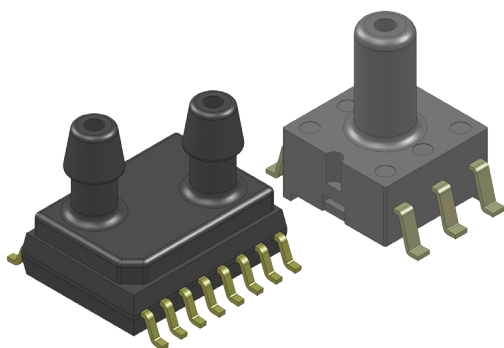


BLC SERIES LOW PRESSURE COMPACT SENSORS



Features

- 0 to 1 inH₂O to 0 to 30 inH₂O and 15 PSIA Pressure Ranges
- uPower Low Supply Voltage (0.9V to 1.8V)
- 0.1% Linearity Typical
- Improved Front to Back Linearity
- Less Position Sensitivity
- Improved Warm-Up Shift Distribution
- Parylene Coating Available Upon Request

Applications

- Medical Instrumentation
- Environmental Controls
- HVAC
- Portable / Hand Held Devices

General Description

The BLC Series Basic Low Pressure Compact Sensor is based on All Sensors' CoBeam²™ Technology. The device provides a high output signal at a low operating voltage and reduces the overall supply voltage while maintaining comparable output levels to traditional equivalent basic sensing elements. This lower supply voltage gives rise to improved warm-up shift while the CoBeam² Technology itself reduces package stress susceptibility resulting in improved overall long term stability. The technology also vastly improves position sensitivity compared to conventional single die devices.

This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. The output is also ratio-metric to the supply voltage and is operable from 0.9 to 1.8 volts DC.

Standard Pressure Ranges

Device	Operating Range	Proof Pressure	Burst Pressure
BLC-L01D	±1 inH ₂ O (250 Pa)	100 inH ₂ O (25 KPa)	150 inH ₂ O (37 KPa)
BLC-L05D	±5 inH ₂ O (1,250 Pa)	200 inH ₂ O (50 KPa)	300 inH ₂ O (75 KPa)
BLC-L10D	±10 inH ₂ O (2,500 Pa)	200 inH ₂ O (50 KPa)	300 inH ₂ O (75 KPa)
BLC-L20D	±20 inH ₂ O (5,000 Pa)	200 inH ₂ O (50 KPa)	500 inH ₂ O (125 KPa)
BLC-L30D	±30 inH ₂ O (7,500 Pa)	200 inH ₂ O (50 KPa)	800 inH ₂ O (200 KPa)
BLC-015A	0 to 15 PSIA (1 barA)	60 PSI (4 barA)	120 PSI (8 barA)

Pressure Sensor Maximum Ratings

Supply Voltage (Vs)	3 Vdc
Common Mode Pressure	5 psig
Lead Temperature (soldering 2-4 sec.)	270 °C

Environmental Specifications

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

DS-0353 REV F

Performance Characteristics for BLC Series

LL PARAMETERS ARE MEASURED AT 1.8V EXCITATION AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE APPLIED PORT B (THE ONLY PORT FOR THE SINGLE PORT CONFIGURATION.)

Parameter	Min	Typ	Max	Units	Notes
Output Span (FSS)					4
L01D	4.5	8.0	11.5	mV	
L05D	13.5	24.0	34.5	mV	
L10D	18.0	32.0	46.0	mV	
L20D	22.0	38.0	55.0	mV	
L30D	25.0	42.0	60.0	mV	
015A	70.0	95.0	120.0	mV	
Offset Voltage					-
L01D, L05D, L10D, L20D, L30D (@ Zero Diff. Pressure)	-	-	±10.0	mV	
015A (@ 0 PSIA)	-	-	±10.0	mV	
Offset Temperature Shift (0°C-70°C)	-	±30.0	-	μV/°C	1
Offset Warm-up Shift	-	±30.0	-	μV	2, 6
Offset Position Sensitivity (1g)	-	±20.0	-	μV	-
Linearity, Hysteresis Error	-	0.10	±0.50	%FSS	3
Response Time (10% to 90% Pressure Response)	-	100	-	μS	-
Front to Back Linearity	-	0.25	-	%FSS	5
Temperature Effect on Resistance (0°C-70°C)	-	2800	-	ppm/°C	-
Temperature Effect on Span (0°C-70°C)	-	-2000	-	ppm/°C	-
Input Resistance	-	3.4	-	kΩ	-
Output Resistance	-	3.4	-	kΩ	-

Specification Notes

NOTE 1: SHIFT IS RELATIVE TO 25°C.

