

HPSAV 4100 Pressure Transducer

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General description

Pressure transducer HPSAV 4100 is an OEM pressure sensing device with precision temperature compensated and calibrated sensor output.

This transducer was specially designed to provide stable output signal (offset and span) over wide temperature range from 0 to 70°C. Thick film resistors printed on substrate are individually laser trimmed to provide temperature compensation, zero and span calibration. Additional two pins provide temperature signal for external temperature measurement if required. Pressure transducer is intended for use with non-corrosive gases and fluids.

HPSAV 4100 is designed for constant voltage excitation for pressure ranges from 4" H₂O to 150 psi (10 mbar up to 10bar).

Features

- Constant voltage excitation
- Easy to use DIP package
- Wide compensated range (0 to 70°C)
- Zero and span calibration
- Differential and absolute configurations
- Pressure range from 4" H₂O to 150 psi
- Outstanding long-term stability

Applications

- Medical instrumentation
- Respirators
- HVAC
- Process control
- Leak detection
- Pneumatic controls
- Altimeters



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HPSAV 4100 Pressure Transducer

Available types overview

$T_{AMB} = 25^{\circ}\text{C}$, $V_s = 12\text{ V}$, unless otherwise noted.

Pressure range	4 H ₂ O	10 mbar	10 H ₂ O	25 mbar	50mbar	1psi
ID group	HPSAV 4100-004H	HPSAV 4100-010M	HPSAV 4100-010H	HPSAV 4100-025M	HPSAV 4100-050M	HPSAV 4100-001P
$V_{OUT}^{(3)}$	25±2mV	25,1±2mV	20±0,5mV	20,1±0,5mV	13,1±0,15 mV	18±0,2 mV
$V_{OFS(MAX)}$, 25°C	±1 mV	±1 mV	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV
Temp. ranges	Operating: -25 to 85°C Compensated: 0 to 70°C Storage: -40 to 125°C					
Over pressure ¹⁾	3 psi	3 psi	200 mbar	200 mbar	250 mbar	500 mbar
Burst pressure ²⁾	5 psi	5 psi	350 mbar	350 mbar	750 mbar	1500 mbar

Pressure range	100 mbar	250mbar	5 psi	15psi	1bar	30psi
ID group	HPSAV 4100-100M	HPSAV 4100-250M	HPSAV 4100-005P	HPSAV 4100-015P	HPSAV 4100-001B	HPSAV 4100-030P
$V_{OUT}^{(3)}$	26,1±0,3 mV	43,5±0,7mV	60±1mV	90±1mV	87±1mV	90±1mV
$V_{OFS(MAX)}$, 25°C	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV
Temp. ranges	Operating: -25 to 85°C Compensated: 0 to 70°C Storage: -40 to 125°C					
Over pressure ¹⁾	500 mbar	1 bar	15 psi	45 psi	3 bar	90 psi
Burst pressure ²⁾	1500 mbar	1,7 bar	25 psi	75 psi	5 bar	150 psi

Pressure range	2bar	60psi	5 bar	100 psi	150 psi	10bar
ID group	HPSAV 4100-002B	HPSAV 4100-060P	HPSAV 4100-005B	HPSAV 4100-100P	HPSAV 4100-150P	HPSAV 4100-010B
$V_{OUT}^{(3)}$	87±0,9mV	90±1mV	72,5±0,7mV	100±1mV	90±1mV	87,0±0,9mV
$V_{OFS(MAX)}$, 25°C	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV	±0,5 mV
Temp. ranges	Operating: -25 to 85°C Compensated: 0 to 70°C Storage: -40 to 125°C					
Over pressure ¹⁾	6 bar	180 psi	17 bar	250 psi	250 psi	17 bar
Burst pressure ²⁾	10bar	300 psi	27 bar	400 psi	400 psi	27 bar

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Performance characteristics

$T_{AMB} = 25^{\circ}\text{C}$, $V_S = 12\text{ V}$, pressure applied to P1.

Parameter	Min.	Typ.	Max.	Unit
Input voltage (Vs)		12	16	V
Bridge resistance	2		4	k Ω
Thermal error of span (0 to 70°C) ^{5), 6)}		$\pm 0,2$	± 1	%FSS
Thermal error of offset (0 to 70°C) ^{4), 6)}		$\pm 0,2$	$\pm 0,5$	mV
Combined linearity and hysteresis ⁶⁾		$\pm 0,2$	$\pm 0,5$	%FSS
Input impedance	4		25	k Ω
Output impedance	2		4	k Ω
Repeatability ⁷⁾		$\pm 0,05$		%FSS
Long term stability of offset and span		$\pm 0,1$		mV
Response time		100		μs
Common mode voltage		6		V
Media compatibility	See spec. note ^{9), 10)}			
Humidity limits(non-condensing)		0...95		%RH
Weight		5		g

