

SSPS-TCD20

Piezoresistive sensor gage pressure



PRODUCTS FEATURES

- Measuring range -100kPa...0kPa...200kPa
- Optional 5V or 3.3V Power supply
- Gage (Positive + Vacuum) Type
- Suitable for non-corrosive, non-conductive gas or liquid
- Calibrated Amplified Analog Signal
- Temperature compensated: 0°C~+60°C

1. Product performance

Table 1. Technical and Electrical characteristics

Parameter		Data	Units	
Standard range ¹		-100...-2.5~0~2.5...200	kPa	
Power supply ²		5/3.3	VDC	
Max. Excitation Current		3	mA	
Output range ³		0.5~4.5/0.2~2.7	VDC	
Total accuracy ⁴	10kPa < Pressure ≤ 200kPa	±2	%Span	
	Pressure ≤ 10kPa or > 200kPa	±2.5		
Long Term Stability ⁵		±0.5	%Span	
Over Pressure ⁶	Pressure ≤ 5kPa	5x	Rated Pressure	
	5kPa < Pressure ≤ 200kPa	2.5x		
Burst Pressure ⁷	Pressure ≤ 5kPa	10x		
	5kPa < Pressure ≤ 200kPa	3x		
Compensation Temperature ⁸		0~60	°C	
Operating Temperature ⁹		-20~100	°C	
Storage Temperature		-30~125	°C	
Response time ¹⁰		2.5	mS	
Electrical characteristics				
Parameter	Min.	Typ.	Max.	Unit
Power supply			5.5 V	V
Working current		100		nA
Filter Capacitor		100		nF
PSRR		60		dB
Output current load			5	mA
Input Common mode Rejection Ratio	80	110		dB
Short-circuit current limit	15	20	25	mA
Upper limit clamping Voltage	3/4		1	VDD
Lower limit clamping Voltage	0		1/4	VDD

1. Pressure Range(Operating pressure): The available pressure range including various span, not a specific pressure range.
2. Power Supply: Acceptable voltage deviation is within 5% of the specified voltage(e.g. 4.75~5.25V@5V working voltage)
3. Output Range:
 1. Output Range is defined as the output voltage from minimum rated pressure to maximum rated pressure, including Offset(Zero output) : it is defined as the output voltage at the minimum rated pressure; Full Scale Output (FSO): it is defined as the output voltage at the maximum or full rated pressure; Full Scale Span (FSS): it is the algebraic difference between the output voltage at FSO and Offset.
 2. Output range can be customized under working voltage, e.g 0.2~4.7@5V;0.2~4.8@5V;0.12~2.8@3V etc
 3. Output value is nominal values without the count of Accuracy deviation.
4. Total Accuracy: The max. deviation in output from ideal transfer function at any pressure or temperature over the specified ranges, units are in percent of full scale span (%FSS), which mainly consists of: Offset and Span Shift; Linearity(Non-linearity); Repeatability; Pressure Hysteresis ; TcOffset and TcSpan.
 1. The accuracy in table is the typical output accuracy. The accuracy is not identical according to different specified pressure range. Contact factory for more information or for higher accuracy requirement(e.g $\pm 1\%$ Span) if need.
 2. Non-linearity(Linearity): the deviation of measured output from "Best Straight Line" through three points (Offset pressure, FS pressure and $\frac{1}{2}$ FS pressure)at constant temperature
 3. Repeatability: the deviation of measured output when the same pressure is applied continuously, with pressure approaching from the same direction within the specified operating pressure range, under the same operating conditions.
 4. Pressure Hysteresis: the deviation of measured output at any pressure within the specified range, when this pressure is applied continuously, with pressure approaching from opposite directions within the specified operating pressure range, under the same operating conditions.
 5. TcOffset (TCO:Temp. Coefficient of Offset): the deviation of measured output with minimum rated pressure applied, over the temperature range of 0° to 60°C, relative to 25°C.
 6. TcSpan (TCS:Temp. Coefficient of Span): the deviation of measured output over the temperature range of 0° to 60°C, relative to 25°C.
5. Long Term Stability: the sensor's output deviation when subjected to 1000 hours pressure test.
6. Over Pressure (Proof pressure): the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element and remain the specification once pressure is returned to the operating pressure range.
7. Burst Pressure: the maximum pressure which may be applied without causing damage to the sensing die or leaks; The sensor should not be expected to recover function after exposure to any pressure beyond the burst pressure.
8. Compensated Temperature: the temperature range over which the sensor have an output proportional to pressure within the specified performance limits
9. Operating Temperature (or Ambient Temperature): the temperature range over which the sensor have an output proportional to pressure but may not remain within the specified performance limits
10. Response Time: it is defined as the time for the incremental change in the output from 10% to 90% of its final value when subjected to a specified.

2. Mechanical dimension and Pin definition

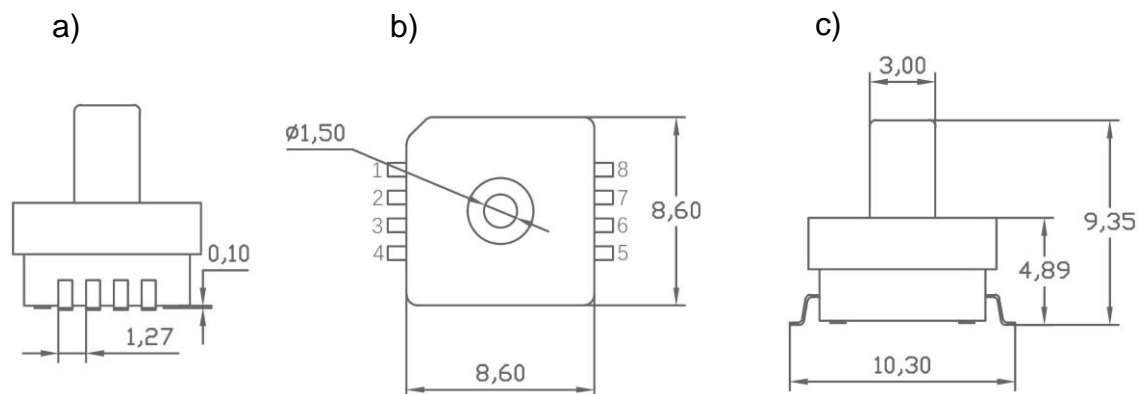


Figure 2.1. Mechanical dimensions in mm a) pin side view; b) Top view; c) Side view

