

## Silicon Pressure Sensors

Uncompensated/Compensated  
and Compensated Calibrated

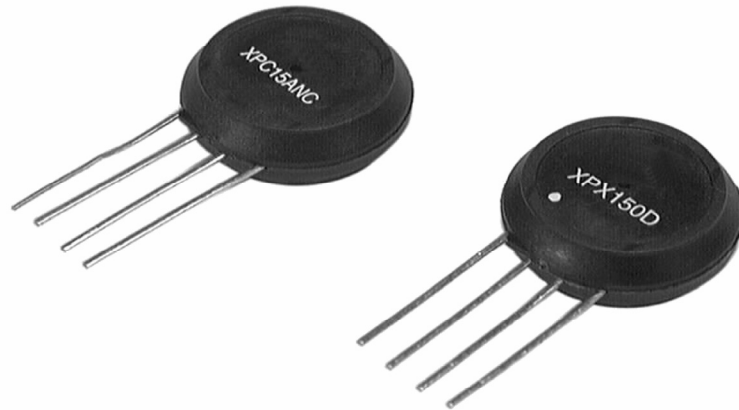
*XPC, XPCL,  
XPX, XPXL Series*

### FEATURES

- Low Cost, Small Size
- Temperature Compensated
- Zero and Span Calibrated
- Millivolt Output
- Differential, Gage and Absolute Pressure
- Constant Voltage Excitation
- High Impedance - Low Current

### TYPICAL APPLICATIONS

- Medical Applications
- Applications Requiring Small Size
- Applications Requiring Vacuum and Positive
- Pressure Reference, or Both



### GENERAL DESCRIPTION

The XPC/XPCL and XPX/XPXL Series sensors integrate silicon micromachined sensing technology, temperature compensation, and calibration in a complete family of low cost packages. This series offers the most cost-effective solution for design requirements.

These piezoresistive pressure sensors use micromachined silicon chips mounted on a ceramic and protected with a plastic cap. Several tube arrangements with nylon housings are available for various pressure applications.

On devices of 5 psi and above, the topside of the chip is protected against humidity by a Silgel coating. While the sensors are designed for use with noncorrosive, nonionic pressure media, they accommodate many gases that are used in medical applications.

### **⚠ WARNING**

#### **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **⚠ WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

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## ELECTRICAL SPECIFICATIONS

	XPC and XPCL @ 12 Vdc, 25 °C [77 °F]			XPX and XPXL @ 5 Vdc, 25 °C [77 °F]			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Excitation Voltage	3.0	12.0	16.0	3.0	5.0	12.0	Vdc
Null	-1.0	0	1.0	-50	0	50	mV
Offset Temperature Shift 0 °C to 70 °C [32 °F to 158 °F]**	--	--	±1.0	--	±0.5	--	mV
Full Scale Temperature Shift 0 °C to 70 °C [32 °F to 158 °F] <sup>1</sup>	--	--	±2	--	-2050 PPM/°C	--	% Span
Linearity, Hysteresis Error <sup>2</sup>	--	0.25	1.0	--	0.25	1.0	% Span
Input Resistance	5.0	--	--	5.0	--	--	kΩ
Output Resistance	--	3.0	--	--	3.0	--	kΩ
Operating Temperature	-25 [-13]	--	85 [185]	-25 [-13]	--	85 [185]	°C [°F]
Storage Temperature	-40 [-40]	--	125 [257]	-40 [-40]	--	125 [257]	°C [°F]
Common Mode Pressure	--	--	50	--	--	50	psi
Weight	--	2	--	--	2	--	gram

Note 1: Shift is relative to 25 °C [77 °F]

Note 2: Measured at 1/2 full scale rated pressure using BFSL

## ABSOLUTE OUTPUT

FS Pressure	XPC@ 12 Vdc, 25 °C [77 °F] Output Full Scale Span, (mV)			XPX @ 5 Vdc, 25 °C [77 °F] Output Full Scale Span, (mV)			Overpressure (Psi)
	Min.	Typ.	Max.	Min.	Typ.	Max.	Max.
5 psi	57	60	63	112	168.5	225	15
15 psi	85	90	95	168	253	338	45
30 psi	85	90	95	168	253	338	90
60 psi	85	90	95	189	263.5	338	180
100 psi	95	100	105	210	295	380	250

