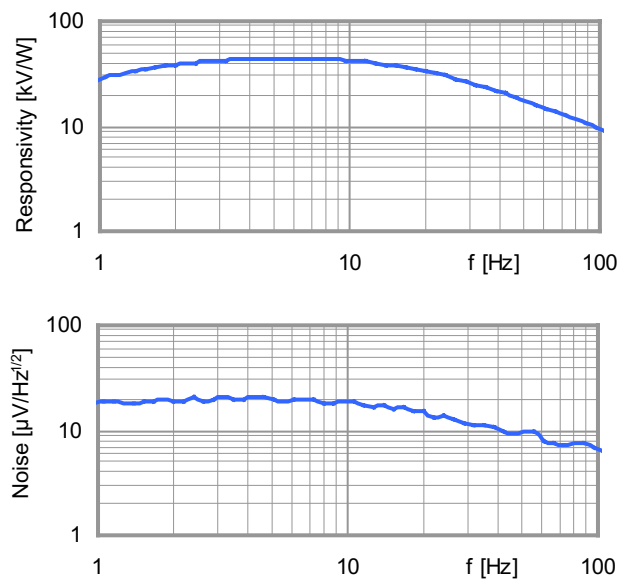
Housing:



Pin assignment:



Frequency response:

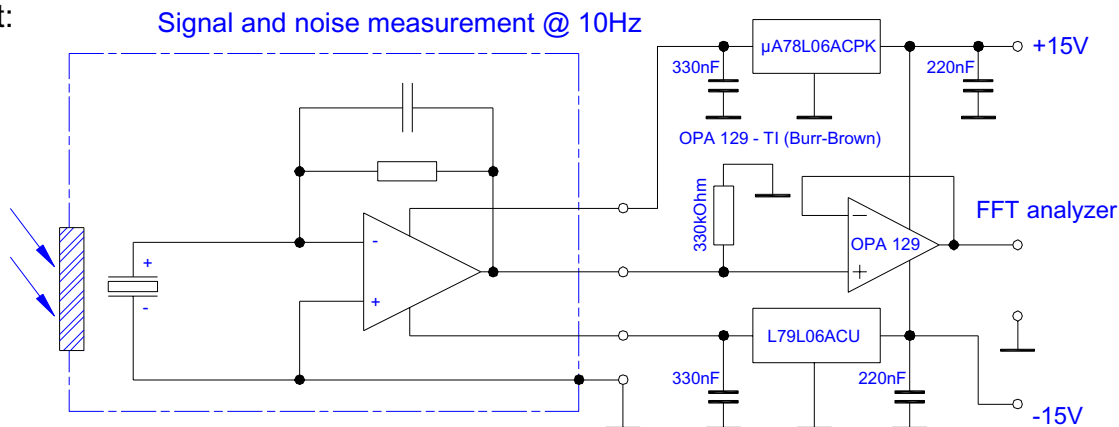


Standard Products

LME-341-#

2.0 x 2.0 mm² pyroelectric IR detector
CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	24 GOhm ±10%
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	33,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	25 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	2.6*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	250 µV/g; g=9.81m/s ²
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -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
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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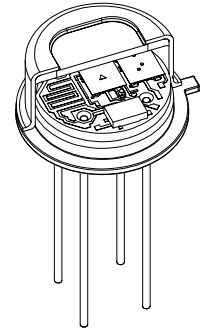
LME-345-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier

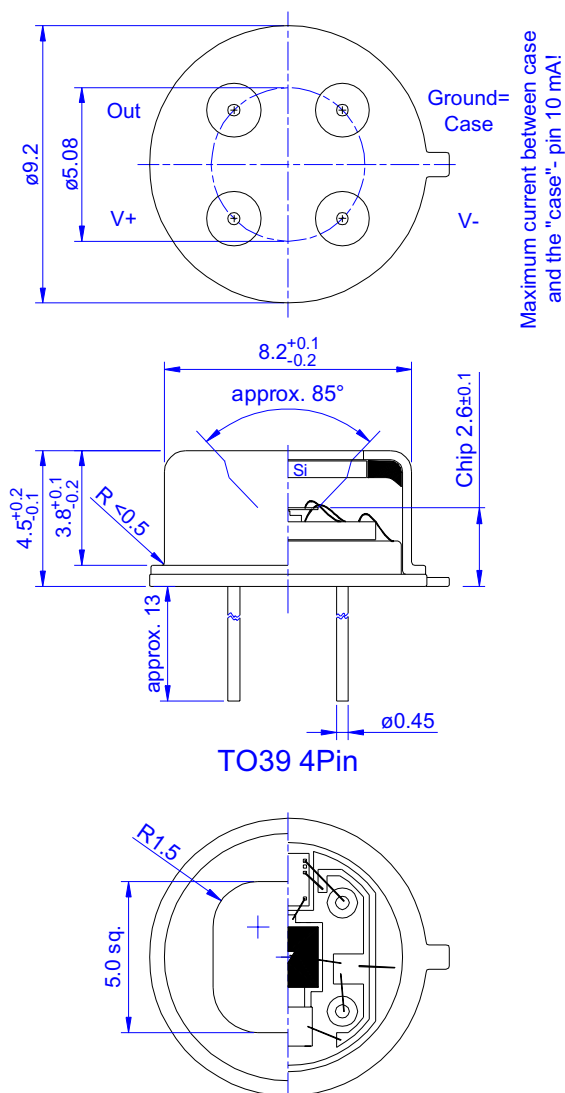
Description: LME-345-#

[# = extension code]

