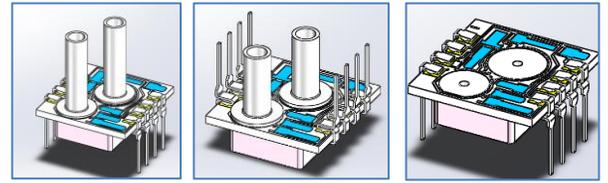


The MCT-58D Series

Vertical Ports, Dual In Line Package (DIL)
Digital Temperature & Pressure Outputs
I²C & SPI Protocols



DESCRIPTION

Advanced Sensors Multi Chip Technology (MCT) SM58D Series incorporates the latest mixed signal ASIC (Application Specific Integrated Circuit) with a bonded silicon gage to provide a leading *Digital Output* design for medical, life science and pneumatic control industries. The MCT SM58D Series provides a 14bit digital pressure and 11 bit digital temperature output in SPI and I²C protocols. The design's superior performance provides 1% Total Error across a wide temperature range of -10 to 85 °C while the ASIC's advanced design sets safety critical operations at the forefront with internal error checking of the sensor's input and output lines. Given these features and an available low power option; the MCT-SM58D series is the ideal choice for OEM customers.

APPLICATIONS

- Pneumatic controls
- Automotive diagnostics
- Medical equipment/instrumentation
- Air Speed and Altitude
- Environmental controls
- Barometric pressure measurement
- Factory Automation
- Process Controls

FEATURES

- Digital Temperature & Pressure Output
- Low Power Option
- 3.3 & 5.0Vdc Supply Voltages
- Low Overall Errors, 1%TEB
- I2C & SPI Outputs
- Custom Outputs and Ranges Available

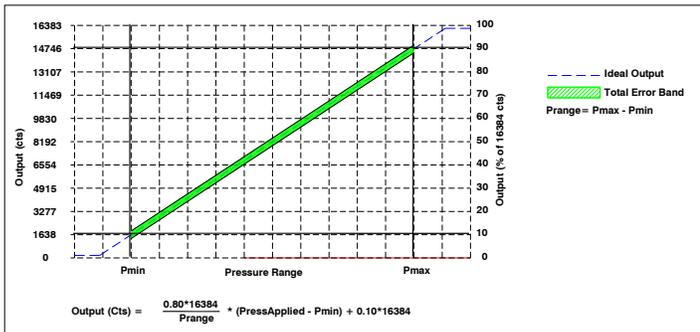
SPECIFICATIONS	Symbol	Min	Typical	Max	Unit	Note
Performance Specifications						
Supply Voltage		2.7V	3.3	5.50	V	
Current Consumption				3	mA	
Standby Current			0.5		µA	-L Option
Pressure Resolution				14	bits	
Temperature Resolution				11	bits	
Output (Type 1) at Pmin			1638		cts	
Output (Type 1) at Pmax			14746		cts	
Output (Type 2) at Pmin			819		cts	
Output (Type 2) at Pmax			15564		cts	
Pressure Accuracy		-0.25		0.25	%FSS	2
Total Error Band	TEB	-1.0		1.0	%FSS	3
Temperature Accuracy			1.5		°C	
Long Term Stability			±0.4		%FSS	
Conversion Time			1.0		mS	4
Power On to Valid Data				<10	mS	5
Weight				3	grams	
Compensated Temperature			-10 to 85		°C	6
Operating Temperature			-40 to 125		°C	6

SPECIFICATIONS	Symbol	Min	Typical	Max	Unit	Note
Absolute Maximum Conditions						10
Supply Voltage		-5.0		6	V	
Storage Temperature		-55		150	°C	
Package Integrity, Common Mode				300	psi	7
Proof Pressure				3x		8
Burst Pressure				5x		9
Media Compatibility		CDA, Non Ionic, Non Corrosive Gases				
Wetted Materials		Ceramic, RTV, Epoxy, Silicon, Gold, Aluminum, LCP				

