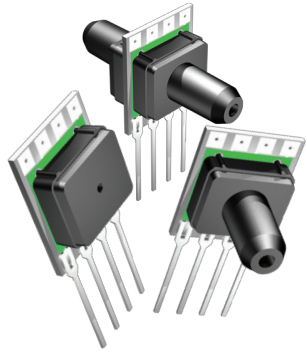


Miniature Pressure Sensors

Prime Grade
Pressure Sensors



Features

- 0 to 0.3 PSI to 0 to 100 PSI Pressure Ranges
- Highest accuracy version
- Temperature Compensated
- Calibrated Zero and Span

Applications

- Medical Instrumentation
- Environmental Controls
- HVAC

General Description

The Miniature series pressure sensors are based upon a proprietary technology to reduce the size of the sensor and yet maintain a high level of performance. This model provides a calibrated millivolt output with superior output characteristics. In addition the sensor utilizes a silicon, micromachined, stress concentration enhanced structure to provide a very linear output to measured pressure.

These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. The PRIME GRADE is the highest accuracy version of the millivolt output pressure sensors.

The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage.

Pressure Sensor Characteristics Maximum Ratings

Supply Voltage, V_s	16 Vdc
Common-mode pressure	50 psig
Lead Temperature (soldering 2-4 sec.)	270°C

Environmental Specifications

Temperature Ranges	
Compensated	0 to 70° C
Operating	-25 to 85° C
Storage	-40 to 125° C
Humidity Limits	0 to 95% RH (non condensing)

Approvals

MKT	DATE	MFG	DATE	ENG	DATE	QA	DATE
☐ As Is ☐ With Change		☐ As Is ☐ With Change		☐ As Is ☐ With Change		☐ As Is ☐ With Change	

All Sensors

DS-0110 Rev E

all sensors

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Standard Pressure Ranges

No Pressure Port: CFNS	Single Pressure Port: CPNS	Dual Pressure Port: CPPS		
Part Number	Part Number	Part Number	Operating Pressure	Proof Pressure
0.3 PSI-G-PRIME-MINI	0.3 PSI-GF-PRIME-MINI	0.3 PSI-D-PRIME-MINI	0 to 0.3 PSI	3 PSI
10 INCH-G-PRIME-MINI	10 INCH-GF-PRIME-MINI	10 INCH-D-PRIME-MINI	0 to 10 inH ₂ O	5 PSI
1 PSI-G-PRIME-MINI	1 PSI-GF-PRIME-MINI	1 PSI-D-PRIME-MINI	0 to 1 PSI	10 PSI
5 PSI-G-PRIME-MINI	5 PSI-GF-PRIME-MINI	5 PSI-D-PRIME-MINI	0 to 5 PSI	20 PSI
15 PSI-A-PRIME-MINI	15 PSI-AF-PRIME-MINI		0 to 15 PSIA	60 PSIA
15 PSI-G-PRIME-MINI	15 PSI-GF-PRIME-MINI	15 PSI-D-PRIME-MINI	0 to 15 PSI	60 PSI
30 PSI-A-PRIME-MINI	30 PSI-AF-PRIME-MINI		0 to 30 PSIA	60 PSIA
30 PSI-G-PRIME-MINI	30 PSI-GF-PRIME-MINI	30 PSI-D-PRIME-MINI	0 to 30 PSI	60 PSI
100 PSI-A-PRIME-MINI	100 PSI-AF-PRIME-MINI		0 to 100 PSIA	150 PSIA
100 PSI-G-PRIME-MINI	100 PSI-GF-PRIME-MINI		0 to 100 PSI	150 PSI