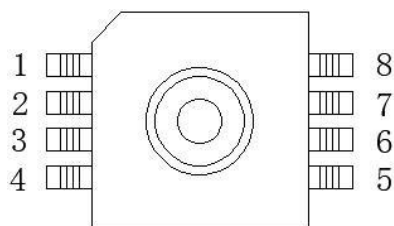


Figure 2.2. Pin numbering

Table 2. Pin definition

Pin number	Lead definition	Definition
1	OUT	Output voltage
7	GND	Ground
3	VDD	Voltage supply
2, 4, 5, 6, 8	NC	-

3. Block diagram

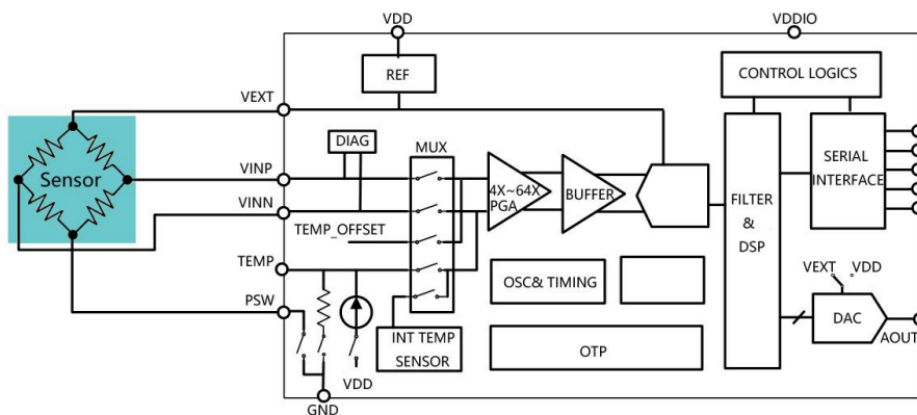
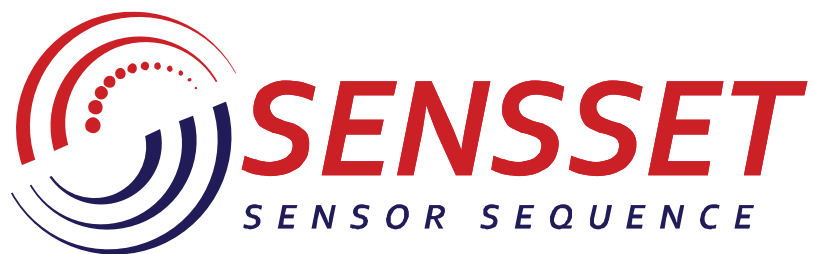


Figure 3.1. General-purpose circuit.

4. Order information

SSPS-TCD20		Series compensated, surface mount housing – SOP with 8 pins.				
	G	Gauge type pressure				
	GN	Vacuum				
	PN	Positive + Negative (P+N)				
		KP	kPa			
		HP	hPa			
		HP025	0~2.5kPa/0~25mbar/0~250mmH2O (only gauge)			
		KP005	0~5kPa/0~50mbar/0~500mmH2O (only gauge)			
		KP010	0~10kPa/0~100mbar/0~75mmHg (only gauge)			
		KP020	0~20kPa/0~200mbar/0~150mmHg (only gauge)			
		KP040	0~40kPa/0~400mbar/0~300mmHg (only gauge)			
		KP050	0~50kPa/0~500mbar/0~375mmHg (only gauge)			
		KP100	0~100kPa/0~1bar/0~14.5PSI (only gauge)			
		KP200	0~200kPa/0~2bar/0~29PSI (only gauge)			
		KP100	-100~0kPa/-1~0bar/-14.5~0PSI (only vacuum)			
		KP030	-30~0kPa/-300~0mbar/-4.35~0PSI (only vacuum)			
		KP020	-20~0kPa/-200~0mbar/-2.9~0PSI (only vacuum)			
		HP025	-2.5~2.5kPa/-25~25mbar/-250~250mmH2O (only P+N)			
		KP005	-5~5kPa/-50~50mbar/-500~500mmH2O (only P+N)			
		KP040	-40~40kPa/-400~400mbar/-300~300mmHg (only P+N)			
		KP100	-100~100kPa/-1~1mbar/-14.5~14.5PSI (only P+N)			
		KP200	-100~200kPa/-1~2mbar/-14.5~29PSI (only P+N)			
			5	Power supply – 5 V		
			3	Power supply – 3.3 V		
				1	Nipple Height - 4.46 mm	
				2	Nipple Height - 6.50 mm	
SSPS-TCD20	G	KP	100	5	2	Ex. SSPS-TCD20GKP10052



www.sensset.ru

8 (812) 309-58-32 доб. 150
info@sensset.ru

198099, г. Санкт-Петербург
ул. Калинина, дом 2, корпус 4, литера А.



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