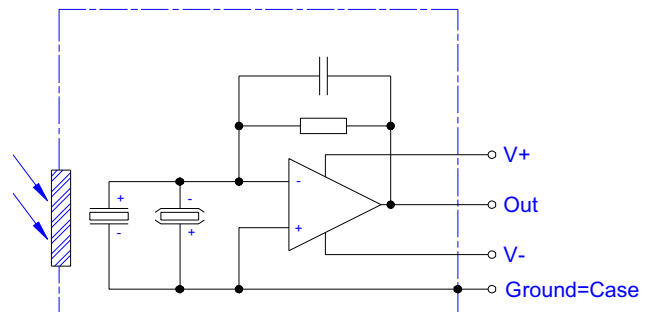
single element, area 2.0x2.0mm², thermal compensation, ultra low microphonic effect;
for current mode, with micro power OpAmp; feedback R 24GOhm ±10% // C 0.20±0.1pF; high gain



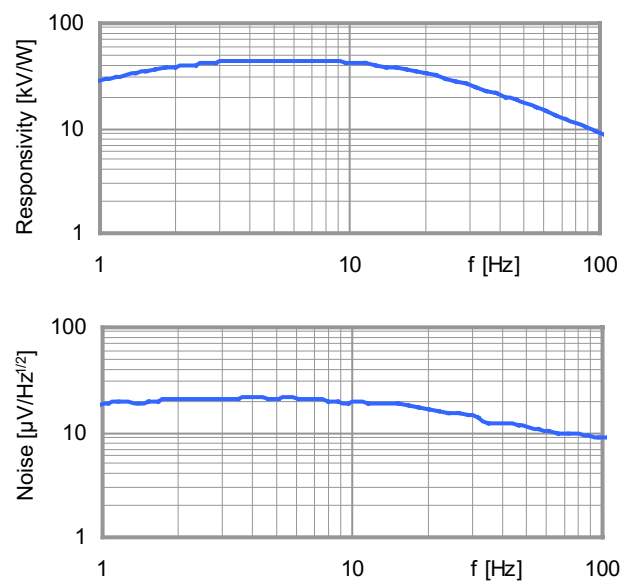
Housing:



Pin assignment:



Frequency response:

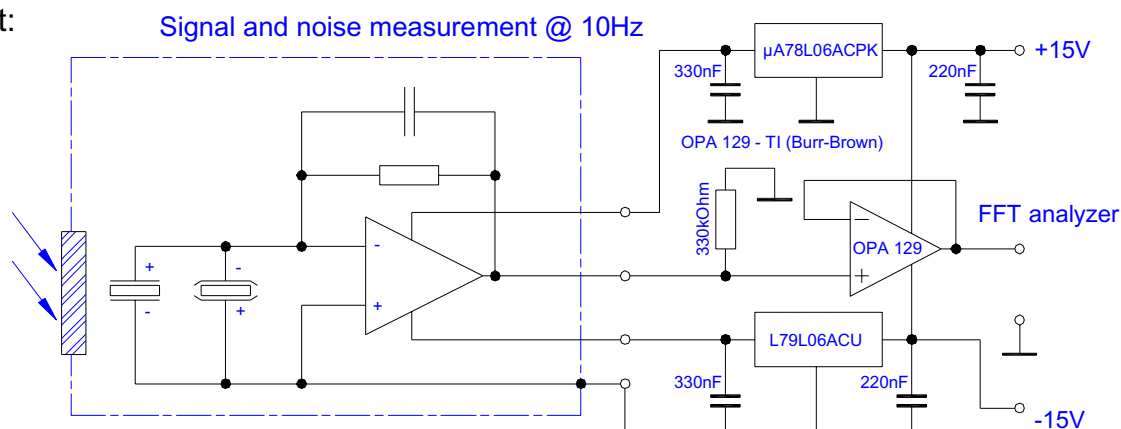


Standard Products

LME-345-#

2.0 x 2.0 mm² pyroelectric IR detector
thermal compensated, CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	24 GOhm ±10%
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	33,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	25 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	2.6*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	250 µV/g; g=9.81m/s ²
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -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
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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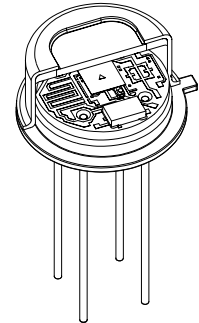
LME-351-#

2.0 x 2.0 mm² pyroelectric IR detector
CMOS preamplifier

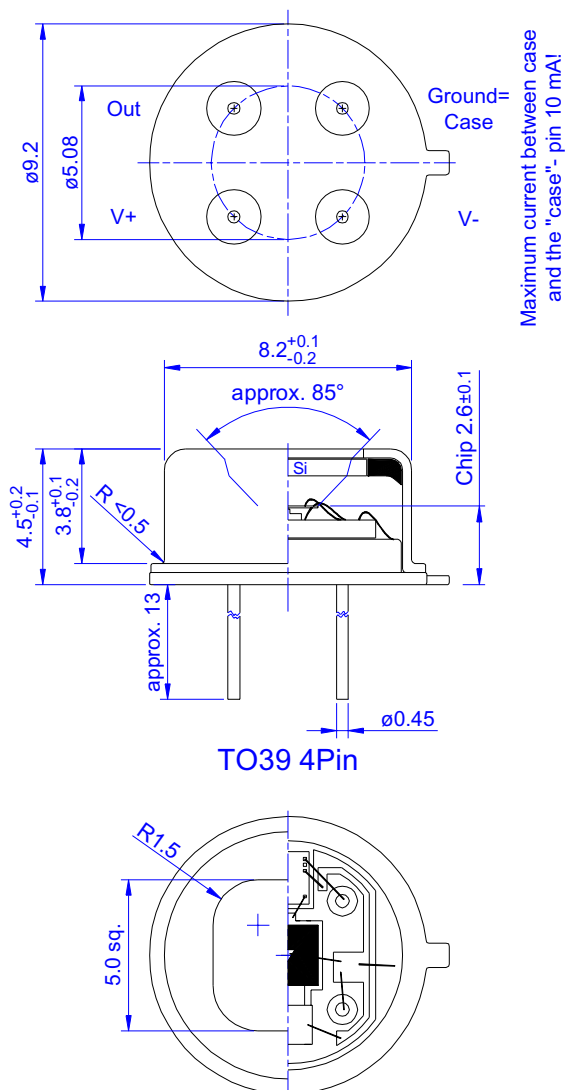
Description: LME-351-#

[# = extension code]

