

Features and Benefits

0-350mBar Range
 Compact Design
 High Long Term Stability
 Low Cost

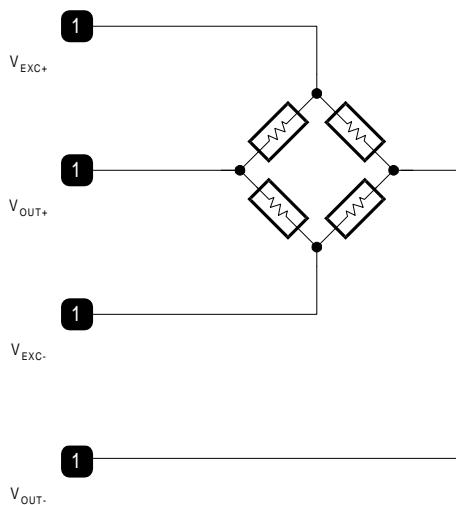
Applications

Medical Instrumentation (Blood Pressure)
 Consumer Appliances
 Sports Equipment
 Pressure Difference and Flow monitoring

Ordering Information

Part No.	Temperature Suffix	Package	Temperature Range
MLX90240	S	CA	-20C to 85C Industrial
MLX90240	S	UD	-20C to 85C Industrial

Functional Diagram



Description

The MLX90240 is a discrete micromachined pressure sensor IC suitable for pressure ranges between 0 to 350mBar. The pressure medium must be dry and non-corrosive, such as air.

The 90240 is packaged in a plastic/ceramic package, (CA) or can be ordered as unpackaged die (UD) The principal of the circuit is a piezoresistive bridge which realized in silicon through a special micromachine process. As pressure is applied to the bridge, a differential voltage change is seen across the V_{OUT} pins, while a bias voltage is applied to the V_{EXC} pins.

The MLX90240 is a versatile pressure sensor solution which can be directly interfaced with other Melexis ICs such as the MLX90308, which provides amplification, signal conditioning as well as the bias current to supply the sensor itself.

MLX90240 Electrical Specifications

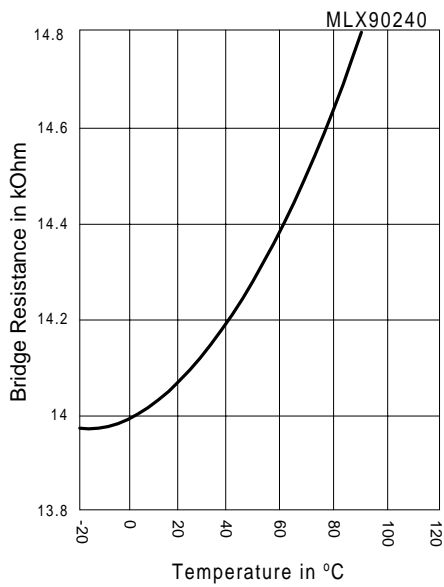
DC Operating Parameters $T_A = 25^\circ\text{C}$, $V_{DD} = 5\text{V}$, Pressure = 350mBar full scale.

Parameter	Min	Typ	Max	Units
Excitation voltage	0	5	12	V
Offset	-25	0	+25	mV
TC of the Offset	-15	-21	-25	$\mu\text{V}/^\circ\text{C}$
Sensitivity	43	58	71	mV/V/bar
TC of the Sensitivity (1)	-0.17	-0.21	-0.26	$\%/^\circ\text{C}$
Bridge impedance	12	14	16	kOhm
TC of the Bridge (1)	0.057	0.063	0.066	$\%/^\circ\text{C}$
Non linearity (3)		+/- 0.15	+/- 0.30	%FS
Hysteresis			0.1	% FS
Offset Long term stability (2)			0.5	%FS
Sensitivity Long term stability (2)			0.3	%
Burst pressure	5x			FS pressure
Operating Temp	-20		85	$^\circ\text{C}$
Storage Temp	-40		125	$^\circ\text{C}$