NOTE 2: SHIFT IS WITHIN THE FIRST HOUR OF EXCITATION APPLIED TO THE DEVICE.

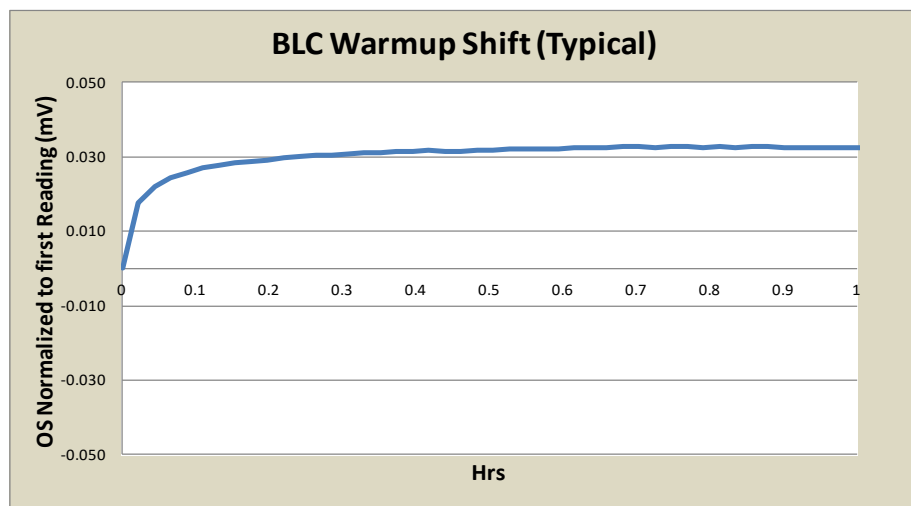
NOTE 3: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

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

$$Lin_{FB} = \left(\frac{Span_{PortB}}{Span_{PortA}} - 1 \right) \cdot 100\%$$

NOTE 5: FRONT-BACK LINEARITY COMPUTED AS:

NOTE 6: TYPICAL WARM UP OF CHARACTERISTICS AS SHOWN BELOW.

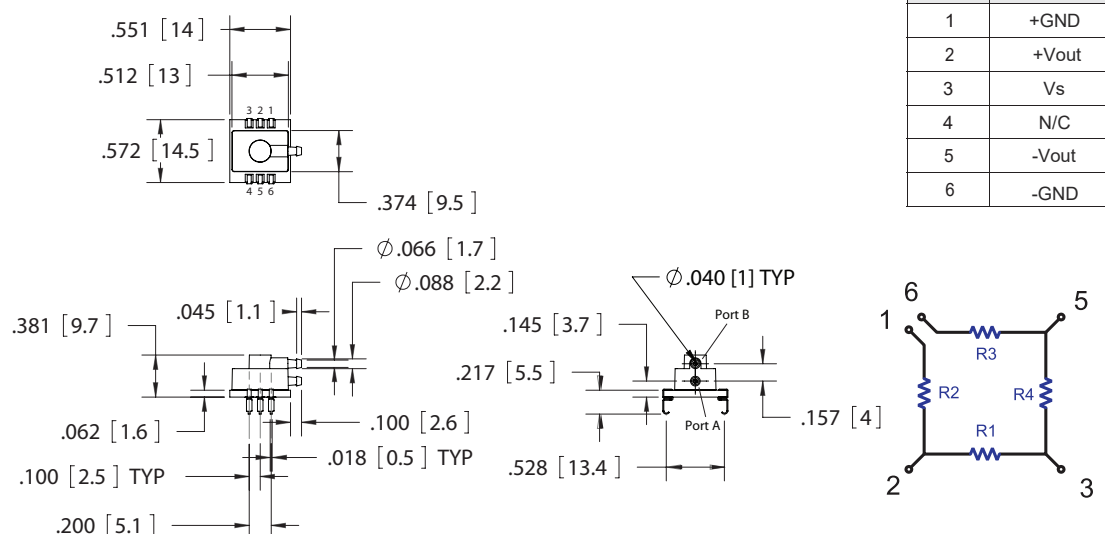


Soldering Recommendations

- 1) Solder parts as a second operation only.
- 2) Post reflow, wait for 36 hrs before performing any calibration operations.
- 3) Perform spot cleaning as necessary only by hand. DO NOT wash or submerge device in cleaning liquid.

