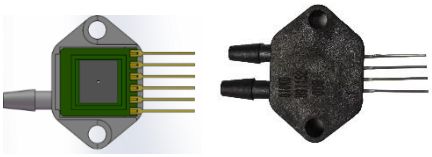
AV Sensors
AdVanced Sensor Design and Manufacture

MCT-MPX SERIES

The MCT-MPX Series
Single In Line Package (SIL & DIL)
High Level Analog Output
3.3 & 5.0 Vdc Supply Voltages
Direct Replacement for Motorola MPX



DESCRIPTION

Advanced Sensors Multi Chip Technology (MCT) MPX Series was designed as a drop in replacement for Motorola MPX Unibody (Case 867) series of pressure transducers. The design incorporates the latest mixed signal ASIC (Application Specific Integrated Circuit) with a bonded silicon gage to provide a high level analog output for medical, life science and pneumatic control industries. The designs superior performance provides 2% Total Error across a wide temperature range of -0 to 60˚C. The MCT-MPX series is the ideal choice for OEM customers needing a direct replacement of Motorola MPX Series.

APPLICATIONS

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

FEATURES

- Replacement for MPX Unibody Ratiometric, Analog Voltage Output
- 0.2 to 4.7Vdc Ratiometric Output (Type M)
- 3.3 & 5.0Vdc Supply Voltages
- Low Overall Errors, 2%TEB
- Ports In Line with Pin Connections
- Custom Outputs and Ranges Available
- Low Power Options

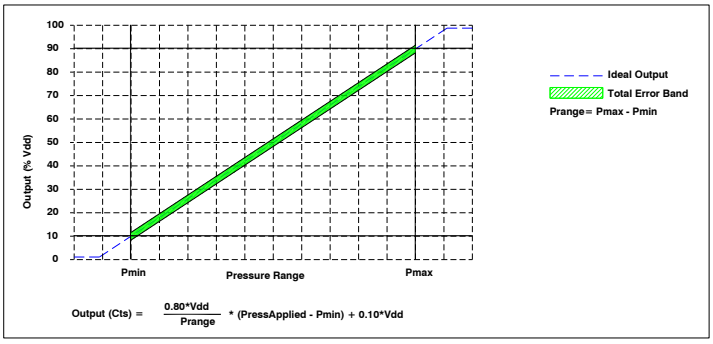
SPECIFICATIONS	Symbol	Min	Typical	Max	Unit	Note
Performance Specifications						
Supply Voltage		2.7V	3.3	5.50	V	
Current Consumption				3	mA	
Current Consumption, -L Option			0.25		mA	
Pressure Accuracy		-0.25		0.25	%FSS	2
Total Error Band,	TEB	-2.00		2.00	%FSS	3
Total Error Band, Below 6mBar to 1.25mBar	TEB	-3.00		3.00	%FSS	3
Output DAC Resolution				12	bits	
Output (Type M) at Pmin			4		%Vdd	
Output (Type M) at Pmax			94		%Vdd	
Output (Type 1) at Pmin			10		%Vdd	
Output (Type 1) at Pmax			90		%Vdd	
Conversion Time			0.46		mS	4
Power On to Valid Data				<10	mS	5
Weight				3	grams	
Compensated Temperature		-0 to 60			˚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		-40		125	˚C	6
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		FR4, RTV, Epoxy, Silicon, Gold, Aluminum, PPS				

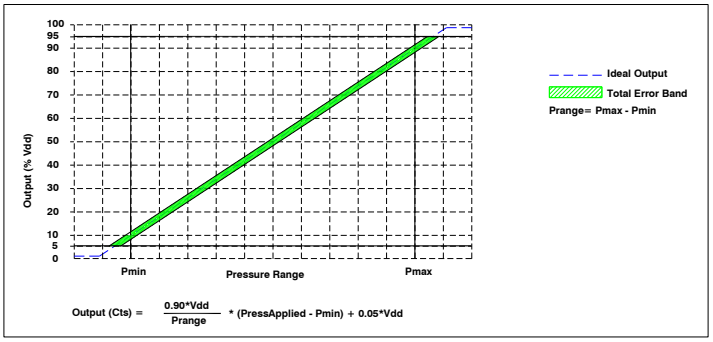
Reference Conditions: Vsupply: 3.30Vdc or 5.00, Ta=25˚C, Positive Pressure Port A

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.
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, operating and storage temperatures for mBar/inH20 ranges are 0˚C to 60˚C, -10˚C to 85˚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.
11. Enabled Diagnostic option will clip the output voltage at 5% and 95% of supply voltage. Output will remain within 2.5% of the supply rails when the diagnostic is triggered.
12. Switch Port option will change the Positive Pressure Port to B on dual pressure port configurations (VHD, HBD).
13. Potted Gel option will use a two piece port design having the same dimensions and made from the same material.

