MERIT SENSOR™

DATA SHEET

L Series

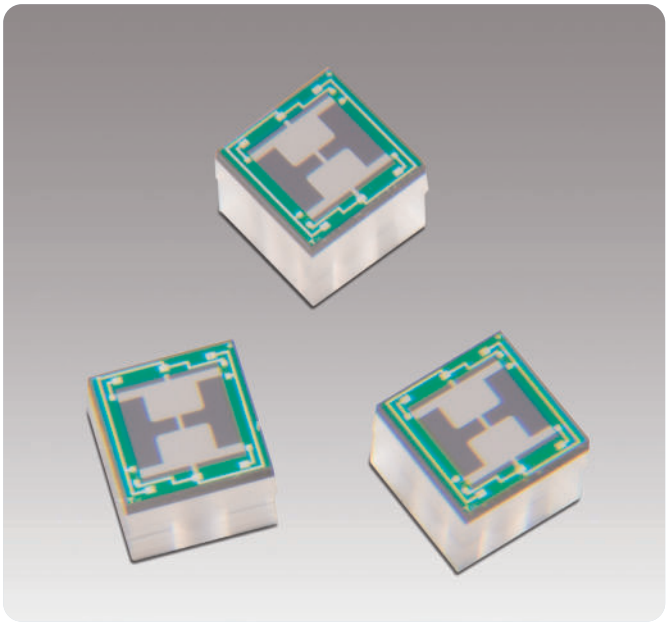
The L Series is a silicon MEMS piezoresistive pressure sensor. It is ideal for ultra-low-pressure applications

COMPANY: Merit Sensor is a leader in piezoresistive pressure sensing. We partner with clients to create high performing solutions for a variety of applications and industries.

SENTIUM: Merit Sensor products incorporate a proprietary Sentium® technology, developed to provide a best-in-class operating temperature range (-40°C to 150°C) and superior stability.

TECHNOLOGY: Merit Sensor utilizes a piezoresistive Wheatstone bridge in a design that anodically bonds glass to a chemically etched silicon diaphragm. All products are RoHS compliant.

CAPABILITIES: Merit Sensor designs, engineers, fabricates, dices, assembles, and tests products from a state-of-the-art facility near Salt Lake City, Utah.



FEATURES

Pressure Range	0.15 to 1 psi (1 to 6.89 kPa 10 to 68.95 mbar)
Size	3.3 mm x 3.3 mm
Temperature	Wide operating temperature range (up to 150°C)
Type	Gage and differential
Media	Clean, dry air and non-corrosive gases
Shipping	Wafers on tape, waffle pack
Flexibility	Sensitivity, resistance, bridge, etc.

BENEFITS

Performance	Enjoy best-in-class performance due to Merit's proprietary Sentium technology
Cost	Save money over time with high-performing die
Security	Feel confident doing business with an experienced company backed by a solid parent company (NASDAQ: MMSI)
Speed	Get to market quickly with creative and flexible solutions
Service	Experience prompt, personal, and professional support

L Series Part Number Configurator

LXX-XXX-RT

Impedance
1 = 5kohm Bridge

Bridge
O = Open
C = Closed

Constraint
R = Gage
T = sawn wafer on tape in metal frame

Sensitivity
10k = 10,000 µV/V/psi = 1psi
30k = 30,000 µV/V/psi = 0.3psi
50k = 50,000 µV/V/psi = 0.15psi

Example: **L1O-50K-RT** offers 5kohm Impedance, Open Bridge, 50,000 µV/V/psi and Gage Constraint

L Series Standard Part Numbers

L1O-10K-RT	L1C-10K-RT
L1O-30K-RT	L1C-30K-RT
L1O-50K-RT	L1C-50K-RT

U.S. Patent Number 7,290,453

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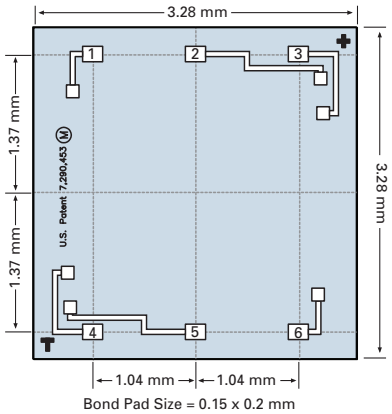
SPECIFICATIONS