Package Drawings

D1 Package



NOTES

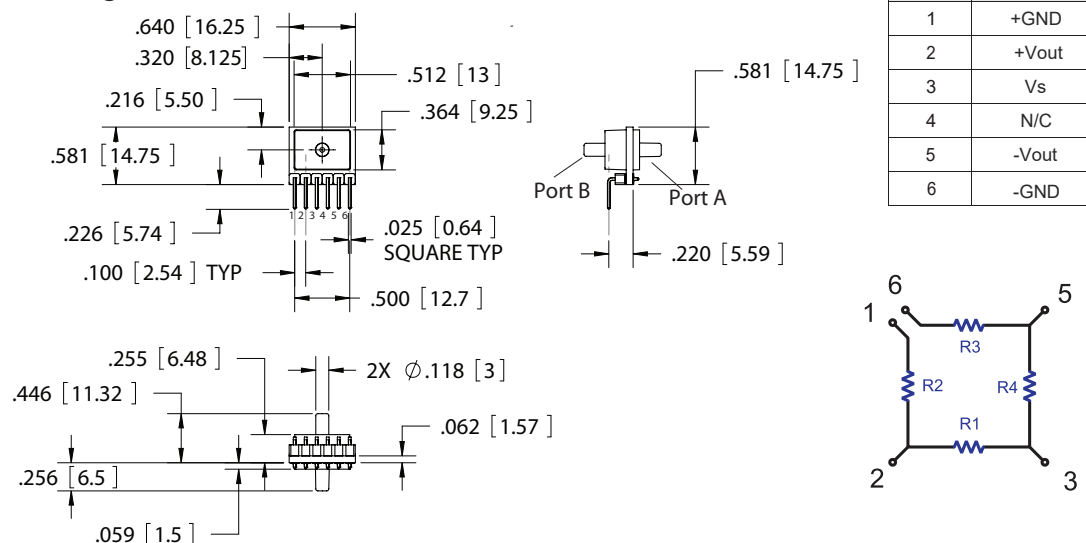
- 1) Dimensions are in inches [mm].
- 2) For suggested pad layout, see drawing: PAD-20.
- 3) Pins 1 and 6 must be connected for Gnd.

All Sensors

TITLE: D-Series Package

SIZE: A FILE NAME: D1 Package

D3 Package



NOTES

- 1) Dimensions are in inches [mm].
- 2) For suggested pad layout, see drawing: PAD-21.
- 3) Pins 1 and 6 must be connected for Gnd.