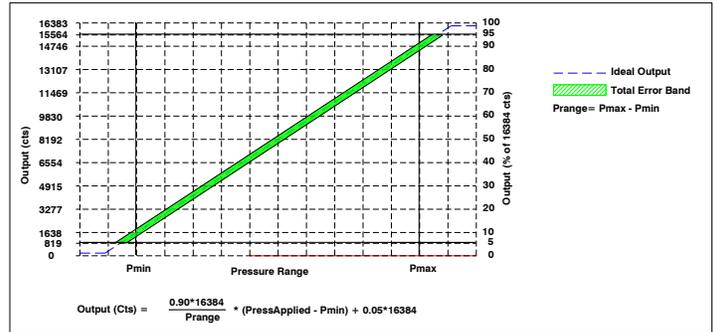
Reference Conditions: Vsupply: 3.30Vdc or 5.00, Ta=25 °C, Positive Pressure Port A

1. All specification at reference conditions unless otherwise noted.
2. Maximum deviation from a Best Fit Straight Line through Pmin and Pmax measured at 25 °C. Errors included Pressure Non Linearity, Pressure Hysteresis and Repeatability.
3. Maximum deviation from the Ideal Transfer Function expressed as a percentage of the %FSS over the compensated temperature range. Includes calibration errors (Offset & Span), temperature errors (Offset & Span), pressure non-linearity, pressure and thermal hysteresis. TEB Errors for mBar Ranges below
4. The time for the output DAC to be updated with new data.
5. The time for the output DAC to have valid data after a power on reset.
6. Compensated and operating temperature for mBar ranges are 0 °C to 60 °C and -20 °C – to 105 °C, respectively.
7. Maximum pressure the sensor package can withstand without rupture.
8. Maximum pressure without degrading sensor’s performance specifications.
9. Maximum pressure the silicon diaphragm can withstand without rupture.
10. Exceeding Absolute Maximum Specification may damage the device. Extended exposure beyond the operating conditions may affect device reliability.