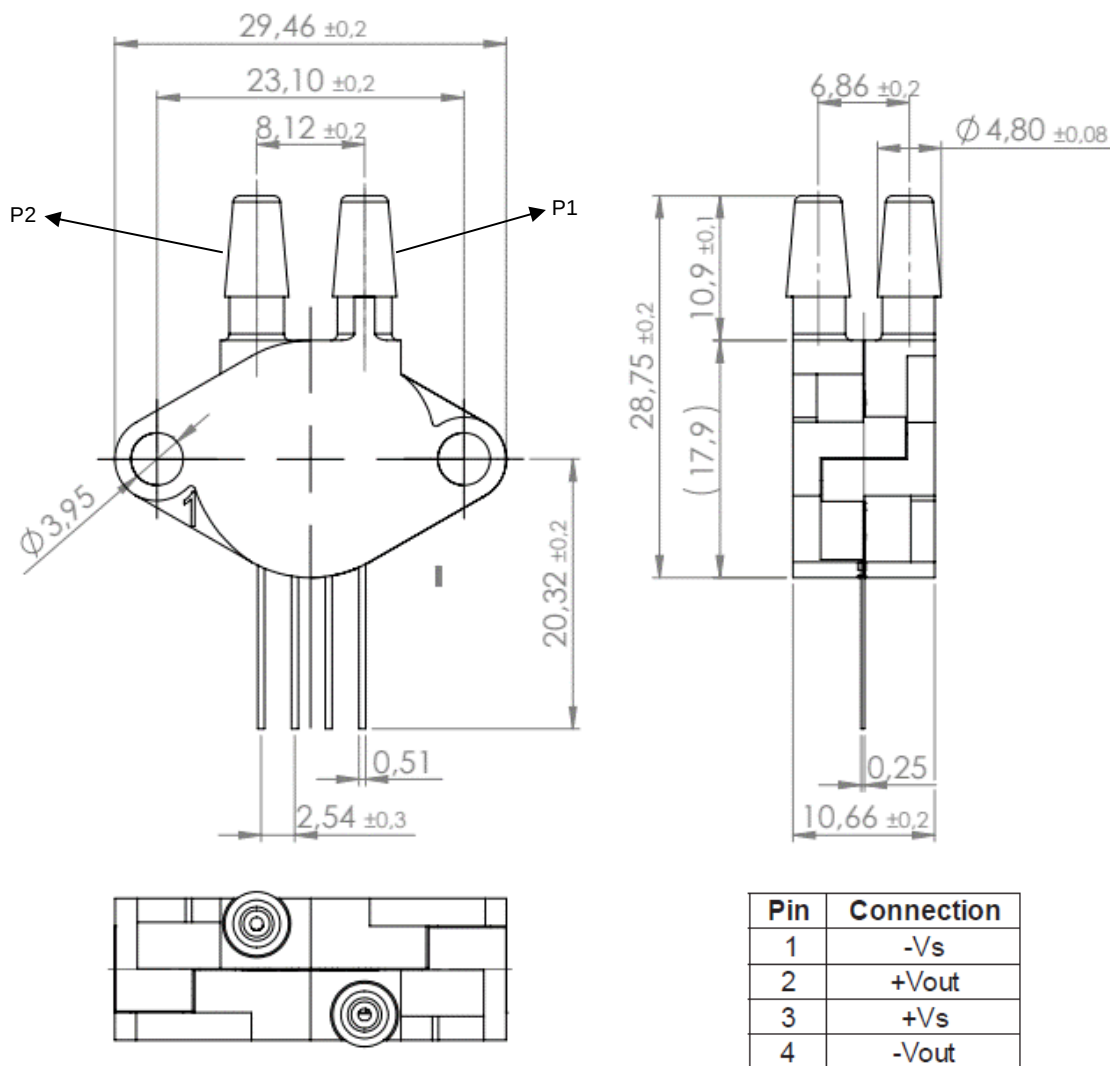
Specification notes

- 1) Over pressure is the maximum pressure which may be applied without causing damage to the sensing element.
- 2) Burst pressure is the maximum pressure which may be applied without causing leakage damage to the sensing element.
- 3) Analog output signal is ratiometric to input supply voltage Vs.
- 4) Offset voltage is the voltage output at zero pressure.
- 5) FSS (full scale span) is the algebraic difference between the output at full scale pressure range and offset.
- 6) Thermal error of span and offset represents the maximum deviation of transducer signal (span and offset) through whole compensated temperature range from 0 to 70°C compared to value at 25°C.
- 7) Repeatability is defined as typical deviation of the output signal after 10 pressure cycles.
- 8) Nonlinearity is defined as the BFS (best fit straight line) across entire pressure range.
- 9) Media compatibility on pressure port P1: clean, dry and noncorrosive gases to silicon, RTV, ceramics Al_2O_3 , gold, epoxy, polymer.
- 10) Media compatibility on pressure port P2: clean, dry and noncorrosive gases to RTV, ceramics Al_2O_3 , epoxy, polymer.

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Outline dimensions and pinout



Notes:

- All dimensions in mm.
- Output polarity is defined for pressure applied to P1.

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Ordering guide

Transducer type	Pressure range	Pressure type
HPSAV 4100	004H	D
	010M	
	010H	
	025M	
	050M	
	001P	
	100M	
	250M	
	005P	
	001B	
	015P	
	002B	
	030P	
	060P	
	005B	
	100P	
	150P	
	010B	

Pressure range	
004H	4 " H ₂ O
010M	10 mbar
010H	10 " H ₂ O
025M	25 mbar
050M	50 mbar
001P	1 psi
100M	100 mbar
250M	250 mbar
005P	5 psi
001B	1 bar
015P	15 psi
002B	2 bar
030P	30 psi
060P	60 psi
005B	5 bar
100P	100 psi
150P	150 psi
010B	10 bar

Pressure type	
D	Differential

Other configurations possible on special request.

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