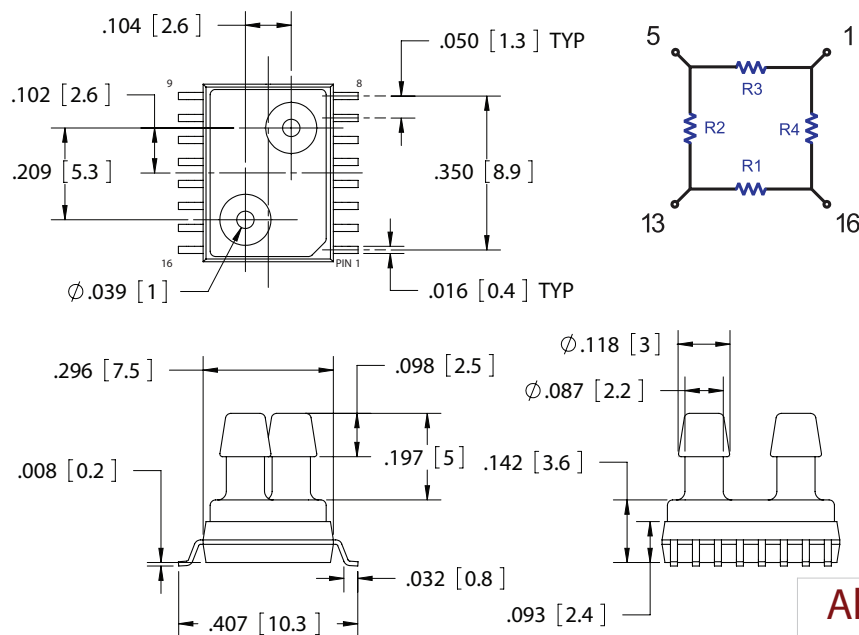
All Sensors

TITLE: D-Series Package

SIZE: A FILE NAME: D3 Package

Package Drawings (Cont'd)

D4 Package



Pin	Definition
1	-Vout
2	N/C
3	N/C
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C
11	N/C
12	N/C
13	+Vout
14	N/C
15	N/C
16	Vs

NOTES

- 1) Dimensions are in inches [mm].
- 2) For suggested pad layout, see drawing: PAD-22.

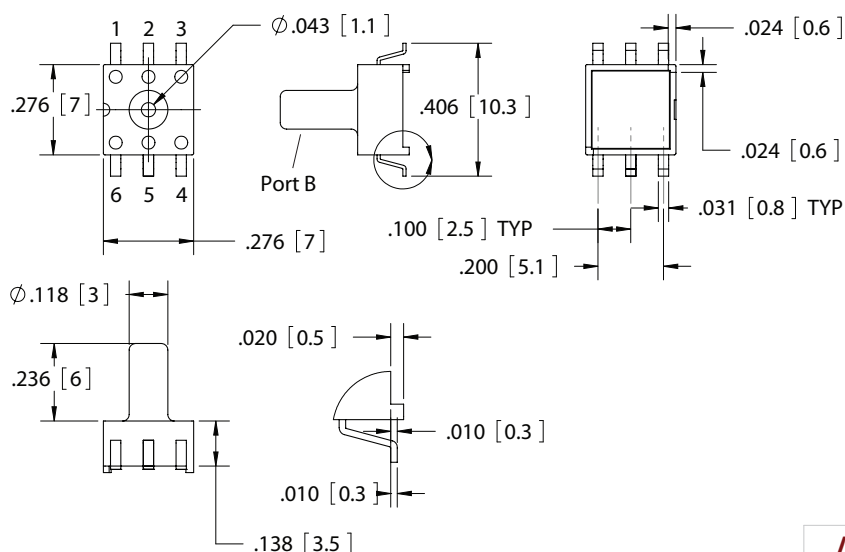
All Sensors

TITLE: D-Series Package

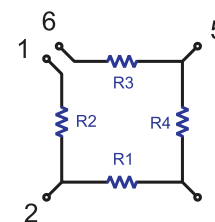
SIZE: A FILE NAME: D4 Package

Package Drawings (Cont'd)

U2 Package



Pin	Definition
1	+GND
2	+Vout
3	Vs
4	N/C
5	-Vout
6	-GND



NOTES

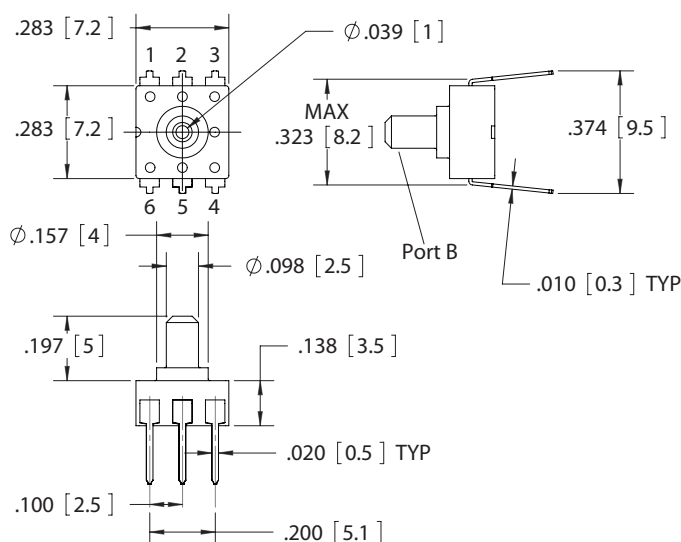
- 1) Dimensions are in inches [mm].
- 2) For suggested pad layout, see drawing: PAD-24
- 3) Pins 1 and 6 must be connected for Gnd.