Performance Characteristics for: 0.3 PSI-G-PRIME-MINI , 0.3 PSI-GF-PRIME-MINI , 0.3 PSI-D-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	19.0	20.0	21.0	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.1	0.25	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 10 INCH-G-PRIME-MINI , 10 INCH-GF-PRIME-MINI , 10 INCH-D-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	19.0	20.0	21.0	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.1	0.25	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 1 PSI-G-PRIME-MINI , 1 PSI-GF-PRIME-MINI , 1 PSI-D-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	17.82	18.0	18.18	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.1	0.25	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 5 PSI-G-PRIME-MINI , 5 PSI-GF-PRIME-MINI , 5 PSI-D-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	59.4	60.0	60.6	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.1	0.25	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 15 PSI-A-PRIME-MINI , 15 PSI-AF-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	89.1	90.0	90.9	mV
Offset Voltage @ zero absolute pressure	--	--	±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.1	0.3	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 15 PSI-G-PRIME-MINI , 15 PSI-GF-PRIME-MINI , 15 PSI-D-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	89.1	90.0	90.9	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.15	0.30	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 30 PSI-A-PRIME-MINI , 30 PSI-AF-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	89.1	90.0	90.9	mV
Offset Voltage @ zero absolute pressure	--	--	±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.15	0.30	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS



Performance Characteristics for: 30 PSI-G-PRIME-MINI , 30 PSI-GF-PRIME-MINI , 30 PSI-D-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	89.1	90.0	90.9	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.15	0.30	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 100 PSI-A-PRIME-MINI, 100 PSI-AF-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	99.0	100.0	101.0	mV
Offset Voltage @ zero absolute pressure	--	--	±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.15	0.30	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Performance Characteristics for: 100 PSI-G-PRIME-MINI , 100 PSI-GF-PRIME-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Output Span, note 4	99.0	100.0	101.0	mV
Offset Voltage @ zero differential pressure	--	--	±0.3	mV
Offset Temperature Shift (0°C-70°C), note 2	--	--	±250	uV
Linearity, hysteresis error, note 3	--	0.15	0.30	%FSS
Span Temperature Shift (0°C-70°C), note 2	--	--	±1.0	%FSS

Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 12.0 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE APPLIED TO PORT B.

NOTE 2: SHIFT IS RELATIVE TO 25°C.

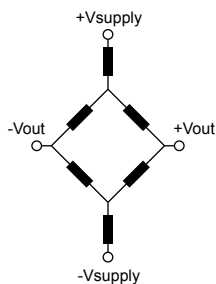
NOTE 3: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

NOTE 4: THE SPAN IS THE ALGEBRAIC DIFFERENCE BETWEEN FULL SCALE OUTPUT VOLTAGE AND THE OFFSET VOLTAGE.

Pressure Response: for any pressure applied the response time to get to 90% of pressure applied is typically less than 100 useconds.

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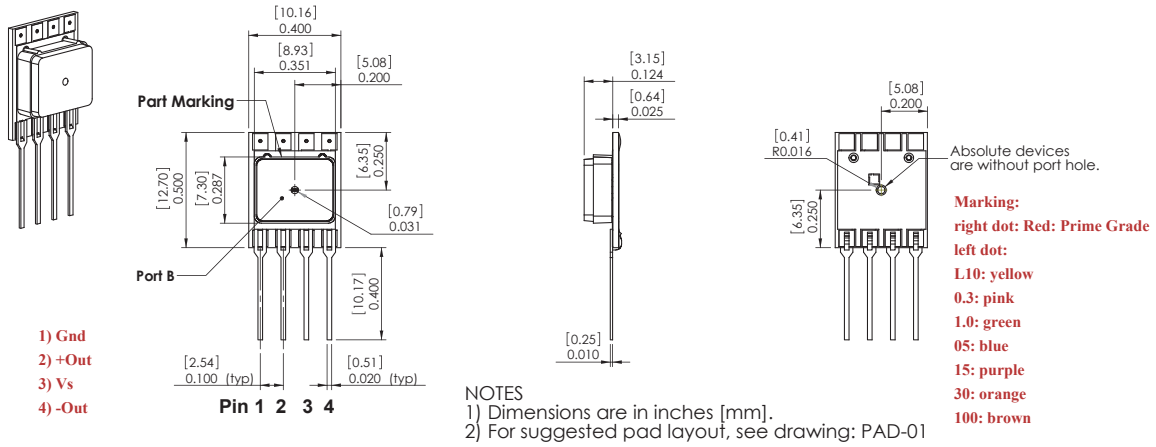
Equivalent Circuit



