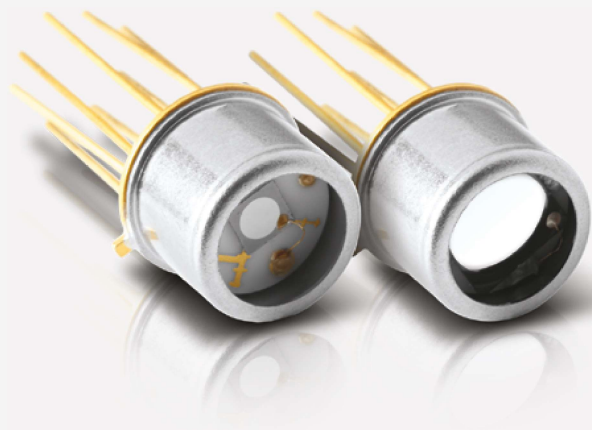


DISCRETE PYROS

Specifications



KEY FEATURES

- > **BROAD SPECTRAL RESPONSE**
From 0.1 to 1000 μm
- > **EASY TO INTEGRATE FORMAT**
TO5 and TO8 packages make the QS detectors small and easy to integrate in an existing system
- > **LARGE AREA SENSORS**
5 mm $\varnothing$ and 9 mm $\varnothing$ diameter pyroelectric sensors make optical alignment easier.
- > **TEST BOX AVAILABLE**
Can be used with our QS-I-TEST test box which provides mounting and power supply
- > **ROOM-TEMPERATURE OPERATION**
- > **FAST RESPONSE**

OUTPUT OPTIONS

> CHOOSE YOUR CONFIGURATION

- QS-L: Passive discrete pyroelectric detectors with thermally isolated crystal for high sensitivity (low noise) at low frequencies
- QS-H: Passive discrete pyroelectric detectors with heat sink for high average power and high frequency operation
- QS-IL: Current-mode hybrid sensors designed for high sensitivity, low bandwidth applications
- QS-IF: Current-mode hybrid sensors designed for high frequency applications, up to 20 MHz

> SEVERAL IR WINDOWS IN OPTION

- Quartz: 0.2 - 3.0 μm
- Barium fluoride: 0.2 - 17.5 μm
- Sapphire: 0.1 - 7.0 μm
- Silicon: 1.1 - 9.0 μm and 50 - 1000 μm
- AR germanium: 8 - 14 μm

ACCESSORIES



QS-I-TEST
Evaluation test box (current)



Permanent IR windows
(Various types available)



Pelican carrying case

QS-I-TEST EVALUATION TEST BOX



QS-I-TEST	
Batteries	+9 V / -9 V
R_f resistors	$10^5 - 10^{10} \Omega$
C_f compensating	Yes
Package	101.6H x 127L x 58.4P
Optical mount	1/4-20 threaded
Front bezel	SM1 (1.035-40)
Product number	201693

* For details, contact your Gentec-EO representative

QS-L & QS-H

Specifications

Discrete pyro detectors, low noise level

	QS2-L	QS3-L	QS5-L	QS9-L
CURRENT RESPONSIVITY	0.5 $\mu\text{A/W}$	0.5 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$
EFFECTIVE APERTURE	2 mm $\varnothing$	3 mm $\varnothing$	5 mm $\varnothing$	9 mm $\varnothing$
PACKAGE	TO5	TO5	TO5	TO8

MEASUREMENT CAPABILITY

Spectral range	0.1 - 1000 μm	0.1 - 1000 μm	0.1 - 1000 μm	0.1 - 1000 μm
Max average power	50 mW	50 mW	50 mW	50 mW
Capacitance (at 1000 Hz)	22 pF	60 pF	90 pF	250 pF
Current responsivity (at 630 nm)	0.5 $\mu\text{A/W}$	0.5 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$
Thermal frequency (3 dB)	1.6 Hz	0.8 Hz	0.5 Hz	0.25 Hz
Temperature coefficient	0.2%/°C	0.2%/°C	0.2%/°C	0.2%/°C

ORDERING INFORMATION

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Discrete pyro detectors, high average power

	QS2-H	QS3-H	QS5-H	QS9-H
MAX AVERAGE POWER	500 mW	500 mW	500 mW	500 mW
EFFECTIVE APERTURE	2 mm $\varnothing$	3 mm $\varnothing$	5 mm $\varnothing$	9 mm $\varnothing$
PACKAGE	TO5	TO5	TO5	TO8

MEASUREMENT CAPABILITY

Spectral range	0.1 - 1000 μm	0.1 - 1000 μm	0.1 - 1000 μm	0.1 - 1000 μm
Max average power	500 mW	500 mW	500 mW	500 mW
Capacitance (at 1000 Hz)	12 pF	30 pF	90 pF	250 pF
Current responsivity (at 630 nm)	0.25 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$	0.25 $\mu\text{A/W}$
Thermal frequency (3 dB)	5 Hz	5 Hz	5 Hz	5 Hz
Temperature coefficient	0.2%/°C	0.2%/°C	0.2%/°C	0.2%/°C

PHYSICAL CHARACTERISTICS

Effective aperture	2 mm $\varnothing$	3 mm $\varnothing$	5 mm $\varnothing$	9 mm $\varnothing$
Package	TO5	TO5	TO5	TO8
Sensor	Pyroelectric	Pyroelectric	Pyroelectric	Pyroelectric
Absorber	MT	MT	MT	MT
Dimensions (excluding pins)	9.1 $\varnothing$ x 6.4D mm	9.1 $\varnothing$ x 6.4D mm	9.1 $\varnothing$ x 6.4D mm	15.2 $\varnothing$ x 6.4D mm
Weight	1.0 g	1.0 g	1.0 g	1.5 g

