SENSSET
SENSOR SEQUENCE

SSPS-TCC152G

Piezoresistive sensor gauge pressure

PRODUCTS FEATURES

- Measurement range : -100kPa~0~10 - 700 kPa
- Gage pressure type
- For Non-corrosive Gas or Air
- Calibrated Amplified Analog Signal
- Temperature compensated: 0°C~+85°C
- Direct Application, Low cost
- Customization avaliable

1. Technical specifications

1.1 Basic value

Table 1. Unless otherwise specified, measurements were taken with a a temperature of 25±1℃and humidity ranging from 25% ～ 85%RH(supply voltage:5 Vdc or 3.3V or 3.0V)

Item		Data	Unit
Available Pressure Range		-100~700(customization acceptable)	kPa
Power Supply		5	Vdc
Max. Excitation Current		3	m A
Output Range		0.2～4.7	Vdc
Total Accuracy	10KPa< Pressure< 200KPa	±2	%Span
	Pressure < 10KPa or > 200 KPa	±2.5	
Long Term Stability		±1.0	%Span
Overpressure	<5KPa	5X	Rated
	5KPa, < 200KPa	2.5X	
	200KPa < Pressure	1.5X	
Burst Pressure	<5KPa	10X	Rated
	5KPa, < 200KPa	3X	
	200KPa < Pressure	2X	
Compensation Temp.		0 ～ 85 / 32 ~185	℃ / °F
Operating Temp.		-20 ～ 100 / -22 ~ 212	℃ / °F
Storage Temp.		-30 ～ 125 / -22 ~ 257	℃ / °F
Response Time		2.5	mS

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:
3.1. 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.
3.2. 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,.
3.3. 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 Hsteresis ; TcOffset and TcSpan.
4.1. The accuracy in table is the typical output accuracy. The accuracy is not identical accroding to different specified pressure range. Contact factory for more information or for higher accuracy requirement(e.g ±1%Span) if need.
4.2 Non-linearity(Linearity): the deviation of measured output from "Best Straight Line" through three points (Offset pressure, FS pressure and ½ FS pressure)at constant temperature.
4.3 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.

4.4 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.
4.5 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.
4.6 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 theelectrical parameters of the sensing element and remain the specification once pressure is returned to the operatingpressure 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 of its final value when subjected to a specified step change in pressure.

1.2. Electrical performance

Table 2. Electrical performance

Parameter	Min.	Typ.	Max.	Unit
PowerSupply			5.5	V
WorkingCurrent		100		nA
FilterCapacitor		100		nF
PSRR		60		dB
OutputCurrentLoad			5	mA
InputCommonModeRejectionRatio	80	110		dB
Short-circuitCurrentLimit	15	20	25	mA
UpperlimitClampingVoltage	3/4		1	VDD
LowerlimitClampingVoltage	0		1/4	VDD