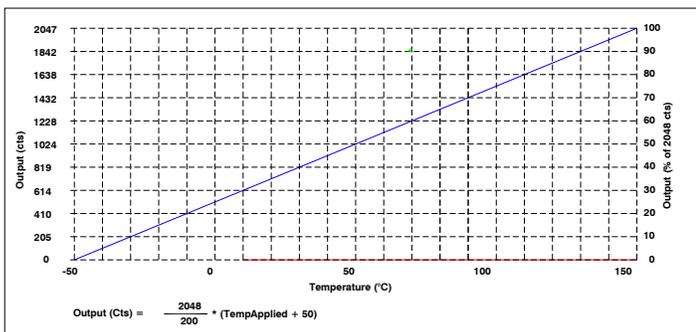
PRESSURE AND TEMPERATURE TRANSFER FUNCTIONS



Type 1, 10-90%, Pressure Transfer Function



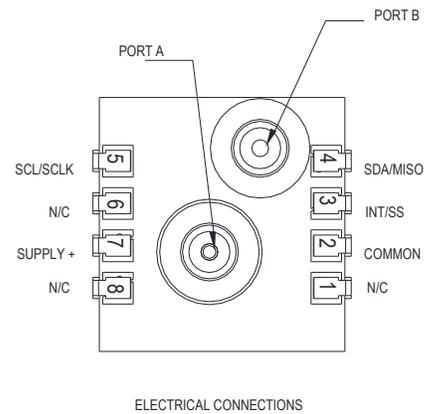
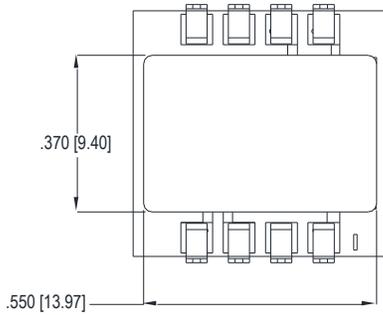
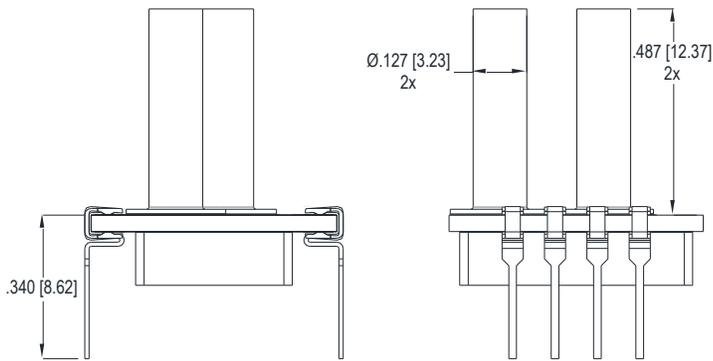
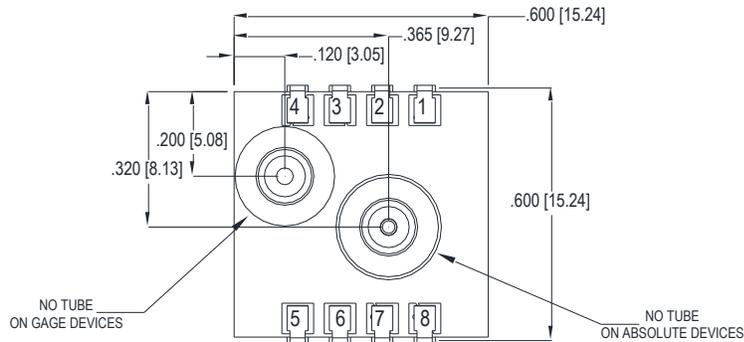
Type 2, 5-95%, Pressure Transfer Function



