

**MDS-2500 series (Preliminary)  
Digital Pressure Sensor**

■ **Features**

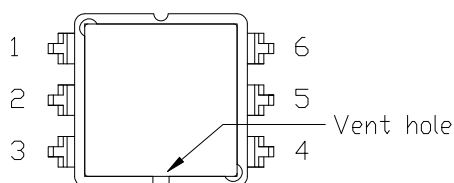
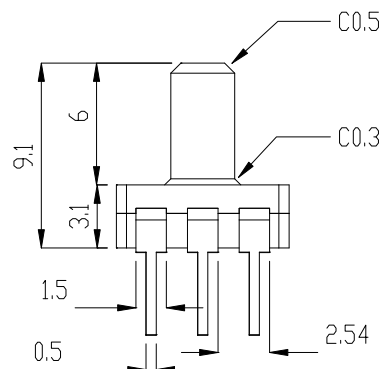
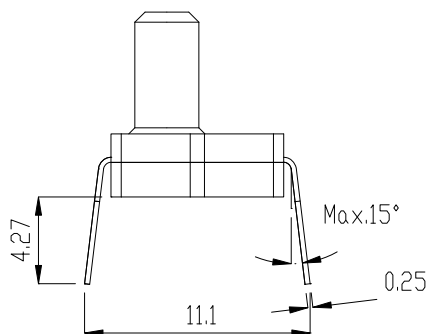
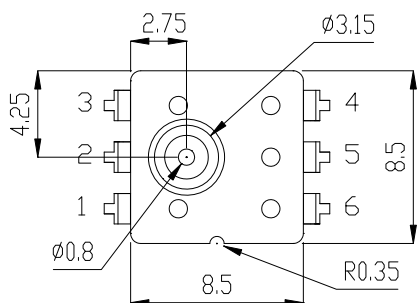
- Factory calibrated and temperature compensated
- $\pm 2\%$ FS pressure accuracy (0 to 85°C)
- I2C or SPI digital interface
- Gauge pressure type
- Pressure range: 1, 5.8, 15, 30 psi

■ **Applications**

- Industry control
- Medical instrumentation
- Pressure switch
- Hospital bed
- Pump control

The MDS-2500 is a intelligent pressure sensor which consist of a MEMS piezoresistive pressure sensor and a CMOS sensor interface IC. The interface IC enables easy and precise calibration of resistive bridge sensors via EEPROM. It correct digitally offset、gain and both temperature coefficients. All devices were factory calibrated and temperature compensated. Using MDS-2500 series is easy to get rid of bothersome calibrations and temperature compensations. The MDS-2500 can provide I2C or SPI digital interface.

■ **Outline Dimensions**



Unit: mm

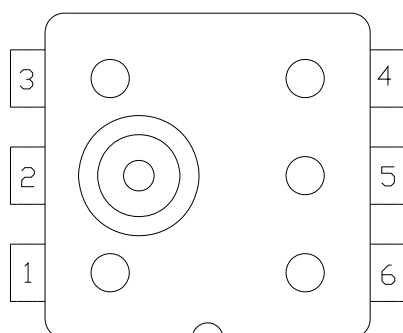
## ■ Specifications

Parameter	Min	Typ	Max	Units	Notes
<b>1. Absolute Maximum Ratings</b>					
Supply Voltage ( $V_{DD}$ )	-0.3		6.0	V	
Maximum Overpressure			2X	Rated pressure	
Storage Temperature Range	-40		125	°C	
Operating Temperature Range	-40		85	°C	
Operating humidity	15		85	% RH	No condensation
Media Compatibility	Clean, dry air & non-corrosive gases				
<b>2. Recommended Operating Conditions</b>					
Pressure Range				mbar	
Supply Voltage ( $V_{DD}$ )	4.75	5	5.25	V	
External Capacitance between Vdd and Gnd	100	220	470	nF	
Pull-up on SDA and SCL	1			k $\Omega$	
<b>3. Electrical characteristic<sup>(1)</sup></b>					
Power-on-Reset Level	1.6		2.1	V	
Power Supply Rejection Ratio	60			dB	
<b>Analog to Digital Converter</b>					
Resolution		14		Bit	
Integral Nonlinearity	-4		+4	LSB	
Differential Nonlinearity	-1		+1	LSB	
<b>I2C &amp; SPI Interface</b>					
Voltage Level Low		0	0.2	$V_{DD}$	
Voltage Level High	0.8	1		$V_{DD}$	
<b>Total System</b>					
Frequency Variation			$\pm 10$	%	
Start-Up-Time (Power-up to data ready)		6		ms	
Response time		1.62		ms	
Supply Current	0.15	2	2.5	mA	2
Sleep Mode Current		2		$\mu A$	
Pressure accuracy			$\pm 2$	%FS	0~85°C
Temperature Sensor Resolution		0.1		°C	
Notes :					
1. Unless otherwise specified, measurements were taken with a supply voltage of 5 Vdc at a temperature of 25 $\pm$ 3°C and humidity ranging from 25% ~85% .					
2. The update rate is selectable. (Please contact the factory for further information )					
Metrodyne Microsystem Corp. reserves the right to make changes to the product specification in this publication.					