2. Diagram

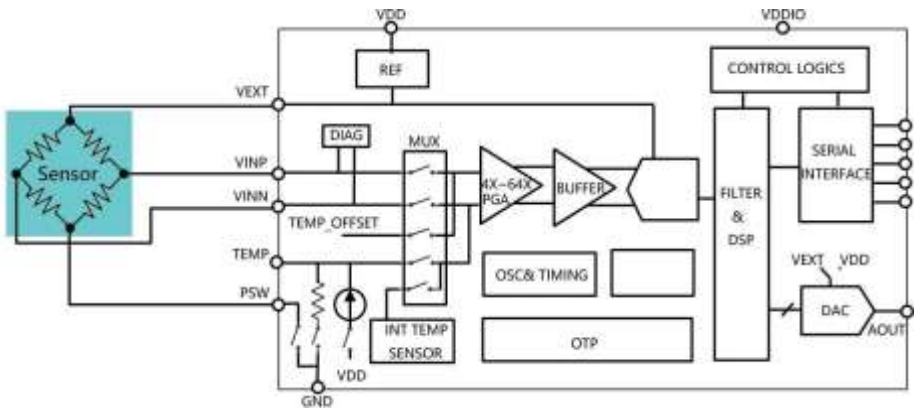

Figure 3.1. Block diagram

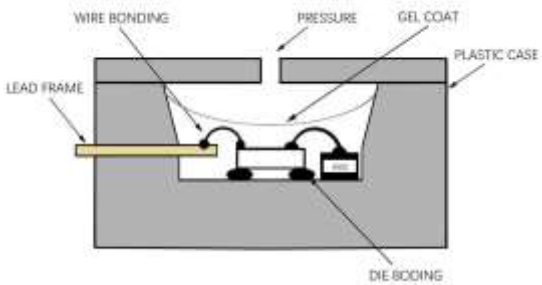

Figure 3.2. Cross section

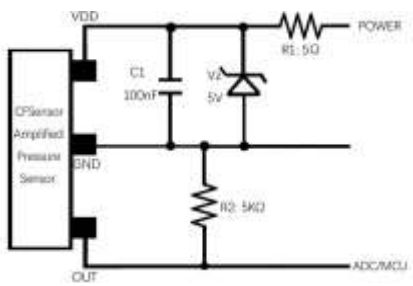

Figure 3.3. Circuit diagram. Diagram state schematic connection only; Check Pin allocation in Dimension drawing.

3. Mechanical dimension and electrical connection

1	2	3	4,5,6
OUT	VDD	GND	N/C

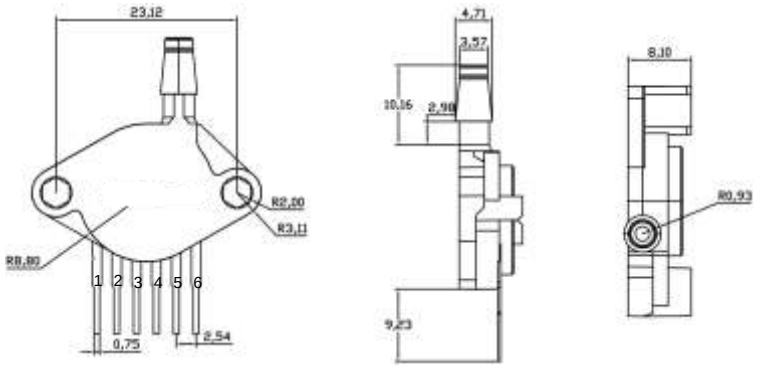

Figure 4.1. Dimensions in mm

Table 3. Pin definition

Name	Function
N/C	Do not connect to external circuitry or ground
VDD	Voltage supply
OUT	Output voltage
GND	Ground

Notes:
1. Implement ESD protection during whole soldering and assembly process.
2. Overload voltage(max.6.5Vdc) or current(max.5mA) may burn the ASIC and cause the sensor fail thoroughly.
3. More detalis about soldering and storage etc., get from us.

4. Order information

SSPS-TCC152G	Series compensated sensor absolute pressure, surface mount housing – SIP with 6 pins.				
	KP	Pressure unit: KPa			
	HP	Pressure unit: bar			
		10	0~10KPa / 0~100mbar / 0~75mmHg		
		50	0~50KPa / 0~500mbar / 0~500mbar / 0~375mmHG		
		100	0~100KPa / 0~1bar / 0~14.5PSI		
		200	0~200KPa / 0~2bar / 0~29PSI		
		700	0~700KPa / 0~7bar / 0~101PSI		
		A100	-100~100KPa / -1~1 bar / -14.5~14.5PSI		
		A500	-100~500KPa / -1~5 bar / -14.5~72.5PSI		
		...	Customize available		
			GP	Pressure type: Positive	
			GN	Pressure type: Negative	
			GPN	Pressure type: P + N	
				A	Analog Output
				D	I2C Output
SSPS-TCC152G	KP	100	GP	A	Example: SSPS-TCC152AKP100GPA

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Development, production and supply of high-tech sensors