

2.35 SIP series

SIP is a series of ultra-small transimpedance, AC or DC coupled preamplifiers. It is designed to operate with either biased or non-biased detectors. It is compatible with uncooled detectors in TO39 package (SIP-TO39) or thermoelectrically cooled detectors in TO8 package (SIP-TO8). SIP is dedicated for OEM applications and requires an external heatsink (MHS-2). There is a possibility to adjust the gain (devices with a frequency bandwidth up to 100 MHz).

Features

- Very small size
- Frequency bandwidth up to 250 MHz
- Adjustable gain as an option



Specification (T_a = 20°C)

Parameter	Typical value	Conditions, remarks
Low cut-off frequency f _{lo} , Hz	DC, 10, 100, 1k, 10k	
High cut-off frequency f _{hi} , Hz	100k, 1M, 10M, 100M, 250M	
Transimpedance K _v , V/A	up to 100k	tunable
Transimpedance range K _{v,max} /K _{v,min}	up to 5	dependent on f _{hi}
Output impedance R _{out} , Ω	50	
Output voltage swing V _{out} , V	±10 ±2 ±1	f _{hi} ≤ 1 MHz, R _{Load} = 1 MΩ 1 MHz < f _{hi} ≤ 10 MHz, R _{Load} = 1 MΩ 10 MHz < f _{hi} ≤ 250 MHz, R _{Load} = 50 Ω
Output voltage offset V _{off} , mV	max ±20 ^{**)}	
Power supply voltage V _{sup} , V	±15 ±9	f _{hi} ≤ 1 MHz f _{hi} > 1 MHz
Power supply current I _{sup} , mA	max ±50	no detector biasing
Ambient operating temperature T _{op} , °C	10 to 30	
Signal output socket	MMCX	
Power supply and TEC control socket	AMP2×4 (male)	AMPMODU 2×4
Mounting hole	none	
Fan	no	external heatsink necessary

^{**) Measured with an equivalent resistor at the input instead of the detector, it is to avoid the environmental thermal radiation impact.}

Types of VIGO detectors that can be integrated with SIP- TO8 preamplifier

- Photoconductive: PC-2TE, PC-3TE, PC-4TE
- Photoconductive optically immersed: PCI-2TE, PCI-3TE, PCI-4TE
- Photovoltaic: PV-2TE, PVA-2TE, PV-3TE, PV-4TE
- Photovoltaic optically immersed: PVI-2TE, PVIA-2TE, PVI-3TE, PVI-4TE
- Photovoltaic multiple junction: PVM-2TE
- Photovoltaic multiple junction optically immersed: PVMI-2TE, PVMI-3TE, PVMI-4TE

Types of VIGO detectors that can be integrated with SIP-TO39 preamplifier

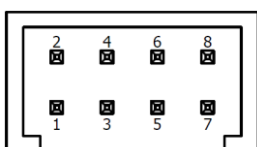
- Photoconductive: PC
- Photoconductive optically immersed: PCI
- Photovoltaic: PV, PVA
- Photovoltaic optically immersed: PVI, PVIA
- Photovoltaic multiple junction: PVM
- Photovoltaic multiple junction optically immersed: PVMI

Code description

Type	f_{i0} , Hz	f_{hi} , Hz	Detector package	Gain adjustment
SIP	DC	100k	TO8	G ^{*)} (with gain adjustment)
	10	1M		
	100	10M	TO39	NG (without gain adjustment)
	1k	100M		
	10k	250M		

^{*)} Only for SIP preamplifier with $f_{hi} \leq 100$ MHz.

Power supply and TEC control socket AMPMODU 2x4 (male)



Function	Symbol	Pin number
Power supply input (-)	$-V_{sup}$	1
Thermistor output/Not connected	TH2/N.C.	2 ^{*)}
Data pin/Ground	DATA/GND	3 ^{**)}
TEC supply input (-)/ Not connected	TEC-/N.C.	4 ^{*)}
Ground	GND	5
Thermistor output/Not connected	TH1/N.C.	6 ^{*)}
Power supply input (+)	$+V_{sup}$	7
TEC supply input (+)/ Not connected	TEC+/N.C.	8 ^{*)}

^{*)} N.C. – only for SIP-TO39 version.

