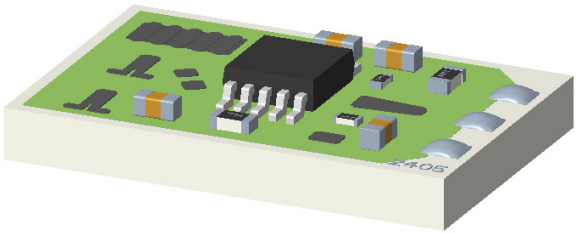
PSRT Piezoresistive ceramic Pressure transducer

The PSRT pressure sensors feature a monolithic ceramic cell and operate based on the piezoresistive principle. The Wheatstone bridge is screen-printed on the ceramic cell using thick film technology, with signal conditioning electronics providing intergrated amplified output. Pressure and temperature calibration is handled electronically via the on-board ASIC, with offset and span corrections for temperature variations. The sensors offer long-term stability, are EMC-compliant, and include an EEPROM for traceability and custom calibration. The Al2O3 ceramic ensures excellent resistance to aggressive media.



Features

- Outstanding corrosion and abrasion resistance
- Fully integrated signal conditioning
- Compliant with EMC standards
- Thermally compensated for enhanced performance

Advantages

- High integration and compact size
- High precision and excellent stability
- Fast response, low power consumption, and superior consistency

Applications

- HVAC
- Pneumatic / hydraulic control systems
- Domestic appliances
- Medical and instrumentation
- Water supply and drainage systems

Absolute maximum ratings

Symbol	Parameter	Min.	Max.	Unit
T_A	Ambient operating temperature	-40	125	°C
T_S	Storage temperature range	-40	135	°C

Performance Specifications

Symbol	Charateristic	Test condition	PSRT005B	PSRT010B	PSRT020B	PSRT050B	Unit
P_n	Pressure range gauge		0...5	0...10	0...20	0...50	bar
P_m	Prove pressure		0...10	0...20	0...40	0...100	bar
P_B	Burst pressure		0...20	0...35	0...60	0...140	bar
CV	Vacuum capability		-0.9	-1	-1	-1	bar
T_R	Response time		≤1				ms
TEB	Total error band	@V_{CC}, T_A = 25°C	<0.5				%
		@V_{CC}, T_A = -40°C...125°C	<2				
E_L	Accuracy include linearity, hysteresis and repeatability errors	T_A = 25°C	<0.5				%
LTS	Long term stability		<0.15				%FS/Year

Electrical Specifications

Charateristic	Ratiometric output		Current output
	A	B	C
Output value	0.5...4.5 VDC	0.5..2.5 VDC	4...20 mA
Operating supply voltage	5±0.25 VDC	5±0.25 VDC	12...30 VDC

*1 Transducer will not produce valid output when supply voltage is outside of operating range.

Materials

Symbol	Parameter	Value	Unit	Comment
m-s	Sensor material	Ceramic Al_2O_3 96%		
m	Mass	≤6	grams	(Excluding connections)

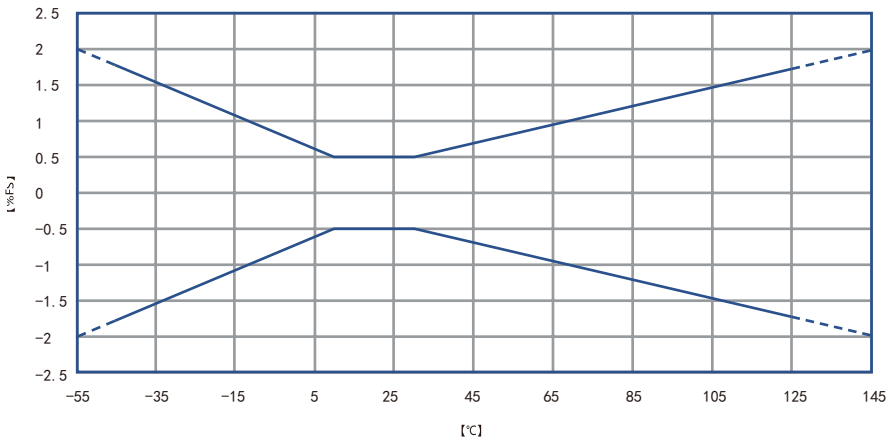
Environmental and mechanical characteristcs

Test	Standard
Electrostatic discharge immunity	IEC/EN 61000-4-2(2009)
Radiated electromagnetic field immunity	IEC/EN 61000-4-3(2006)
Electrical fast transient (burst) immunity	IEC/EN 61000-4-4(2004)
Surge immunity	Not applicable
Conducted RF immunity immunity	IEC/EN 61000-4-6(2014)