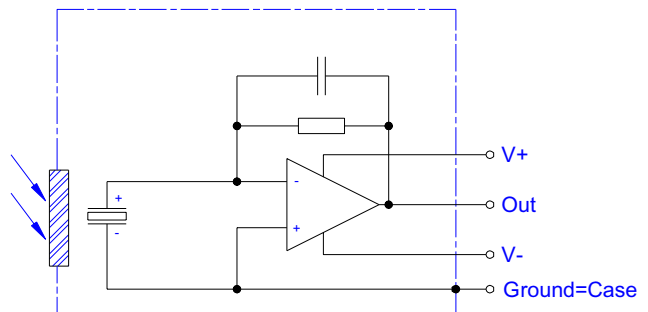
single element, area 2.0x2.0mm², ultra low microphonic effect;
for current mode, with micro power OpAmp; feedback R 5GOhm ±10% // C 0.20±0.1pF; medium gain



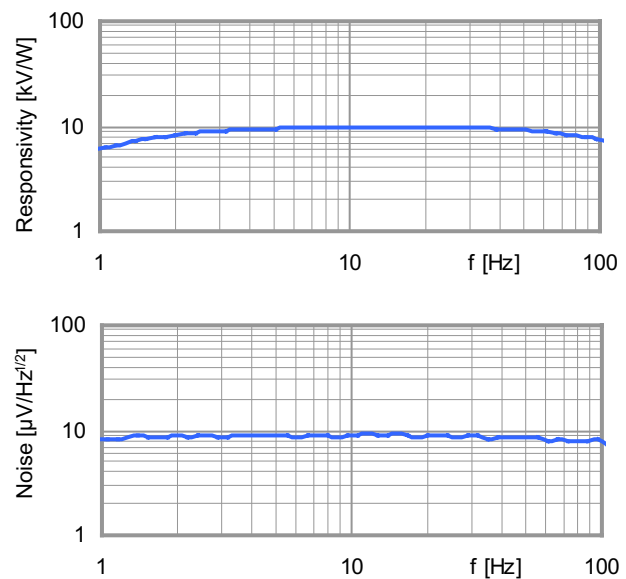
Housing:



Pin assignment:



Frequency response:

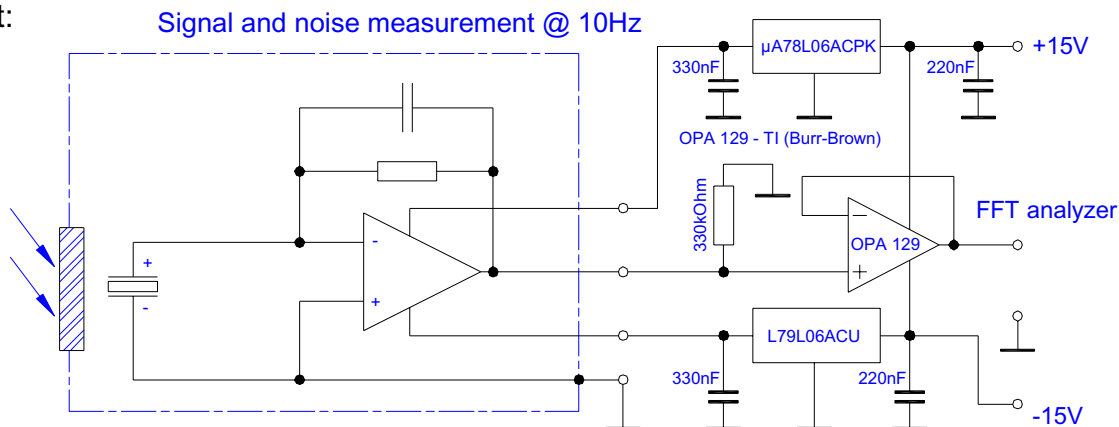


Standard Products

LME-351-#

2.0 x 2.0 mm² pyroelectric IR detector
CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	150 ms
Feedback resistor	nom	5 GOhm $\pm 10\%$
Feedback capacitor	nom	0.2 $\pm$ 0.1 pF
Polarity	nom	negative signal by positive IR flux change
Voltage Responsivity {500K, 10Hz, 25°C, without window}	min	8,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	10 μ V/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	1.6*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	150 μ V/g; g=9.81m/s ²
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -5 V
Supply current {output load 1MOhm}	max	150 μ A
Offset voltage {25°C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	330 kOhm
Absolute output current	max	$\pm$ 0.4 mA
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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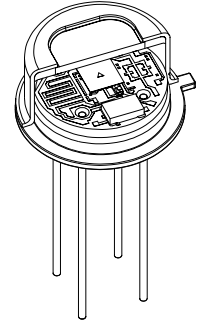
LME-500-#