^{**)} GND – only for SIP-TO39 version.

Included accessories

- MMCX-BNC, AMP2x4-DB9 cables

Dedicated accessories for SIP-TO8

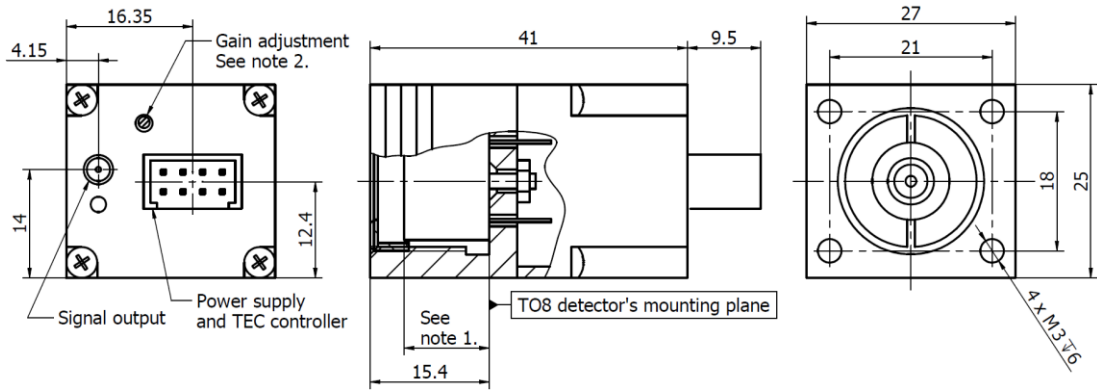
- PTCC-01-BAS TEC controller + USB: TypeA-MicroB cable + AC adaptor
- PTCC-01-ADV TEC controller + USB: TypeA-MicroB cable + AC adaptor
- PTCC-01-OEM TEC controller + USB: TypeA-MicroB,
- KK2-POWER cables
- MHS-2 heatsink

Dedicated accessories for SIP-TO39

- PPS-03 preamplifier power supply + AC adaptor

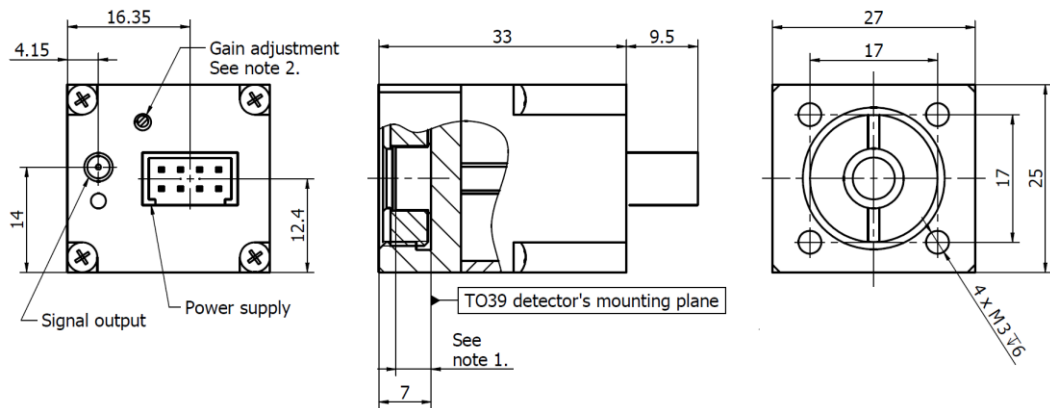
Mechanical layout, mm

SIP-TO8



- Notes:
 1. TO8 detector dimensions in the "TO8 technical drawing".
 2. Only for SIP-xx-xx-TO8-G version.

SIP-TO39



- Notes:
 1. TO8 detector dimensions in the "TO39 technical drawing".
 2. Only for SIP-xx-xx-TO39-G version.