Total error band

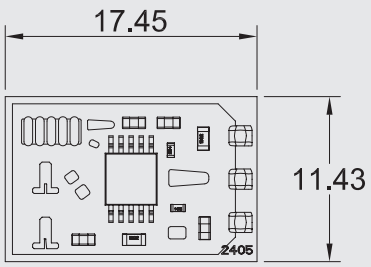
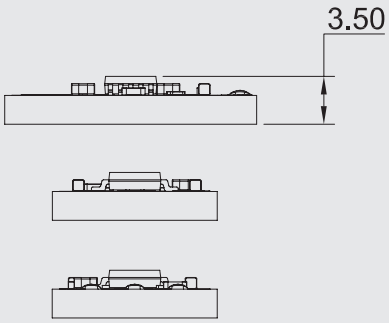
The chart illustrates the maximum deviation across the entire medium temperature range (-40...125 °C) for the PSRT series.

In the defined pressure and temperature parameters, the maximum total error remains consistently at ± 0.5 %FS (25 °C) or ± 2 %FS (-40...125 °C).

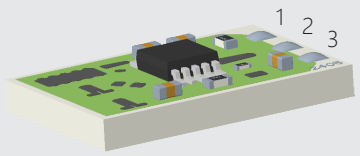
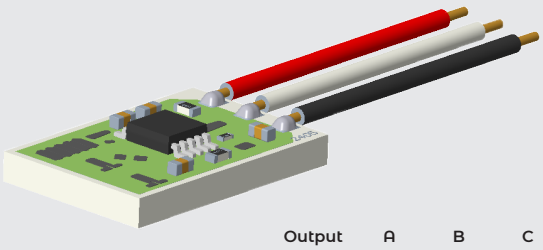


Dimensions (mm)

Pre-tinned pads dimensions

Top view	Side view
	

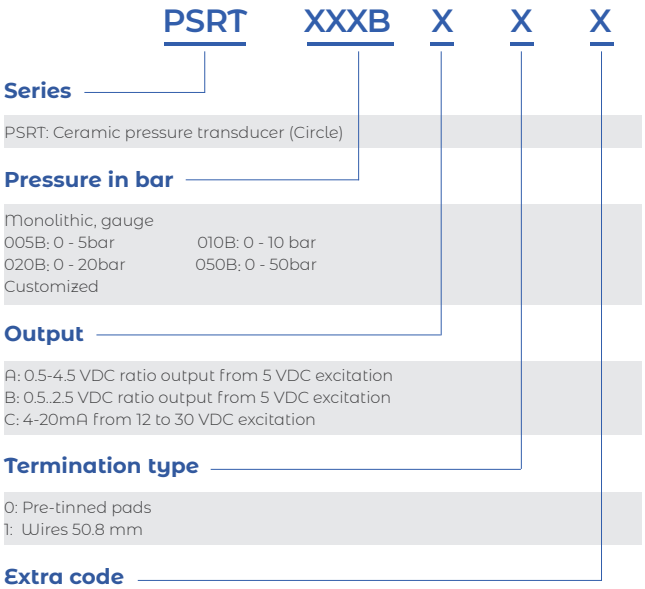
Electrical terminations

tinned pads	wires L= 50.8 mm
	

Output	A	B	C
1	V_{CC}	V_{DD}	+
2	V_{OUT}	GND	-
3	GND	V_{OUT}	NULL

Output	A	B	C
Red	V_{CC}	V_{CC}	+
White	V_{OUT}	V_{OUT}	-
Black	GND	GND	NULL

Name Guide Description



Notes

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Safety and Environment

The product is to be installed by manufacturer trained personnel or competent person trained in accordance with manufacturer installation instructions.

With respect to applicable standards IEC 61010-1/ EN 61010-1 *safety requirements for electrical equipment for measurement, control and laboratory use part 1 general requirements*, the product should be used in limited energy secondary circuits.

Risk of electrical shock

Certain parts of the module can carry hazardous voltage during the operation process of the product because hazardous live voltage of primary conductor, power supply occurs, injury and/or serious damage will be caused if this warning is ignored.

Conducting parts must be inaccessible after installation of the product. Additional protection including shield or protective housing could be used according to IEC 60664 Insulation coordination for equipment within low-voltage supply systems.

Disconnection of the main supply will protect against possible injury and serious damage.

ESD protection

Damage from an ESD event will occur if the personnel is not well grounded when handling.

Important notice

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