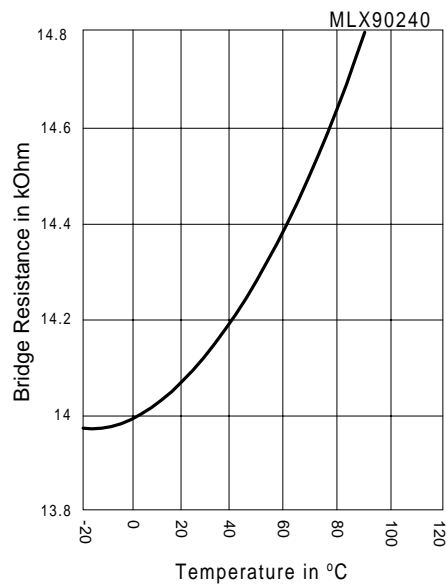
Notes:

- 1) Between 0 and 70°C
- 2) After: 100 thermos cycles 0 – 70°C
- 3) 1 mil pressure cycles 0 – 350 mbar
- 4) Typical 0.5% FS for 0-500 mbar range

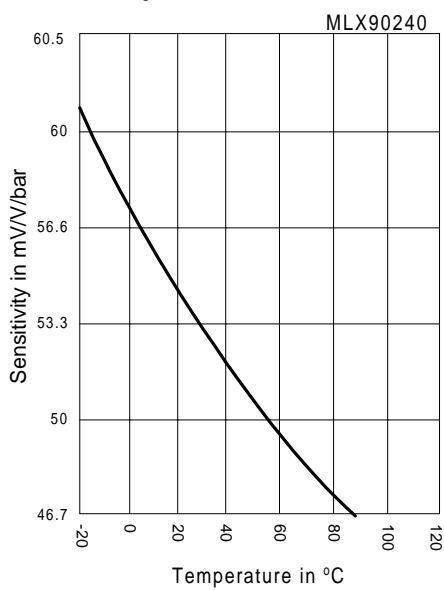
Bridge Resistance versus Temperature



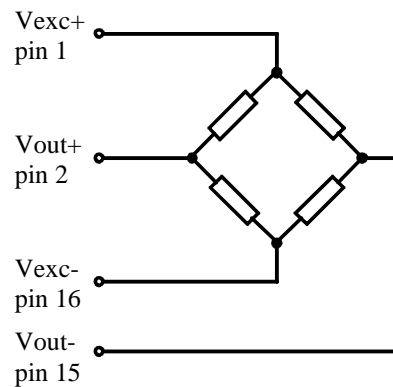
Bridge Resistance versus Temperature



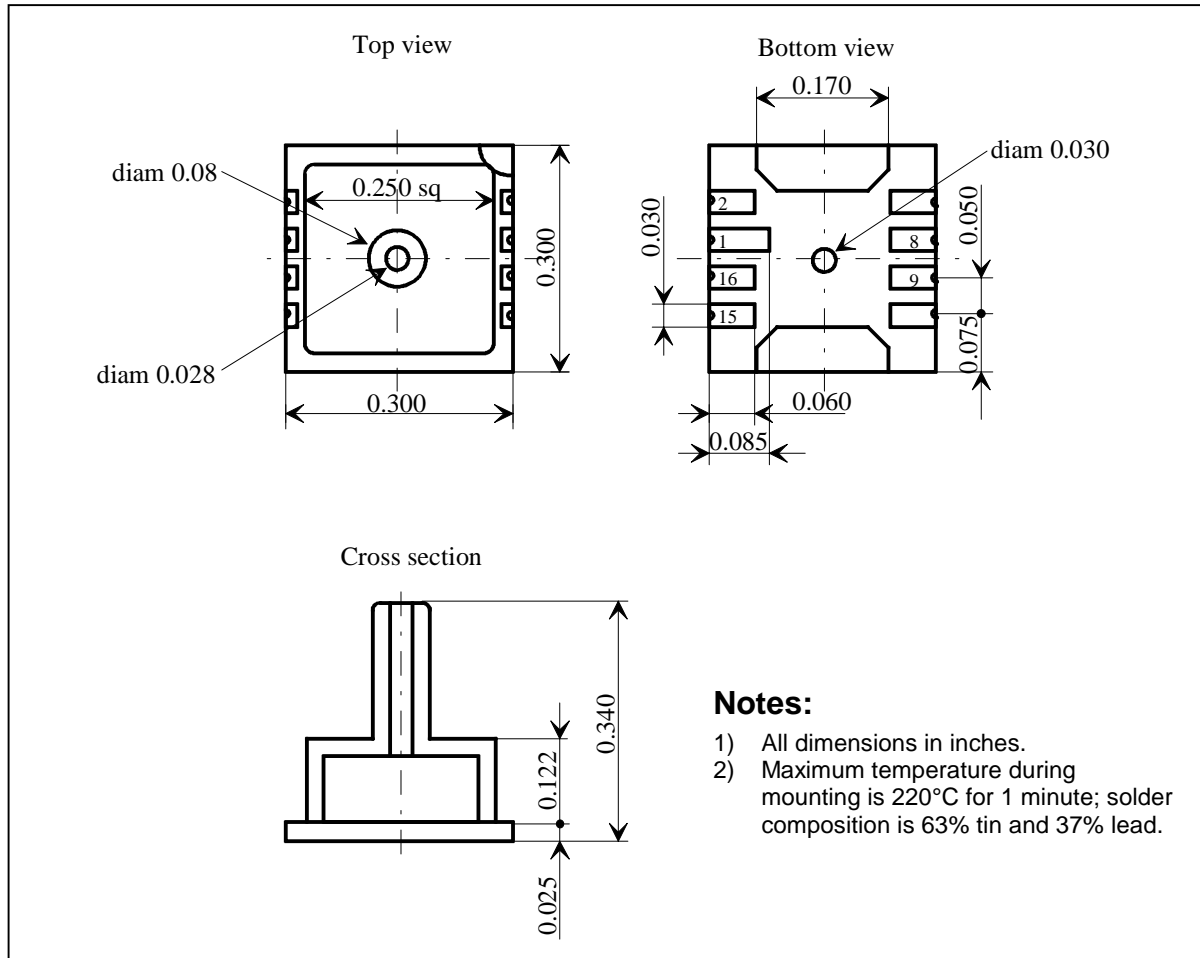
Sensitivity versus Temperature



MLX90240 Pin Description



“CA” Package Dimensions



Notes:

- 1) All dimensions in inches.
- 2) Maximum temperature during mounting is 220°C for 1 minute; solder composition is 63% tin and 37% lead.

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Go to our website at:
www.melexis.com
Or for additional information
contact Melexis Direct:

USA
Melexis Inc.
41 Locke Road, Concord, NH 03301
Phone: +1 603 223 2362 Fax: +1 603 223 9614
E-mail: sales_usa@melexis.com