## GAGE/DIFFERENTIAL<sup>1</sup> OUTPUT

FS Pressure	XPC and XPCL @ 12 Vdc, 25 °C [77 °F] Output Full Scale Span, (mV)			XPX and XPXL @ 12 Vdc, 25 °C [77 °F] Output Full Scale Span, (mV)			Overpressure (Psi)
	Min.	Typ.	Max.	Min.	Typ.	Max.	Max.
4 in H <sub>2</sub> O	23	25	27	50	68	86	3
10 in H <sub>2</sub> O	19	20	21	40	78.5	112	3
1 psi	17	18	19	40	75	110	3
5 psi	57	60	63	112	168.5	225	15
15 psi	85	90	95	168	253	338	45
30 psi	85	90	95	168	253	338	90
60 psi	85	90	95	189	263.5	338	180
100 psi	95	100	105	210	295	380	250
150 psi	85	90	95	187	262.5	338	250

Note 1: Differential common mode pressure should not exceed 50 psi

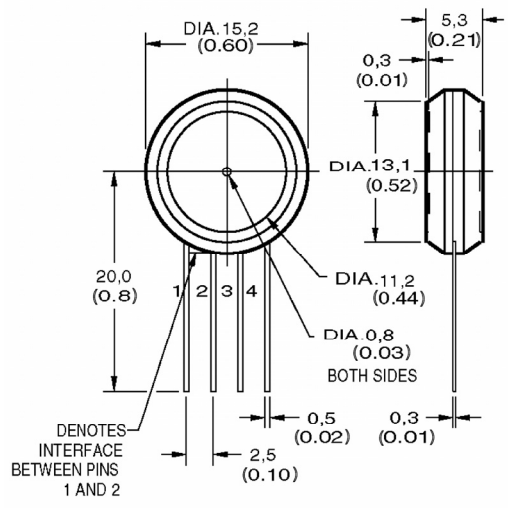
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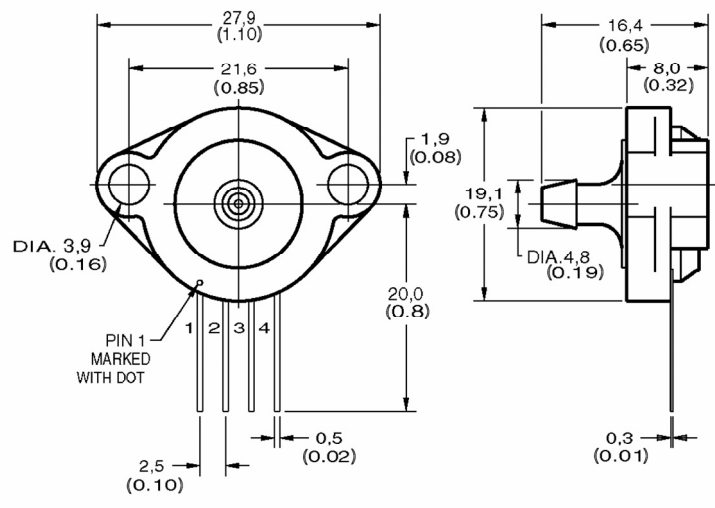
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PHYSICAL DIMENSIONS for reference only mm (in)

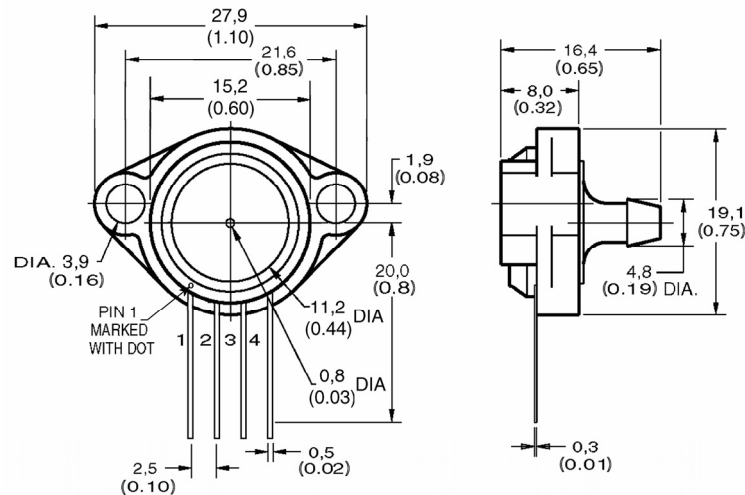
D/A Housing (Differential/Absolute)



