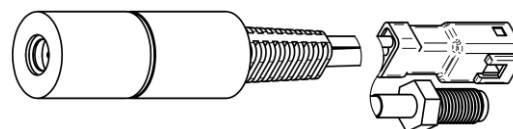


microM-10.6

DATASHEET

Micro-size IR detection module based on HgCdTe room temperature photovoltaic multi-junction detector



FEATURES

- Spectral range: 2.0 to 12.0 μm
- Frequency bandwidth: DC to 10 MHz
- Very small size
- Convenient to use
- Versatile
- Cost-effective OEM version available
- Quantity discounted price
- Fast delivery

APPLICATIONS

- Gas detection, monitoring and analysis: SO_2 , NH_3 , SF_6
- CBRN threats detection
- CO_2 laser measurements: power monitoring and control, beam profiling and positioning, calibration
- Free-space optical communication
- FTIR spectroscopy
- Medical bacteria identification
- Dentistry
- Glucose sensing

INCLUDED ACCESSORIES

- 1 pc of SMA-BNC cable
- 1 pc of JWPF-DB9 cable

DEDICATED ACCESSORIES

- [PPS-03-09 power supply](#)
- [MH-1 module holder](#)
- [DRB-2 base mounting system](#)

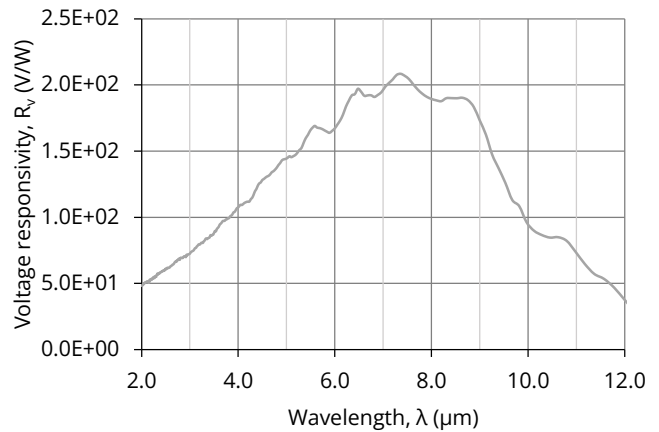
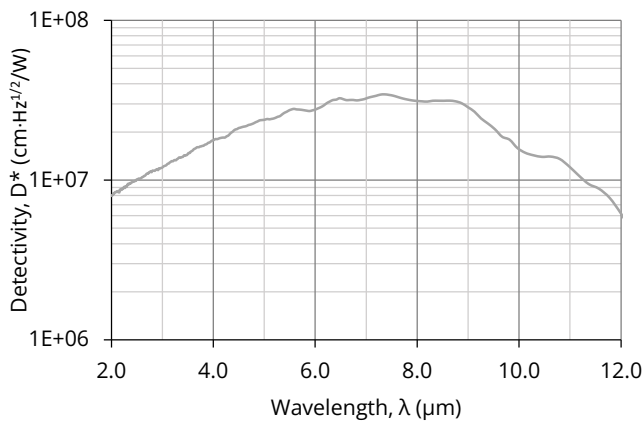
DETECTION MODULE CONFIGURATION

Detection module symbol	microM-10.6
Detector symbol	PVM-10.6-1x1-TO39-NW-90
Detector type	photovoltaic, multi-junction
Active element material	epitaxial HgCdTe heterostructure
Active area, A	1 mm \times 1 mm
Optical immersion	no
Cooling	no
Temperature sensor	n/a
Acceptance angle, Φ	~ 85 deg.
Window	no
Amplifier type	micro-size, transimpedance
Signal output plug	SMA
Power supply plug	03T-JWPF-VSLE-S (male)

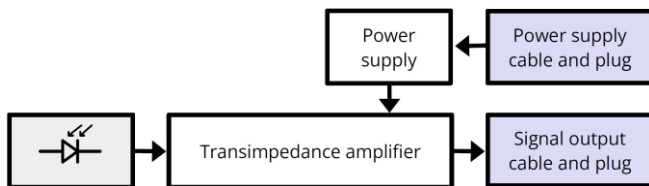
SPECIFICATION ($T_{amb} = T_{chip} = 293\text{ K}$, $R_{load} = 50\ \Omega$, unless otherwise noted)