ORDERING INFORMATION

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Hybrid pyro detectors, current mode, fast response

	QS2-IF	QS3-IF	QS5-IF	QS9-IF
VOLTAGE RESPONSIVITY	50 V/W	50 V/W	25 V/W	25 V/W
CURRENT RESPONSIVITY	0.5 μ A/W	0.5 μ A/W	0.25 μ A/W	0.25 μ A/W
EFFECTIVE APERTURE	2 mm $\varnothing$	3 mm $\varnothing$	5 mm $\varnothing$	9 mm $\varnothing$
PACKAGE	TO5	TO5	TO5	TO8

MEASUREMENT CAPABILITY

Spectral Range	0.1 - 1000 μ m	0.1 - 1000 μ m	0.1 - 1000 μ m	0.1 - 1000 μ m
Max average power	50 mW	50 mW	50 mW	50 mW
Noise equivalent power ^a	8×10^{-8} W/(Hz) ^{1/2}	8×10^{-8} W/(Hz) ^{1/2}	1.6×10^{-7} W/(Hz) ^{1/2}	1.6×10^{-7} W/(Hz) ^{1/2}
Detectivity ^a	2.2×10^6 cm(Hz) ^{1/2} /W	3.3×10^6 cm(Hz) ^{1/2} /W	2.8×10^6 cm(Hz) ^{1/2} /W	5.0×10^6 cm(Hz) ^{1/2} /W
Capacitance (at 1000 Hz)	22 pF	60 pF	90 pF	250 pF
Current responsivity (at 630 nm)	0.5 μ A/W	0.5 μ A/W	0.25 μ A/W	0.25 μ A/W
Voltage responsivity ^b	50 V/W	50 V/W	25 V/W	25 V/W
Thermal frequency (3 dB)	1.6 Hz	0.8 Hz	0.5 Hz	0.25 Hz
Feedback resistor	100 M Ω	100 M Ω	100 M Ω	100 M Ω
Supply voltage	± 12 V	± 12 V	± 12 V	± 12 V

PHYSICAL CHARACTERISTICS

Effective aperture	2 mm $\varnothing$	3 mm $\varnothing$	5 mm $\varnothing$	9 mm $\varnothing$
Package	TO5	TO5	TO5	TO8
Sensor	Pyroelectric	Pyroelectric	Pyroelectric	Pyroelectric
Absorber	MT	MT	MT	MT
Dimensions	9.1 $\varnothing$ x 6.4D mm	9.1 $\varnothing$ x 6.4D mm	9.1 $\varnothing$ x 6.4D mm	15.2 $\varnothing$ x 6.4D mm
Weight	1.0 g	1.0 g	1.0 g	1.5 g

ORDERING INFORMATION

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a. 630 nm, 15 Hz, 1 Hz bandwidth

b. 630 nm, 15 Hz

Hybrid pyro detectors, current mode, low noise level

	QS2-IL	QS3-IL	QSS-IL	QS9-IL
VOLTAGE RESPONSIVITY	25W/W	25kV/W	13kV/W	13W/W
CURRENT RESPONSIVITY	0.5μA/W	0.5μA/W	0.25μA/W	0.25μA/W
EFFECTIVE APERTURE	2mm0	3mm0	5mm0	9mm0
PACKAGE	TOS	TOS	TOS	TOB

MEASUREMENT CAPABILITY

Spectral range	0.1-1000μm	0.1-1000 μm	0.1-1000μm	0.1-1000 μm
Max average power	50 mW	50 mW	50 mW	50 mW
Noise equivalent power^a	$2 \times 10^{-9} \text{ W}/(\text{Hz})^{1/2}$	$2 \times 10^{-1} \text{ W}/(\text{Hz})^{1/2}$	$6 \times 10^{-9} \text{ W}/(\text{Hz})^{1/2}$	$6 \times 10^{-9} \text{ W}/(\text{Hz})^{1/2}$
Detectivity^a	$9.0 \times 10^7 \text{ cm}(\text{Hz})^{1/2} / \text{W}$	$1.3 \times 10^8 \text{ cm}(\text{Hz})^{1/2} / \text{W}$	$7.0 \times 10^7 \text{ cm}(\text{Hz})^{1/2} / \text{W}$	$1.3 \times 10^8 \text{ cm}(\text{Hz})^{1/2} / \text{W}$
Capacitance (at 1000 Hz)	22pF	60pF	90pF	250pF
Current responsivity (at 630 nm)	0.5μA/W	0.5μA/W	0.25μA/W	0.25μA/W
Voltage responsivity^b	25kV/W	25kV/W	13kV/W	13kV/W
Thermal frequency (3 dB)	1.6Hz	0.8Hz	0.5Hz	0.25 Hz
Feedback resistor	100Gn	100Gn	100Gn	100Gn
Supply voltage	±5 to ±12V	±5 to ±12V	±5 to ±12V	±5 to ±12V

PHYSICAL CHARACTERISTICS

Effective aperture	2mm0	3mm0	5mm0	9mm0
Package	TOS	TOS	TOS	TOB
Sensor	Pyroelectric	Pyroelectric	Pyroelectric	Pyroelectric
Absorber	MI	MI	MI	MI
Dimensions	9.10x6.4Dmm	9.10x6.4Dmm	9.10x6.4Dmm	15.20 x 6.4D mm
Weight	1.0g	1.0g	1.0g	1.5g

ORDERING INFORMATION

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a 630 nm, 5 Hz, 1 Hz bandwidth
b 630 nm, 5 Hz

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DISPLAYS & PC

CUSTOM / OEM PRODUCTS