MLX90210

Pressure Sensor IC

Features and Benefits

- 0 – 1.0 Bar Range
- Differential pressure sensor
- Compact Design
- High Long Term Stability
- Low Cost

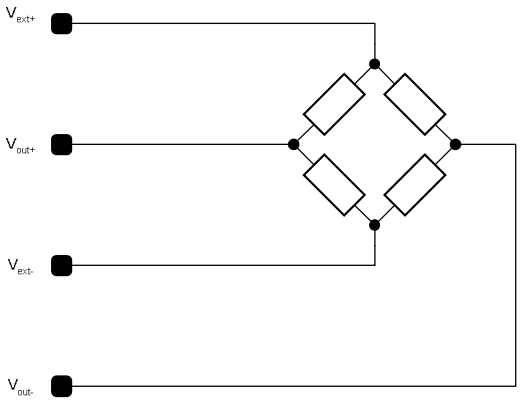
Applications

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

Ordering Information

Part No.	Temperature Suffix	Package Code
MLX90210	C (-0C to 70C)	UD (Goldbumped Die on Wafer, unsawn)

Functional Diagram



Description

The MLX90210 is a discrete micromachined Pressure sensor IC suitable for pressure ranges Between 0 to 1.0 Bar. The pressure medium must be dry and non-corrosive, such as air. The circuit is a piezoresistive bridge which is realized in silicon through a special micromachining 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 MLX90210 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.

MLX90210 Electrical Specifications

DC Operating Parameters T_A = 25C, V_{DD} = 5V (note 3), Pressure = 1.0 Bar full scale.

Parameter	Symbol		Min	Typ	Max	Units
Excitation voltage			0	5	12	V
Zero Pressure Offset	V_{OFF}		-20	0	+20	mV
Sensitivity	S		15	30	45	mV/V/bar
TC of the Sensitivity	TC_S		-0.17	-0.21	-0.26	%/°C
Bridge Resistance	R_{BR}		360	400	450	Ohm
Burst Pressure					2	Bar
Operating Temp			0		70	°C
Storage Temp (2)			-55		150	°C

MLX90210 Mechanical Dimensions (4)

Membrane Size	0.81mm x 0.81mm
Chip Thickness	0.61mm
Chip Size	1.90mm x 1.90mm

Notes:

1) Temperature range refers to operation and deposit in an inert environment
2) Temperature range refers to operation and deposit in an inert environment
3) To prevent measurement errors, measure above 3V V_{DD} in impulse mode
4) Tolerance of 10% unless otherwise specified.

Reliability Information

Melexis devices are classified and qualified regarding suitability for infrared, vapor phase and wave soldering with usual (63/37 SnPb-) solder (melting point at 183degC).
The following test methods are applied:

IPC/JEDEC J-STD-020A (issue April 1999)
Moisture/Reflow Sensitivity Classification For Nonhermetic Solid State Surface Mount Devices
CECC00802 (issue 1994)
Standard Method For The Specification of Surface Mounting Components (SMDs) of Assessed Quality
MIL 883 Method 2003 / JEDEC-STD-22 Test Method B102
Solderability

For all soldering technologies deviating from above mentioned standard conditions (regarding peak temperature, temperature gradient, temperature profile etc) additional classification and qualification tests have to be agreed upon with Melexis.

The application of Wave Soldering for SMD's is allowed only after consulting Melexis regarding assurance of adhesive strength between device and board.

For more information on manufacturability/solderability see quality page at our website:
http://www.melexis.com/

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