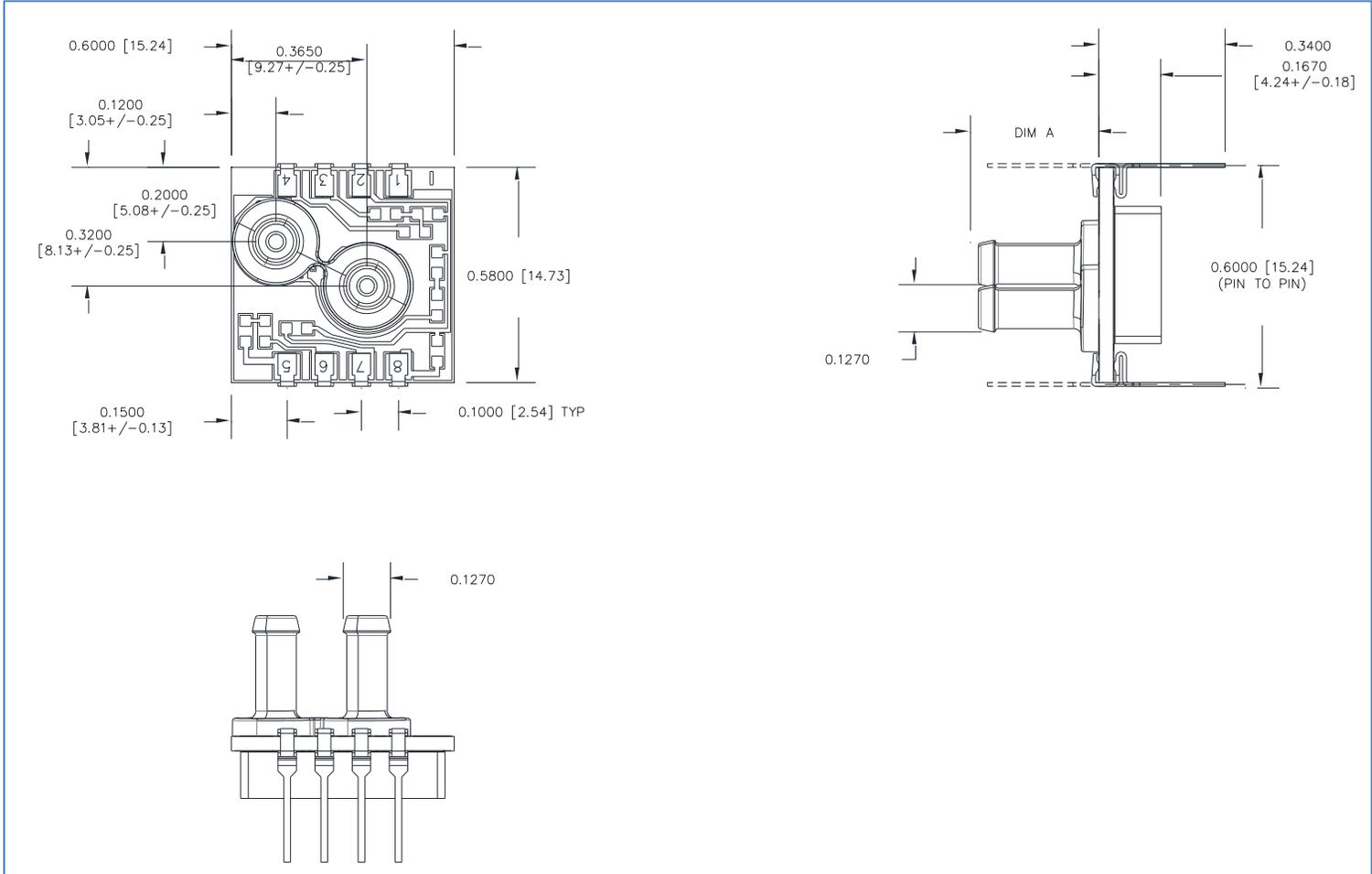
Temperature Transfer Function

ELECTRICAL PINOUT & MECHANICAL DIMENSIONS in [mm]

SM58 Series



TOP BARB



PART NUMBERING FOR ORDERS

Series	Port Type	Package Style Pin Orientation	Pressure Range	Pressure Units	Pressure Type (Range Availability) [Package Availability]	Calibrated Voltage	Output Type	Digital Protocol	Options	
MCT- SM58D	VTD=Vertical Tube, Dual	T1= DIL Thru Hole, Pins Down	005	M=mBar	G= Gage (All Ranges) [VTS Port Types]] A=Absolute (15 PSI Range & above, 1 Bar Ranges & above) [VTS Port Types] B=Bidirectional (All Ranges) [VTD/ VBD Port Types]	3=3.3Vdc	Type1= 10 -90% of Counts (16384)	I1=I2C, 0x28H I2=I2C, 0x38H I3=I2C, 0x48H [All Packages]	-L =Low Power -G =Gel Coat	
			010							
			020							
	VTS=Vertical Tube, Single	T3= DIL Thru Hole, Pins Up	050	I=inH2O		004	5=5.0Vdc	Type2= 5 -95% of Counts (16384)		S1=SPI [All Packages]
			100							
			200							
	VBD=Vertical Barb, Dual			004		P=PSI				
				005						
				010						
				020						
				030						
				001						
				002						
				005						
				015						
030										
050										
100										
150										

Part Number Example: MCT-SM58D VTD T1 005PB31S1

Vertical Tube Dual, Thru Hole Leaded Package, Pins Down, -5 to +5 PSI Range, 3.3Vdc Supply, SPI Protocol, Pmin=-5, Pmax=+ 5 PSI , Output 1638 to 14746 cts

WARRANTY

Pressure sensors have a limited one-year warranty to the original purchaser. AVSensors will repair or replace, at its option, without charge those items it finds defective. This is the buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall AVSensors be liable for consequential, special, or indirect damages. This warranty does not apply to units that have been modified, misused, neglected or installed where the application exceeds published ratings. Specifications may change without notice. The information supplied is believed to be accurate and reliable as of this printing, however, we assume no responsibility for its use.