All Sensors

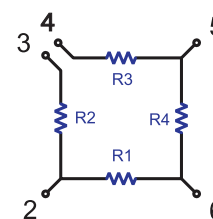
TITLE: U-Series Package

SIZE: A FILE NAME: U2 Package

U3 Package



Pin	Definition
1	N/C
2	-Vout
3	-GND
4	+GND
5	+Vout
6	Vs



NOTES

- 1) Dimensions are in inches [mm].
- 2) For suggested pad layout, see drawing: PAD-25
- 3) Pins 3 and 4 must be connected for Gnd.

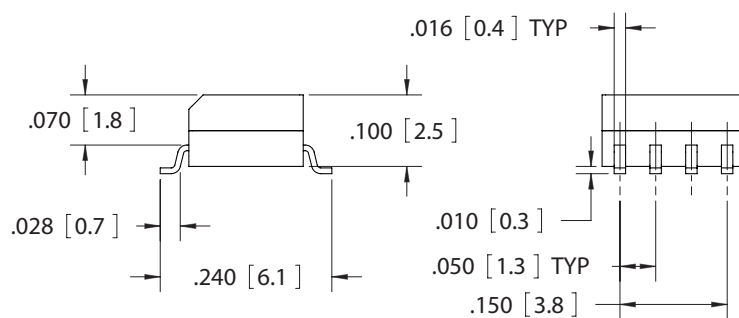
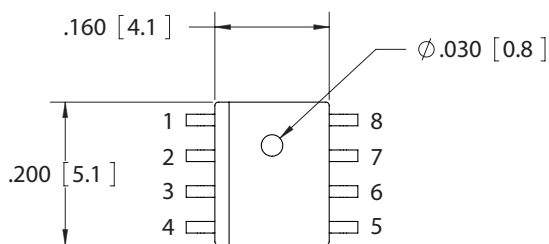
All Sensors

TITLE: U-Series Package

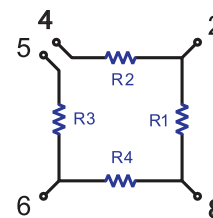
SIZE: A FILE NAME: U3 Package

Package Drawings (Cont'd)

U4 Package



Pin	Definition
1	N/C
2	+Vout
3	N/C
4	+GND
5	-GND
6	-Vout
7	N/C
8	Vs



NOTES

- 1) Dimensions are in mm [inches].
- 2) Offered for 015A only.
- 3) For suggested pad layout, see drawing: PAD-26
- 4) Pins 4 and 5 must be connected for Gnd.

All Sensors

TITLE: U-Series Package

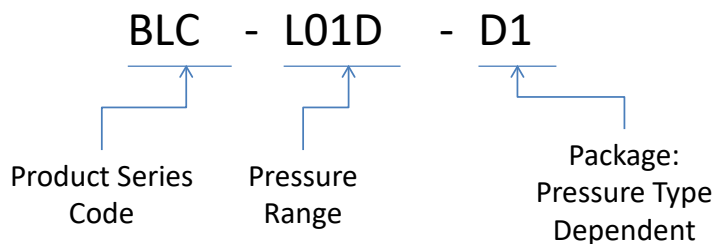
SIZE: A FILE NAME: U4 Package

How To Order

Refer to Table 1 for configuring a standard base part number which includes the pressure range and package.

Example P/N with options: BLC-L01D-D1

Table 1 - How to Configure a Part Number



Where:

Pressure Range (D1, D3, D4 Packages — Differential Only): L01D, L05D, L10D, L20D, L30D

Pressure Range (U2, U3 Package — Gage Only): L01D, L05D, L10D, L20D, L30D

Pressure Range (U4 Package — Absolute Only): 015A

(Consult with factory for parylene coating)

BLC SERIES LOW PRESSURE COMPACT SENSORS

Product Identification (on backside of device)

 **All Sensors**
BLC-L01D-D1**B12399-09****R16A24-14**

—— Company

—— Part Number

—— Wafer Number

—— Lot Number

Example shown above.