## ■ Ordering Information

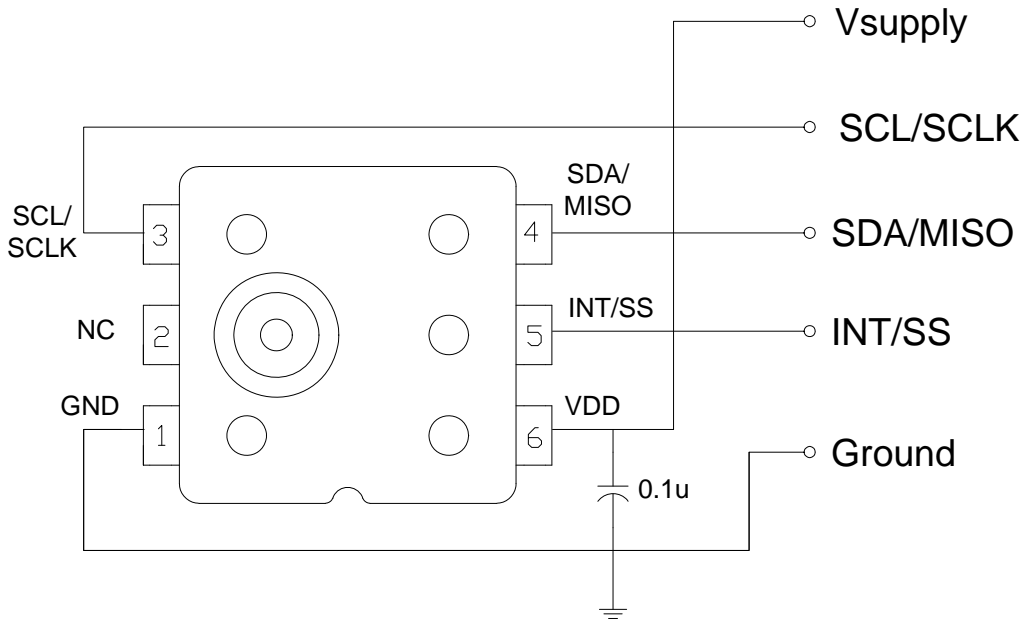
Part No.	Pressure type	Pressure range	Digital interface	Note
MDS-2500-001GI	Gauge	1 PSI	I2C	
MDS-2500-001GS	Gauge	1 PSI	SPI	
MDS-2500-006GI	Gauge	5.8 PSI	I2C	
MDS-2500-006GS	Gauge	5.8 PSI	SPI	
MDS-2500-015GI	Gauge	15 PSI	I2C	
MDS-2500-015GS	Gauge	15 PSI	SPI	
MDS-2500-030GI	Gauge	30 PSI	I2C	
MDS-2500-030GS	Gauge	30 PSI	SPI	

## ■ Pin configurations

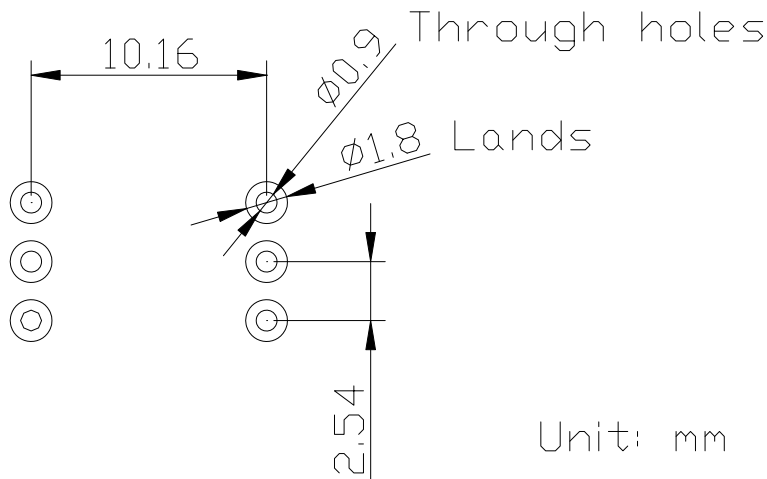


Pin No.	Name	Description
1	GND	Ground supply
2	NC	No connection
3	SCL/SCLK	I2C clock if in I2C Mode Serial clock if in SPI Mode
4	SDA/MISO	I2C data if in I2C Mode Master-In-Slave-Out if in SPI Mode
5	INT/SS	Interrupt signal (conversion complete output) if in I2C Mode Slave Select (input) if in SPI Mode
6	VDD	Supply voltage

■ **Application Circuit Examples**



■ **Recommended Footprint**



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