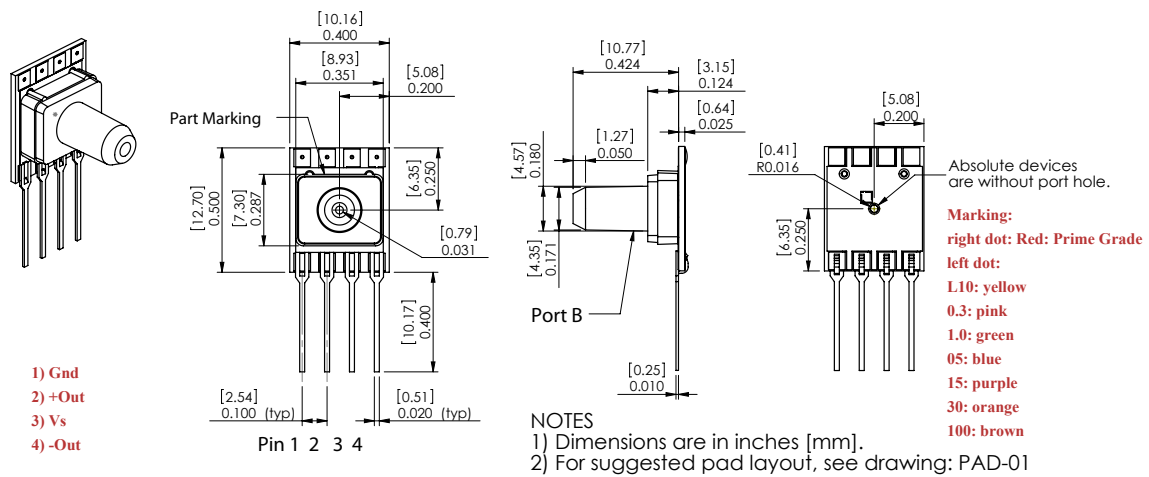
Input Resistance 5.0 k ohm
Output Resistance 3.0 k ohm

Packages

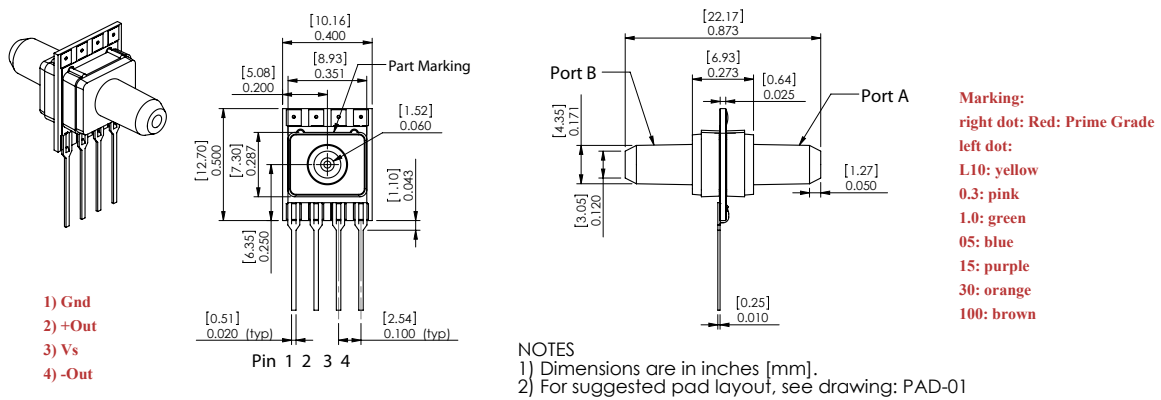
CFNS Package



CPNS Package



CPPS Package



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