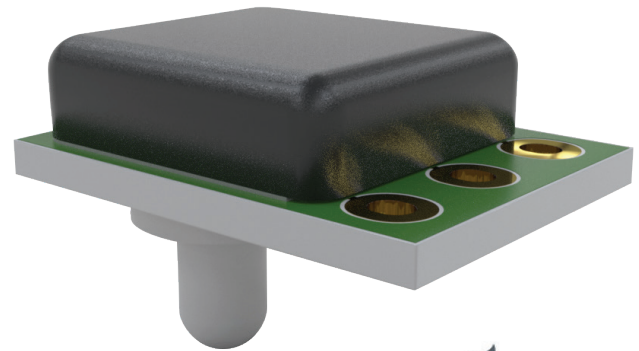




Fully Compensated TVC Series

The TVC Series is a fully compensated harsh-media, pressure-sensor package designed to handle today's toughest pressure-sensing environments with temperatures between -40°C and 150°C.

The unique pressure port isolates onboard electronics, and the three wetted materials—silicon, glass, and ceramic—enable the TVC Series to withstand a variety of harsh media, such as fuel. The only thing needed to operate the TVC Series is a single 5.0VDC supply—no external components required.



FEATURES

- Pressure Range** 1 to 300 psi / 69 mbar to 21 bar / 6.9 to 2,000KPa
- Temperature Range** -40°C to 150°C
- Type** Absolute or gage
- Packaging** Tape and reel

APPLICATIONS

Industrial: The TVC Series is used to monitor HVAC systems, water levels, water pressure, and processes. It is also used for air-conditioning and other refrigerant systems, portable-measurement and analysis instrumentation, and industrial automation.

Automotive: The TVC Series is used to monitor the pressure of transmission fluid, fuel systems, oil systems, EGR systems, exhaust gas, etc.

Medical: The TVC Series is used in equipment for diagnosis and analysis.

TVC Series Part Number Configurator

TVC-XXXXX-00X

Full-Scale Pressure

- 0001 = 1 psi
- 0015 = 15 psi
- 0030 = 30 psi
- 0100 = 100 psi
- 0300 = 300 psi

Calibration

- 1 = Standard 2.5% Cal.
- 2 = 1% Accuracy Cal.

Pressure Type

- A = Absolute
- G = Gage

SPECIFICATIONS

Features	Min.	Typ.	Max.	Unit	Notes
Electrical					
Supply Voltage (Vs)	4.5	5	5.5	Volts	
Supply Current			10	mA	
Output Current			2.5	mA	
Short Circuit Current	-25		25	mA	
Reverse Polarity Protection	-33			Volts	Device will cease operation during supply voltage fault.
Overvoltage Protection			33	Volts	Device will cease operation during supply voltage fault.
ESD	>4			kV	Human body model 1.5kOhm/100pF.
Performance					
Output Range (Vout)	10		90	%Vs	
Output Clipping Limit (Vout)	5		95	%Vs	
Resolution			0.02	%FS	>12 bit DAC
Accuracy					Accuracy includes all error for hysteresis and linearity over the entire operating temperature range. It does not include lifetime drift. -40°C to 150°C.
Standard	-2.5	0	2.5	%FS	
High Performance	-1.0	0	1.0	%FS	
Startup Time		3.5		ms	
Analog Update Time		2		ms	
Static Proof Pressure		2X FS		PSIA	
Burst Pressure		3X FS		PSIA	
Lifetime Drift	-0.5		0.5	%FS	1000 HRS. @ 150°C
Environmental					
Operating Temperature	-40		150	°C	
Storage Temperature	-55		150	°C	
Weight		1.034		Grams	

Transfer Function Formula

$$P_{psi} = (P_{max} - P_{min}) \cdot \left(\frac{V_{out} - V_{min}}{V_{max} - V_{min}} \right) + P_{min}$$