PRESSURE TRANSFER FUNCTIONS



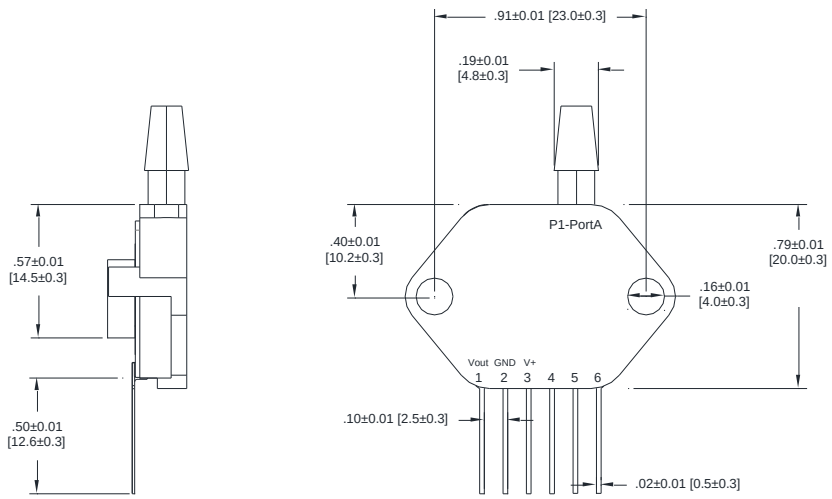
Type 1, 10-90%, Pressure Transfer Function



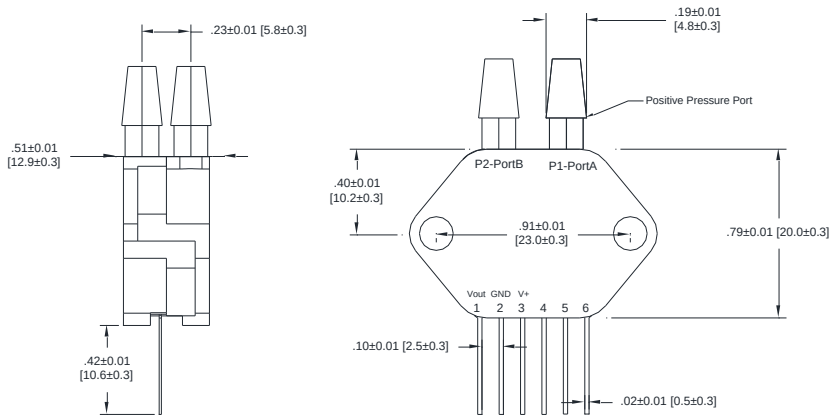
Type 2, 5-95%, Pressure Transfer Function

MECHANICAL DIMENSIONS in [mm]

GAGE/ABSOLUTE CONFIGURATION
HBS PORT TYPE



DIFFERENTIAL CONFIGURATION
HBD PORT TYPE



PART NUMBERING FOR ORDERS

Series	Port Type	Package	Pressure Range	Pressure Units	Pressure Type (Range Availability) [Package Availability]	Calibrated Voltage	Output Type	Options
MCT-MPX	HBS=Horizontal Barb, Single HBD=Horizontal Barb, Dual	S=Singe In Line	005 010 020 050 100 200	M=mBar	G= Gage (All Ranges) [HBS Port Styles] A=Absolute (15 PSI Range & above,) [HBS Port Styles] B=Bidirectional (All Ranges) [HBD Port Styles]	3=3.3Vdc 5-5.0Vdc	Type1= 10 -90% of Supply Voltage Type2= 5 -95% of Supply Voltage Type M= Motorola 4-94% of Supply Voltage 0.2 to 4.7Vdc Vs=5	-L Low Power -PG Potted Gel
			001 002 005 015 030 050 100 150	P=PSI				
			100 350 700	K=Kpa				
			0.5 001 002 004 010	I=inH20				

Part Number Example: MCT-MPX HBSS 100KG5M **Horizontal Barbed Single Port, Single In Line Pin Style, 0 to 100Kpa G Range, 5.0Vdc Supply, Pmin=0 KpaG, Pmax=+ 100KpaG,Output Type M (0.2 to 4.7 Vdc)**

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 buyers 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.