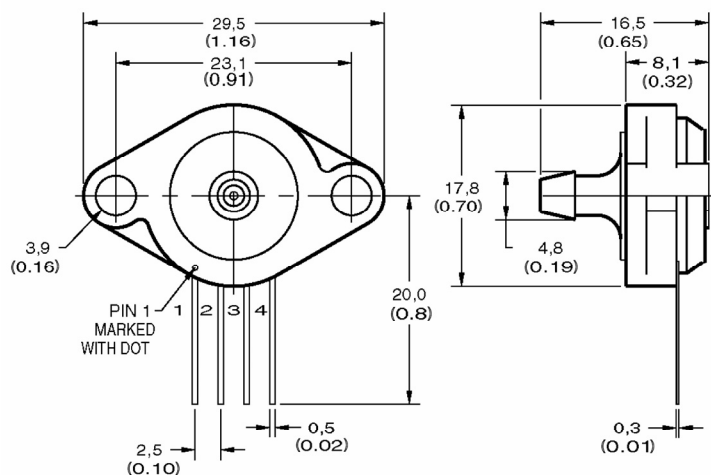
GFS/AFS Housing (Gage/Absolute Offset Axial)



GBFS Housing (Gage Backside Offset Axial)



GF/AF Housing (Gage/Absolute Axial)

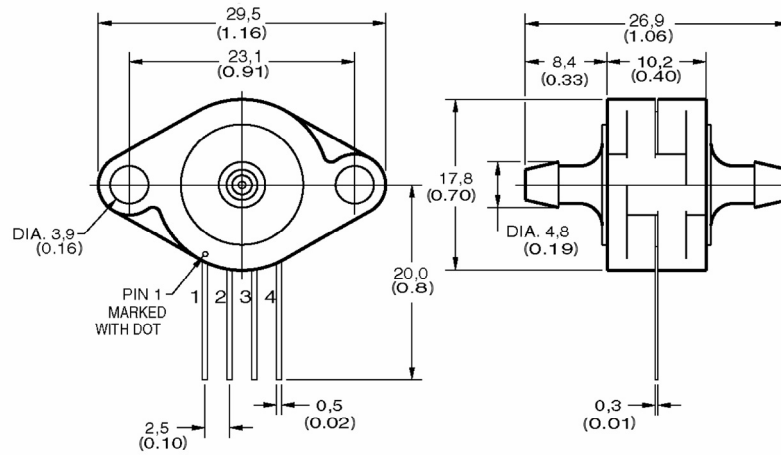


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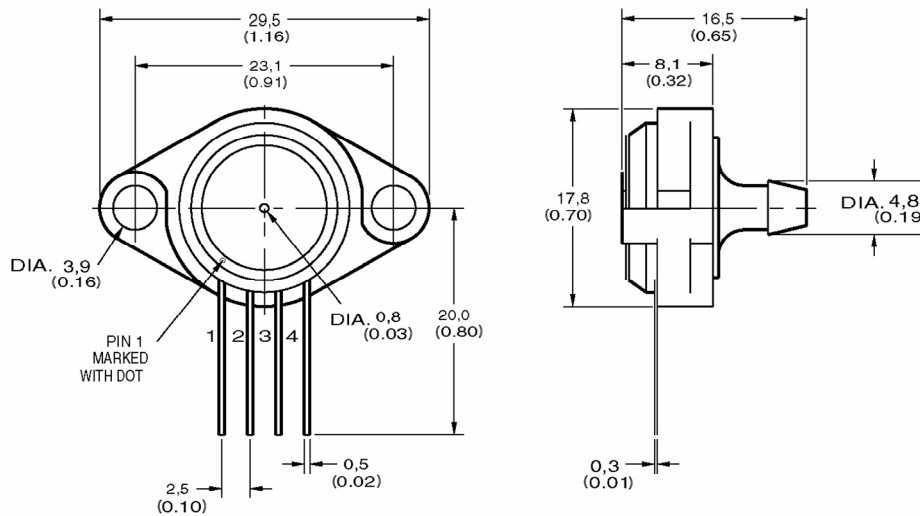
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**DF Housing (Differential Axial)**



**GBF Housing (Gage Backside Axial)**



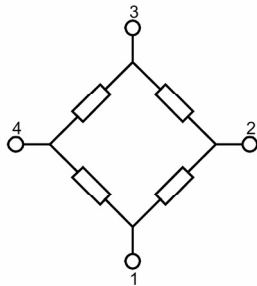


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## EQUIVALENT CIRCUIT



### Pinout

1. -V Excitation
2. + Output Signal
3. +V Excitation
4. - Output Signal

### Media Compatibility

Clean, dry gases only

**P1 Port:** Media must be compatible with epoxy based adhesive and silicon gel.

**P2 Port:** Media must be compatible with nylon housing, epoxy based adhesive and silicon.

## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. **The foregoing is 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.**

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### Sensing and Control

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