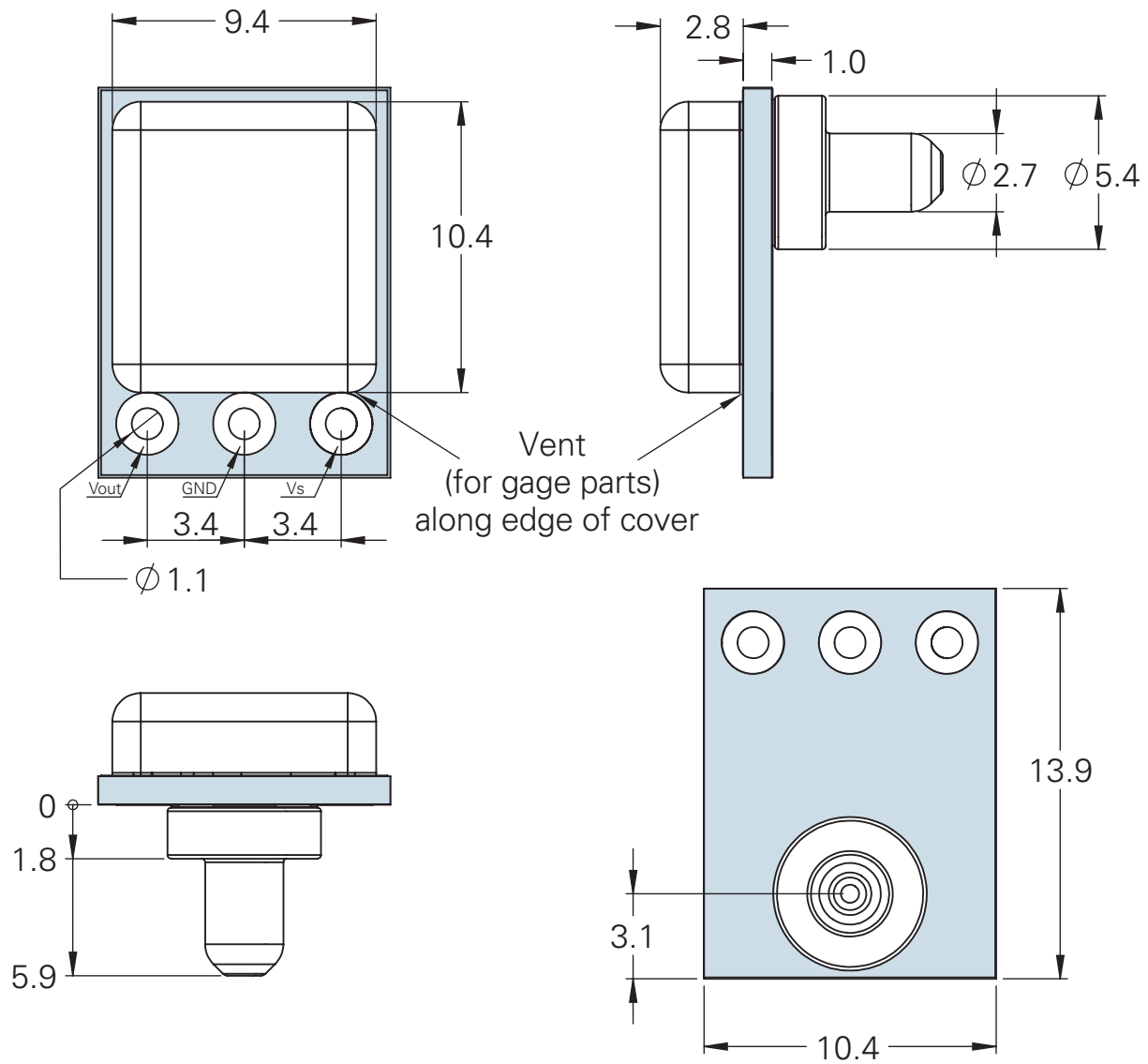
Where

- P_{psi} = Measured Pressure in PSI
- P_{Max} = Maximum Pressure
- P_{Min} = Minimum Pressure
- V_{min} = Minimum Volatage (Usually 0.5V)
- V_{max} = Maximum Volatage (Usually 4.5V)
- V_{out} = Output voltage

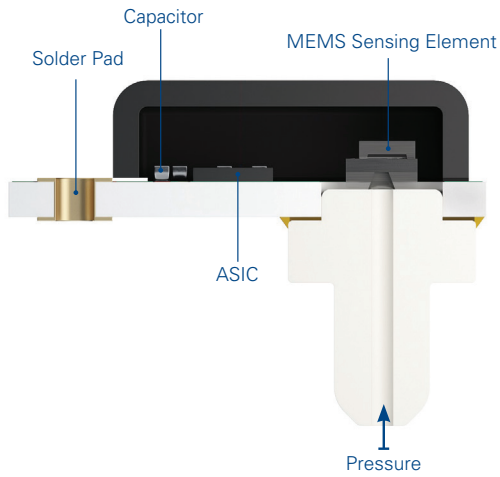
Fully Compensated TVC Series

DIMENSIONS FOR STANDARD OPTIONS (in millimeters)

Dimensions for reference only.
Engineering drawings (with tolerance) available upon order.

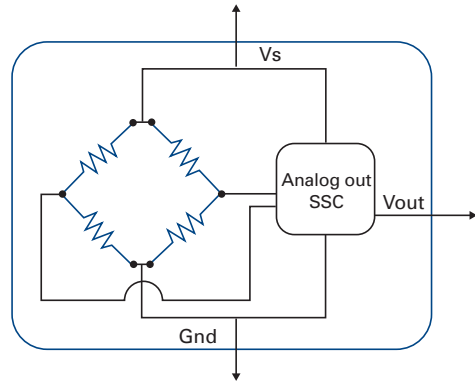


CROSS SECTION

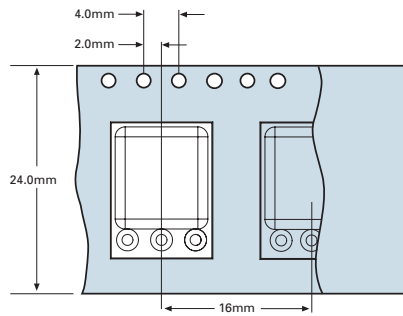


ELECTRICAL

Note: Power supply decoupling and output filtering included



PACKAGING AND SHIPPING



Merit Sensor owns and operates a MEMS wafer fab, which enables the production of customized piezoresistive pressure sensors for medical, industrial, and automotive applications. We help you get to market quickly with creative and flexible solutions and provide prompt, personal, and professional customer support.