3.0 x 3.0 mm² pyroelectric IR detector
current mode, JFET

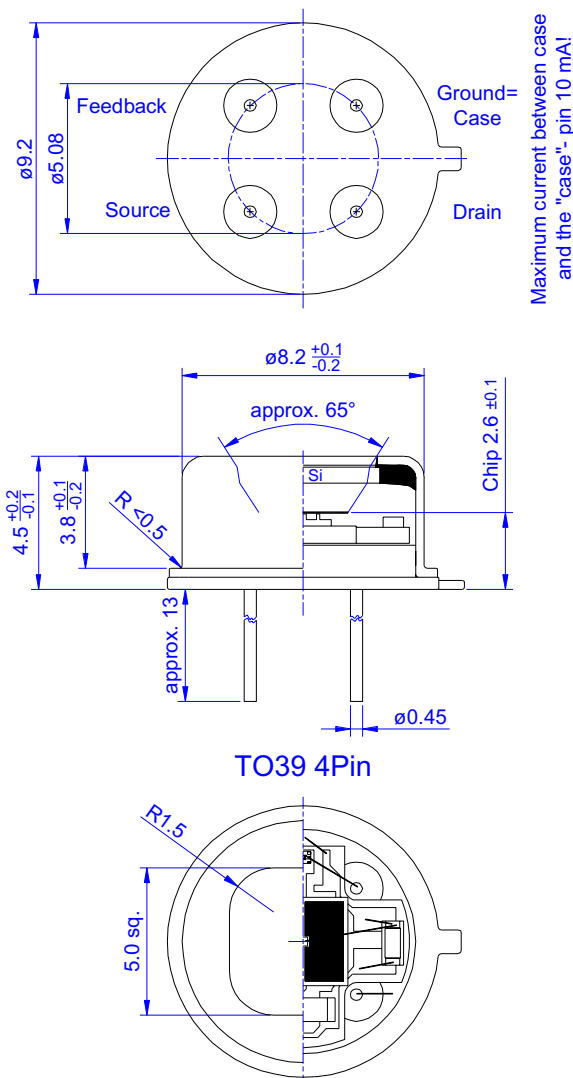
Description: LME-500-#

[# = extension code]

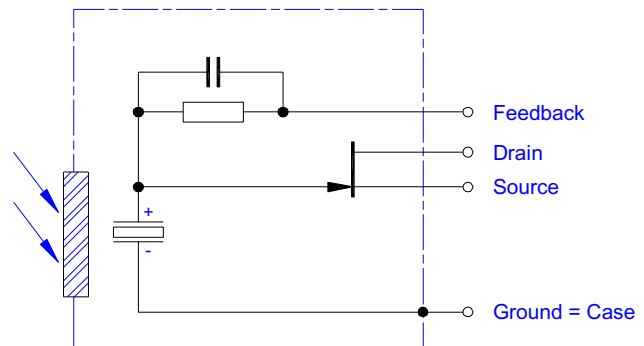
single element, area 3.0x3.0mm², ultra low microphonic effect;
for current mode, with JFET; feedback R 24GOhm ±10% // C 0.47±0.1pF



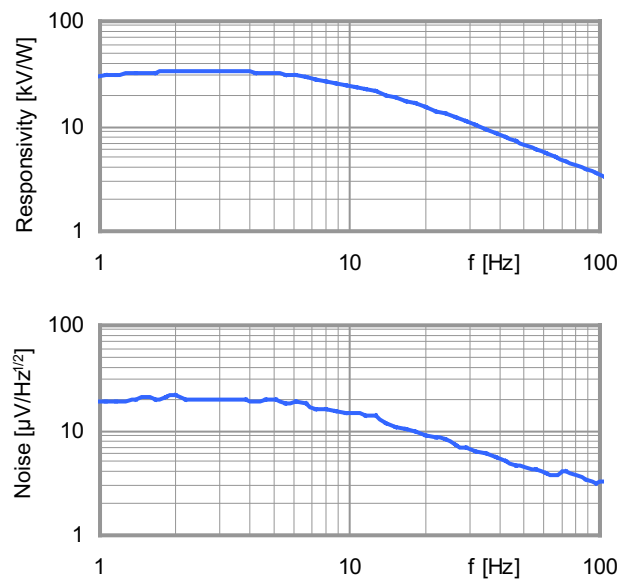
Housing:



Pin assignment:



Frequency response:

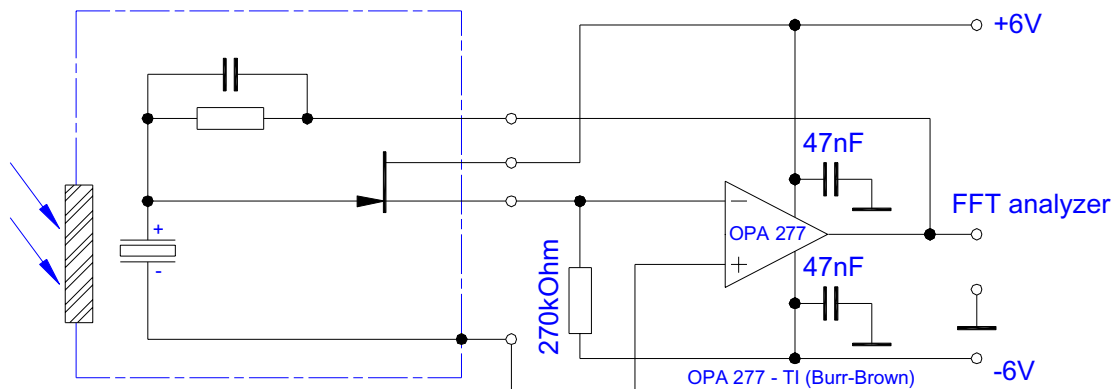


LME-500-#

3.0 x 3.0 mm² pyroelectric IR detector
current mode, JFET

Test circuit:

Signal and noise measurement @ 10Hz



Parameters:

Element size / type	nom	3.0x3.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	200 ms
Feedback resistor	nom	24 GOhm ±10%
Feedback capacitor	nom	470±100 fF
Polarity (referred to output of test circuit)	nom	negative signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	22,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	20.0 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	3.3*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	300 µV/g; g=9.81m/s ²
Offset voltage (feedback to source) {I _{Dopt.} =10-100µA}	nom	-0.4 ... -1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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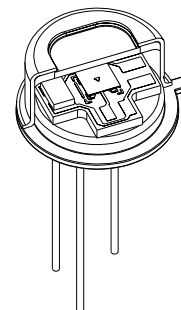
LME-501-#