United Kingdom
Silicon Concepts
PCB Lynchborough Road, Hampshire GU30 7SB, United Kingdom
Phone: +44 1428 751 617 Fax: +44 1428 751 603
E-mail: sales_uk@melexis.com

Germany
Am Seestern 8, 40547 Düsseldorf, Germany
Phone: +49 211 5360212 Fax: +49 211 5360250
E-mail: sales_de@melexis.com

France
Melexis France
Tour Arago, 5 rue Bellini, 92806 Puteaux-La-Défense, France.
Phone: +33 1 47 78 11 34 Fax: +33 1 47 78 06 35
E-mail: sales_france@melexis.com

Italy
Dimacred IRL
Via Papa Giovanni XXIII no. 25, 20046 Biassono, Italy
Phone: +39 039 249 4856 Fax: +39 039 491773
E-mail: sales_italy@melexis.com

Japan
Satori Electric Co., LTD
1-14-10 Shiba, Minato-Ku, Tokyo, Japan
Phone: +81 3 3452 7171 Fax: +81 3 3769 2197
E-mail: sales_japan@melexis.com

Taiwan
Beechwood Int'l Taiwan Co.
Room 8, 17F, No. 189, Taipei, Taiwan
Phone: +886 2 2739 3322 Fax: +886 2 2739 3090
E-mail: sales_taiwan@melexis.com