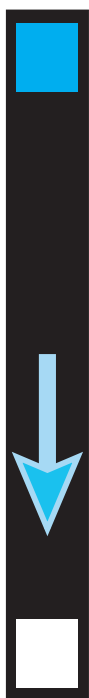
Pressure Tubing Recommendations

Tubing Number	Part Number	Description
1	ABX00002	Versilic SPX-50, 1/16" I.D. x 1/8" O.D. x 1/32" Wall
2	ABX00004	Versilic SPX-50, 3/32" I.D. x 5/32" O.D. x 1/32" Wall

Package	Tubing Number
D1	1
D3	2
D4	1
U2	2
U3	1
U4	N/A

Packaging

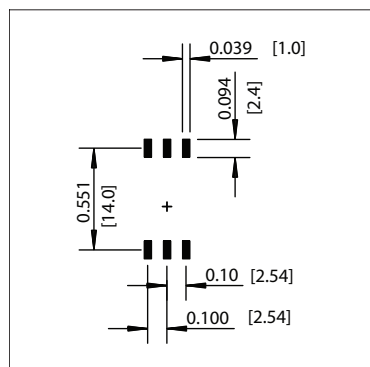
TUBE



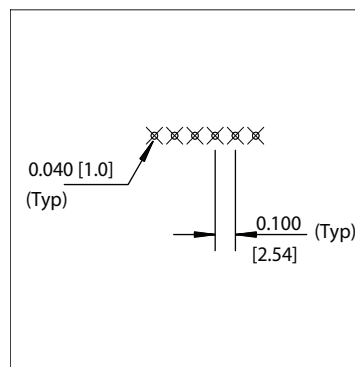
ALL PRODUCTS FOUND IN THIS
DATASHEET ARE PACKAGED IN
TUBES WITH PIN 1 ORIENTED
TOWARDS THE WHITE STOPPER.

DS-0353 Rev F

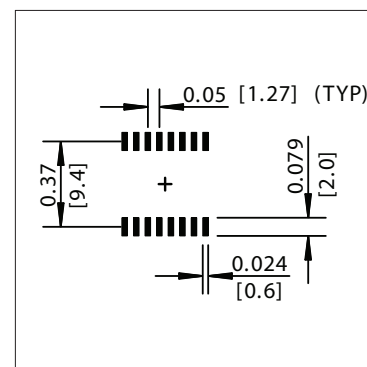
Suggested Pad Layout



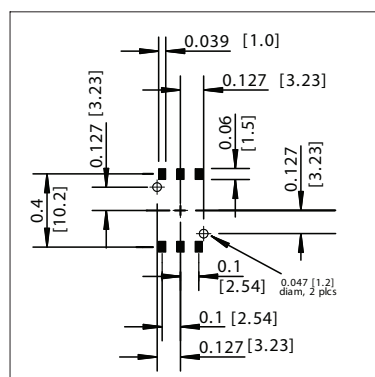
PAD-20



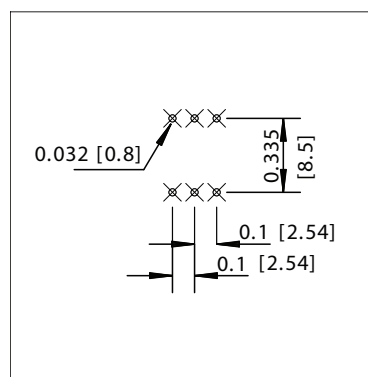
PAD-21



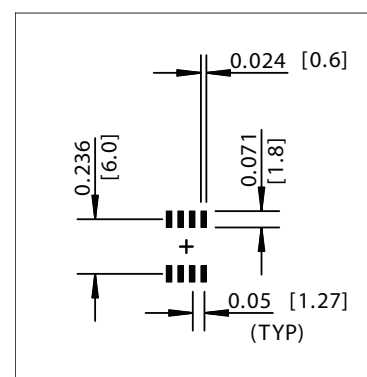
PAD-22



PAD-24



PAD-25



PAD-26

Dimensions are in inches [mm].

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BLC SERIES LOW PRESSURE COMPACT SENSORS

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