3.0 x 3.0 mm² pyroelectric IR detector
without amplifier electronics

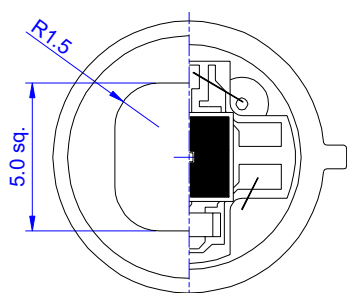
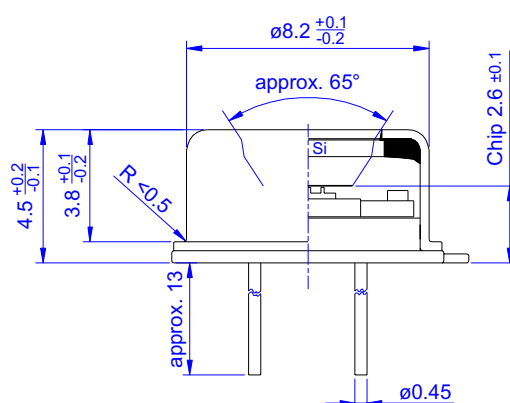
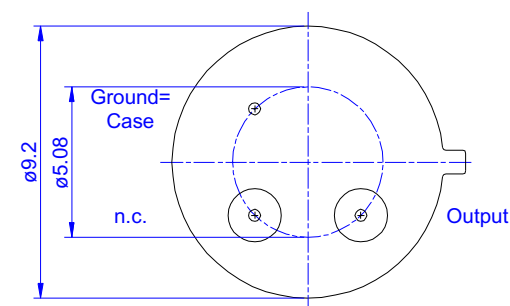
Description: LME-501-#

[# = extension code]

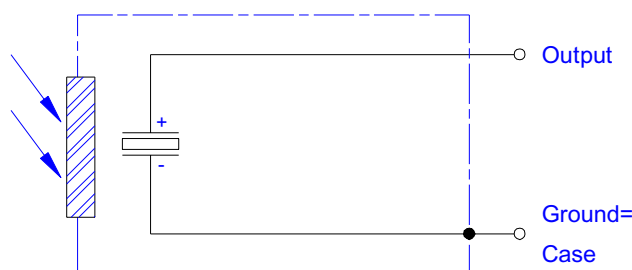
single element, area 3x3mm², ultra low microphonic effect; for current mode



Housing:



Pin assignment:

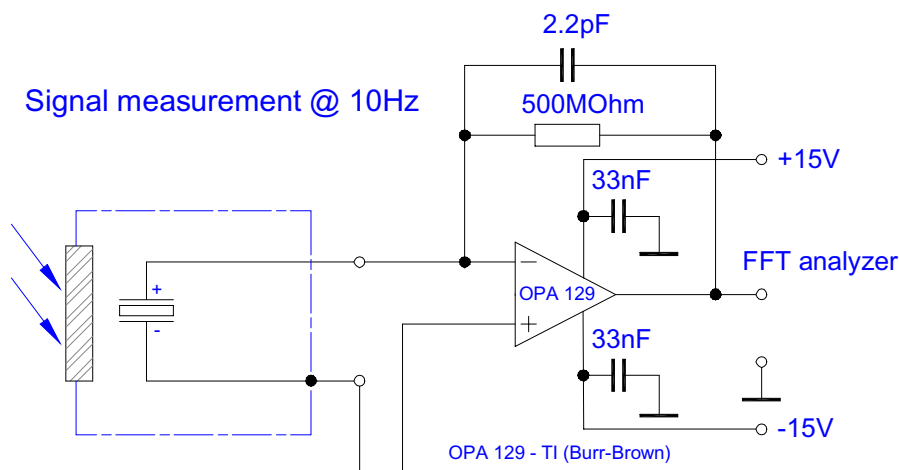


Standard Products

LME-501-#

3.0 x 3.0 mm² pyroelectric IR detector
without amplifier electronics

Test circuit:



Parameters:

Element size / type	nom	3.0x3.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	200 ms
Polarity	nom	positive signal by positive IR flux change
Current responsivity (element only) {500K, 10Hz, 25°C, without window}	min	1.5 μA/W
Element capacitance {1kHz, 1V, 25°C}	typ	120 pF
Element dielectric loss {1kHz, 1V, 25°C}	max	0.001
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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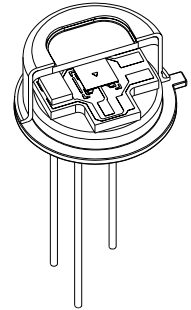
LME-502-#

3.0 x 3.0 mm² pyroelectric IR detector
JFET

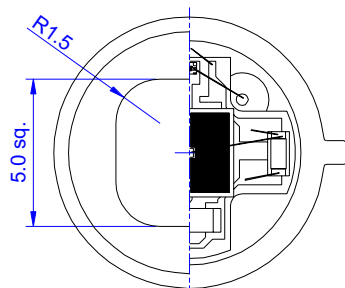
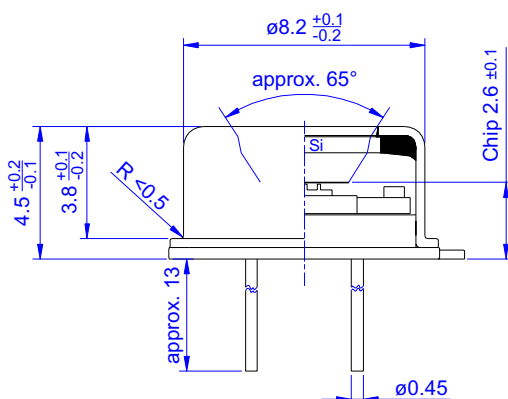
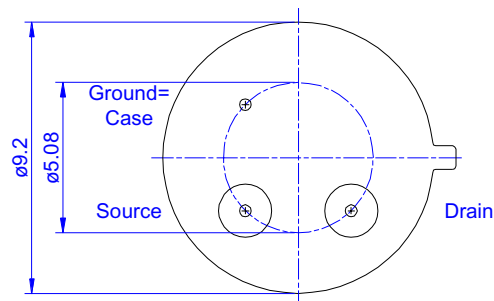
Description: LME-502-#

[# = extension code]