Parameter	Test conditions, remarks	Value			Unit
		Min.	Typ.	Max.	
Active element temperature, T_{chip}	$T_{chip} = T_{amb}$	-	293	-	K
Cut-on wavelength, λ_{cut-on} (10%)	At 10% of peak responsivity	-	2.0	-	μm
Peak wavelength, λ_{peak}		-	8.5 ± 1.0	-	μm
Specific wavelength, λ_{spec}		-	10.6	-	μm
Cut-off wavelength, $\lambda_{cut-off}$ (10%)	At 10% of peak responsivity	-	12.0	-	μm
Detectivity, D^*	At $\lambda = \lambda_{peak}$, $f = 100\text{ kHz}$	-	3.4×10^7	-	$\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$
	At $\lambda = \lambda_{spec}$, $f = 100\text{ kHz}$	4.0×10^6	1.4×10^7	-	
Output noise voltage density, v_n	At $f = 100\text{ kHz}$	-	-	1	$\mu\text{V}/\text{Hz}^{1/2}$
Voltage responsivity, R_v	At $\lambda = \lambda_{peak}$	-	2.1×10^2	-	V/W
	At $\lambda = \lambda_{spec}$	3.0×10^1	8.5×10^1	-	
Low cut-off frequency, f_{lo}	DC coupling	-	0	-	Hz
High cut-off frequency, f_{hi}		10	-	-	MHz
Output impedance, R_{out}		-	50	-	Ω
Output voltage swing, V_{out}		-	-	± 1	V
Output voltage offset, V_{off}		-	-	± 20	mV
Power supply voltage (positive), $+V_{sup}$		-	+9	-	V
Power supply voltage (negative), $-V_{sup}$		-	-9	-	V
Power supply current consumption (positive), $+I_{sup}$		-	-	+50	mA
Power supply current consumption (negative), $-I_{sup}$		-	-	-30	mA
Weight		-	40	-	g

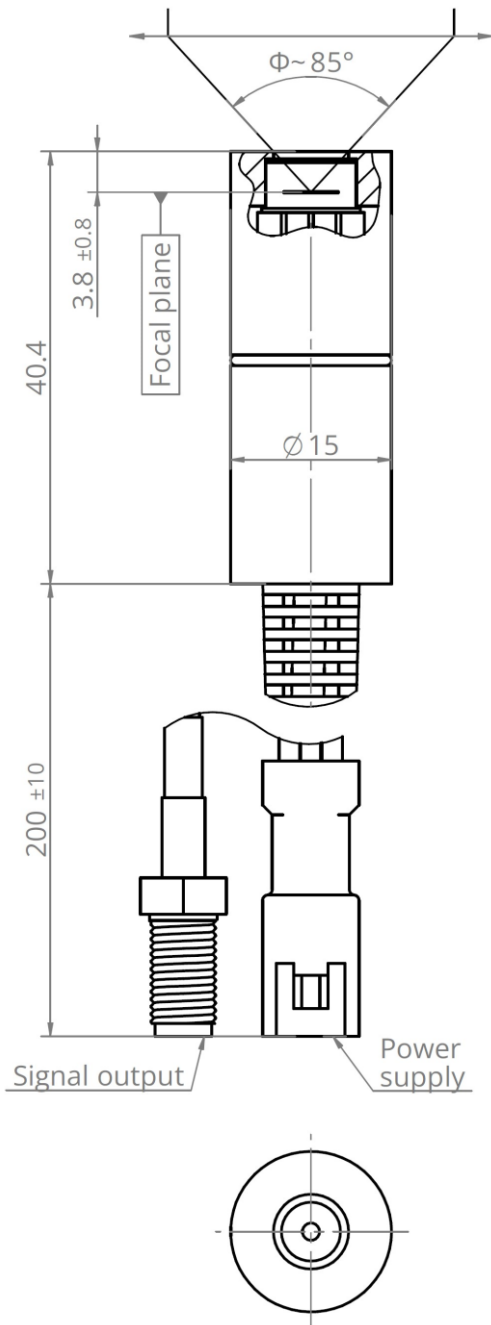
SPECTRAL RESPONSE (Typ., $T_{amb} = T_{chip} = 293\text{ K}$)



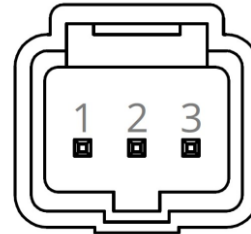
SCHEMATIC DIAGRAM



MECHANICAL LAYOUT AND PINOUT (Unit: mm)



Power supply plug 03T-JWPF-VSLE-S (male)



Pin number	Symbol	Function
1	-V _{sup}	Power supply input (-)
2	GND	Ground
3	+V _{sup}	Power supply input (+)

ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions, remarks	Value	Unit
Ambient operating temperature, T _{amb}	Detection module parameters depend on T _{amb}	10 to 30	°C
Storage temperature, T _{stg}		-20 to 50	°C
Humidity	No dew condensation	10 to 90	%
Maximum incident optical power density	Continuous wave (CW) or single pulses >1 μs duration	100	W/cm ²
	Single pulses <1 μs duration	1	MW/cm ²

Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. Constant or repeated exposure to absolute maximum rating conditions may affect the quality and reliability of the device.