Parameter	Minimum	Typical	Maximum	Units	Notes
Electrical & Environmental					
Excitation (In)		5	15	V	Maximum: 3 mA
Impedance	4000	5000	6000	Ω	
Operating Temperature	-40		150	°C	Sentium® technology
Storage Temperature	-55		160	°C	
Performance					
Offset	-10	0	10	mV/V	Zero Pressure; gage only; @25°C
Non-linearity	-0.25	0	0.25	% FSO	Best Fit Straight Line; @25°C
Pressure Hysteresis	-0.1	0	0.1	% FSO	@25°C
Temp Coeff – Zero	-20	0	20	µV/V/°C	-25°C to 75°C
Temp Coeff – Resistance	2000	2500	3000	PPM/°C	-25°C to 75°C
Temp Coeff – Sensitivity (0.15psi)	-2500	-3000	-3500	PPM/°C	-25°C to 75°C
Temp Coeff – Sensitivity (0.2psi – 1psi)	-2000	-2500	-3000	PPM/°C	-25°C to 75°C
Long-Term Stability	-0.25	0	0.25	% FSO	@125°C
Proof Pressure	5X				Full scale pressure
Burst Pressure	10psi				
Full-Scale Output (@ 5 volts excitation)					
1 psi (69 mbar; 6.9 kPa)	40	50	60	mV	Additional outputs available on request
0.3 psi (21 mbar; 2.1 kPa)	36	45	54	mV	
0.15 psi (10 mbar; 1 kPa)	30	37.5	60	mV	

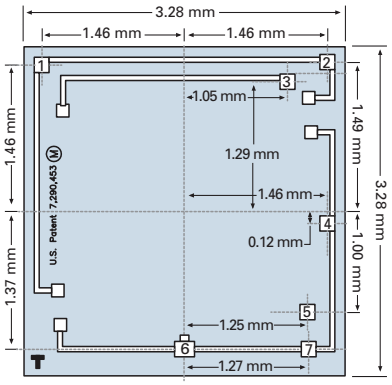
DIMENSIONS (millimeters, post-cut)

Open Bridge



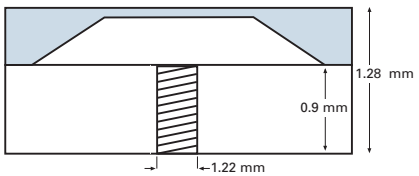
Bond Pad Size = 0.15 x 0.2 mm

Closed Bridge



Bond Pad Size (1-5 and 7) = 0.15 x 0.15 mm
Bond Pad Size (6) = 0.15 x 0.2 mm

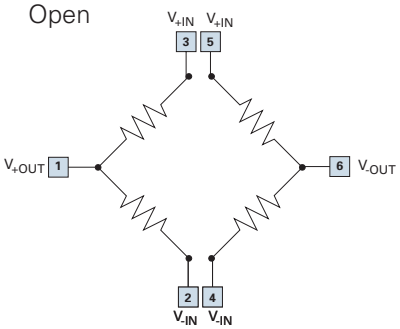
Standard Bond Pad Metallization = Aluminum



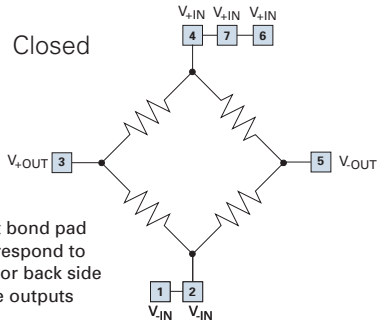
Other constraints available

ELECTRICAL

Open



Closed



Note: Bridge output bond pad (V_{-out} and V_{+out}) correspond to top side pressure. For back side pressure, the bridge outputs are reversed.

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