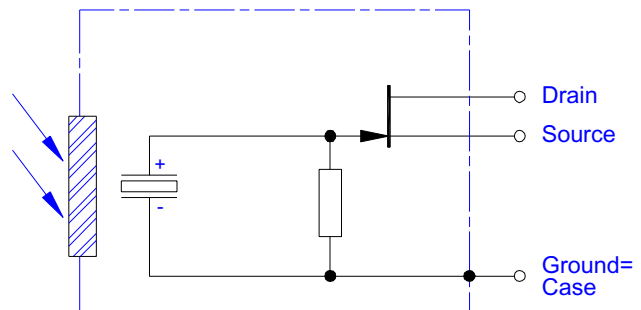
single element, area 3x3mm², ultra low microphonic effect; for voltage mode



Housing:

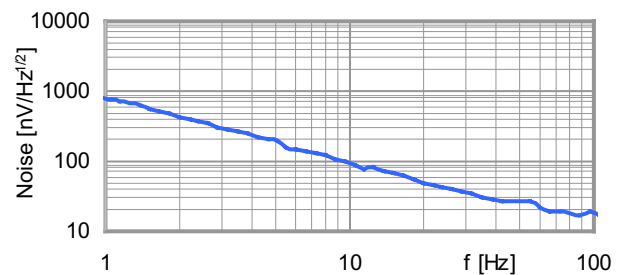
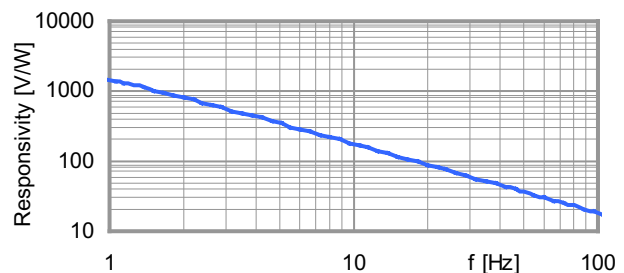


Pin assignment:



Standard Products

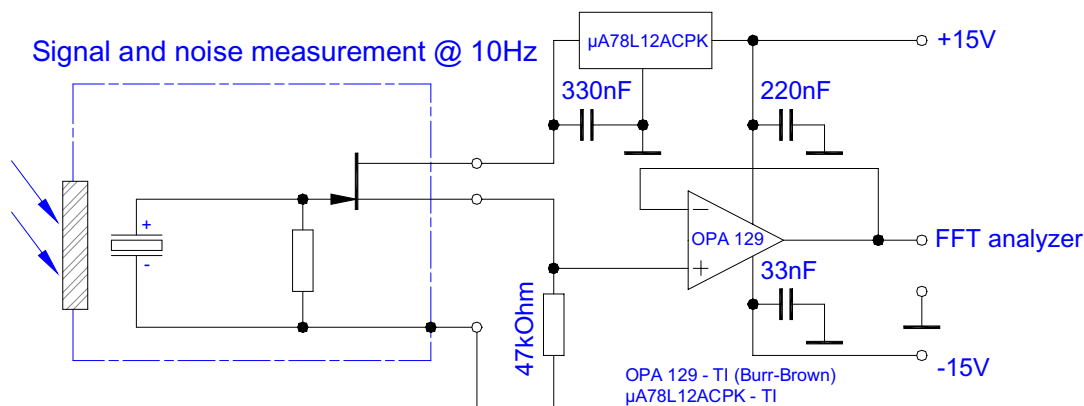
Frequency response:



LME-502-#

3.0 x 3.0 mm² pyroelectric IR detector
JFET

Test circuit:



Parameters:

Element size / type	nom	3.0x3.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	200 ms
Electrical time constant	typ	4 s
Polarity	nom	positive signal by positive IR flux change
Voltage responsivity {500K, 10Hz, 25°C, without window}	min	160 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	130 nV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	3.7*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	2 μV/g; g=9.81m/s ²
Offset voltage {I _{Dopt.} = 10-100μA}	nom	0.4 ... 1.5 V
U _{DS}	max	18 V
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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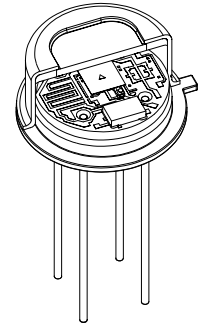
LME-541-#

3.0 x 3.0 mm² pyroelectric IR detector
CMOS preamplifier

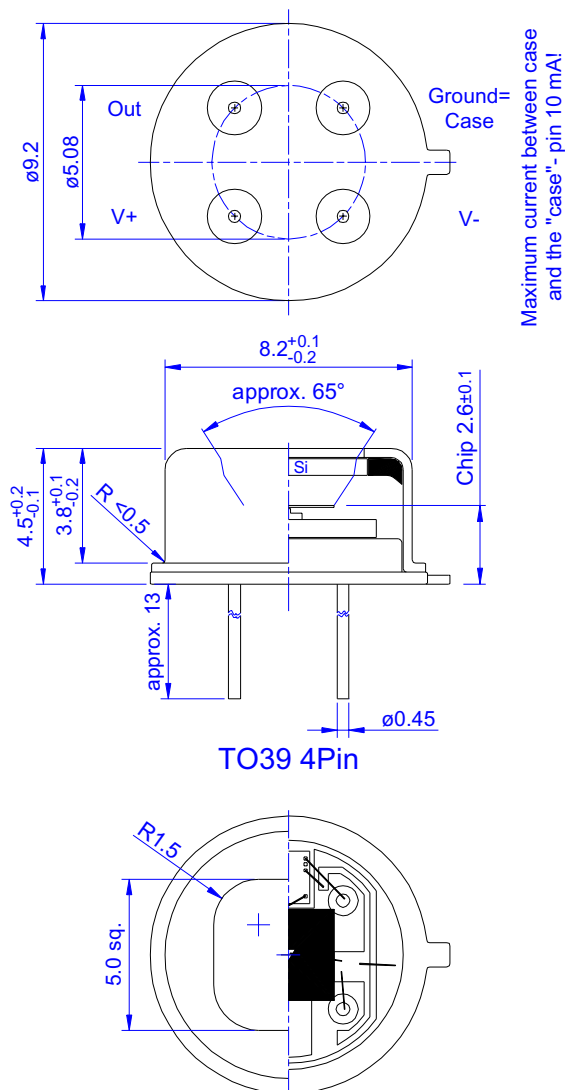
Description: LME-541-#

[# = extension code]

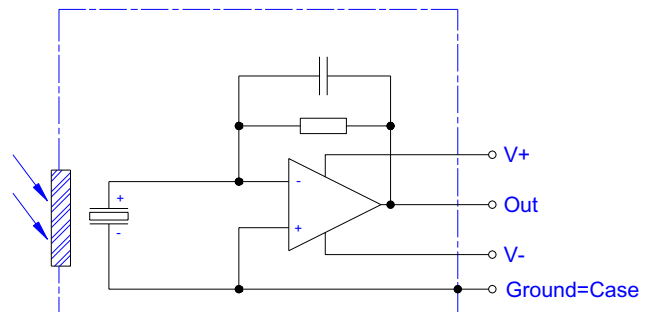
single element, area 3.0x3.0mm², ultra low microphonic effect;
for current mode, with micro power OpAmp; feedback R 24GOhm ±10% // C 0.20±0.1pF; high gain



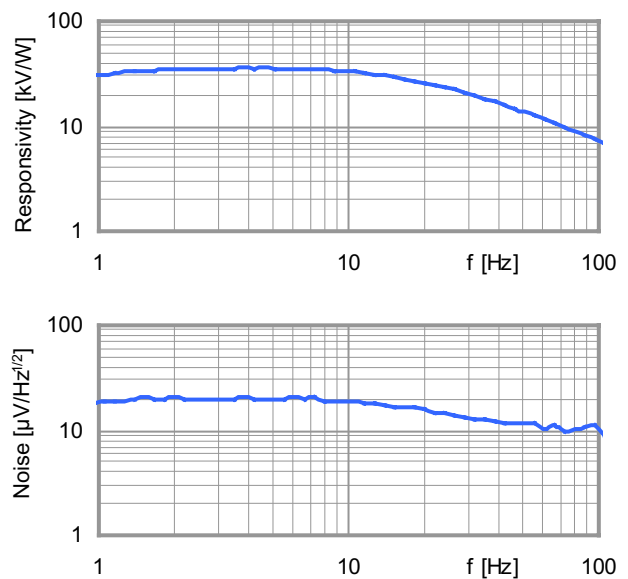
Housing:



Pin assignment:



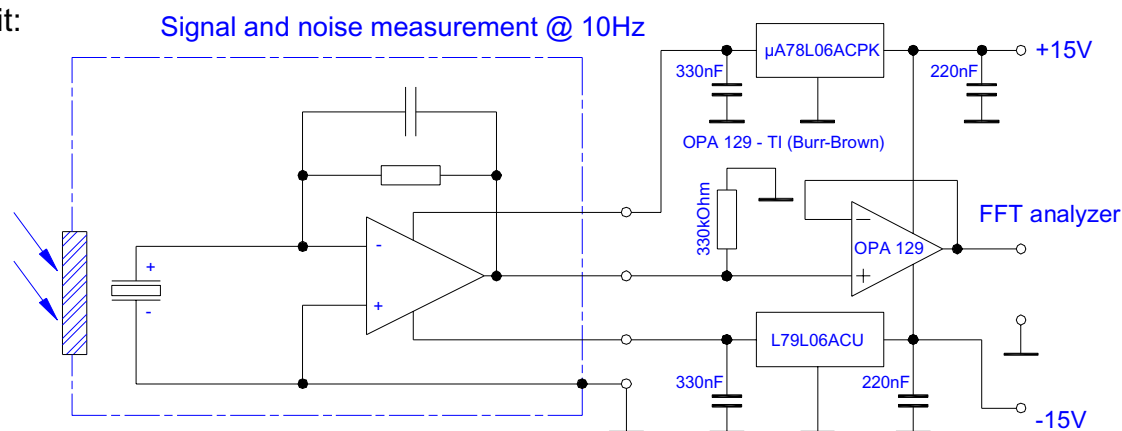
Frequency response:



LME-541-#

3.0 x 3.0 mm² pyroelectric IR detector
CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	3.0x3.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	200 ms
Feedback resistor	nom	24 GOhm ±10%
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	28,000 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	25 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	3.3*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	300 µV/g; g=9.81m/s ²
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -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
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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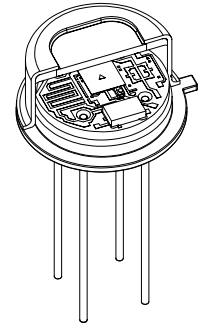
LME-551-#

3.0 x 3.0 mm² pyroelectric IR detector
CMOS preamplifier

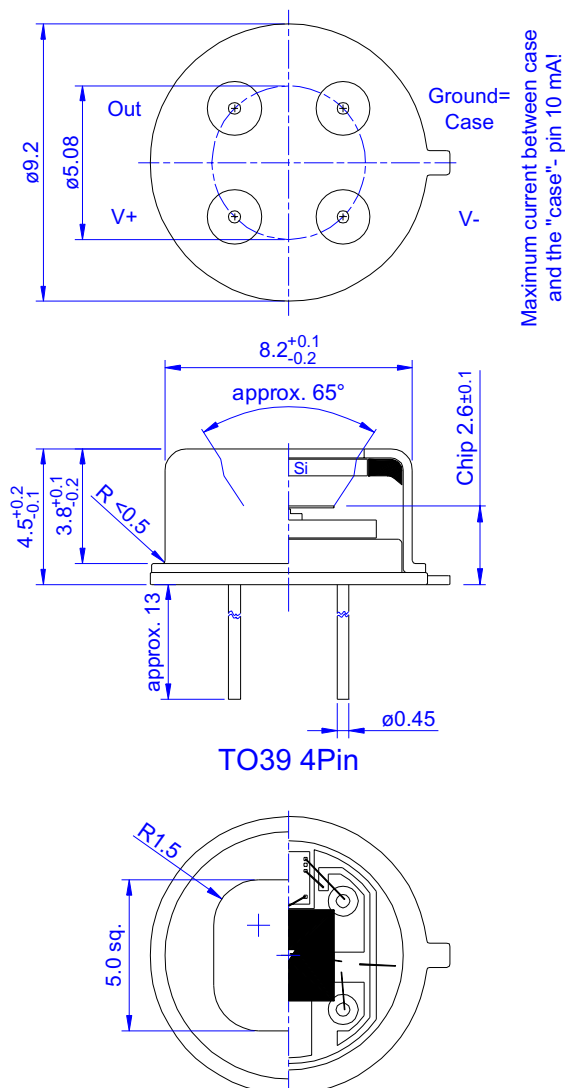
Description: LME-551-#

[# = extension code]

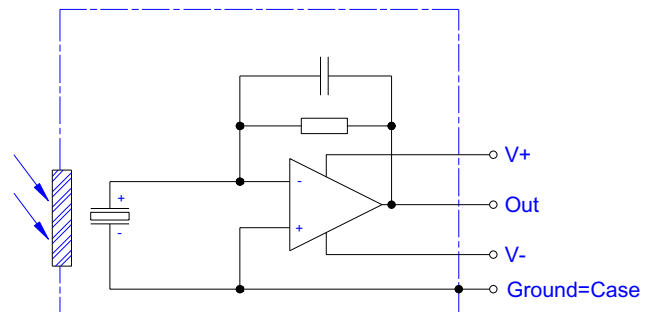
single element, area 3.0x3.0mm², ultra low microphonic effect;
for current mode, with micro power OpAmp; feedback R 5GOhm ±10% // C 0.20±0.1pF; medium gain



Housing:

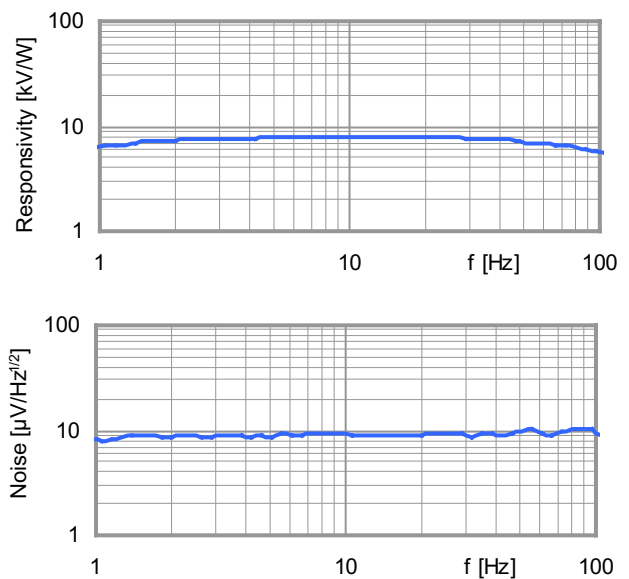


Pin assignment:



Standard Products

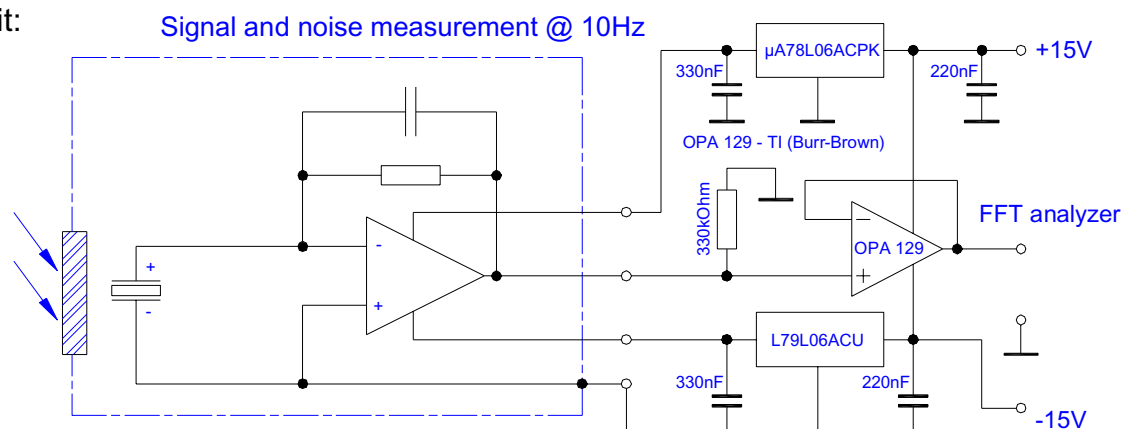
Frequency response:



LME-551-#

3.0 x 3.0 mm² pyroelectric IR detector
CMOS preamplifier

Test circuit:



Parameters:

Element size / type	nom	3.0x3.0 mm ² lithium-tantalate with black layer
Aperture	nom	5.0 mm sq.
Thermal time constant	typ	200 ms
Feedback resistor	nom	5 GOhm ±10%
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	6,500 V/W
Noise density {10Hz, BW 1Hz, 25°C}	max	12 µV/Hz ^{1/2}
Detectivity {500K, 10Hz, 1Hz, 25°C, without window}	min	1.6*10 ⁸ cmHz ^{1/2} /W
Acceleration response {5 ... 200Hz}	typ	300 µV/g; g=9.81m/s ²
CMOS operational amplifier	nom	OpAmp2 (for characteristics see application note)
Supply voltage V ⁺ - V ⁻	max	16 V
Operating supply voltage V ⁺ / V ⁻		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage	nom	V ⁺ = +5 V; V ⁻ = -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
Operating / Storage temperature	nom	-25 ... +85°C
Window cap		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.

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