MPS1201S-01

1 ATMOSPHERE ABSOLUTE TYPE PRESSURE SENSOR

DESCRIPTION

The MPS1201S is a hybrid IC with pressure sensor element, together forming a 1 atmosphere absolute type pressure sensor device. This includes the semiconductor pressure sensor element and an amplifier circuit. Therefore the MPS1201S does no require a complicated external adjustment circuit.

FEATURES

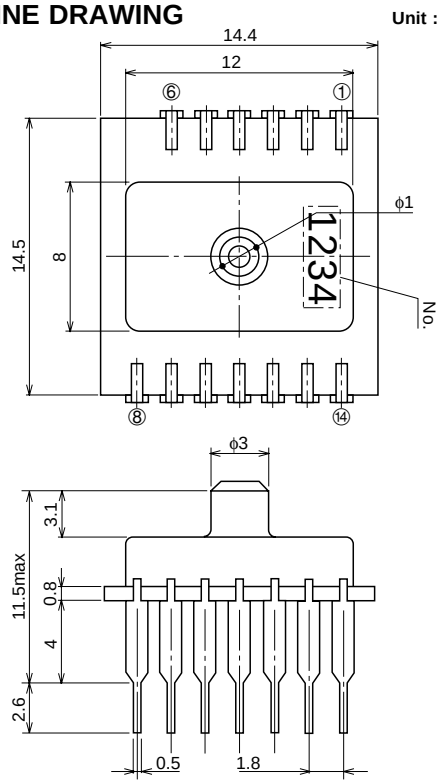
- Compact size, light weight
- Built-in amplifier circuit, including temperature compensation
- Wide temperature compensation range : Ta = – 30 ~ 100°C

APPLICATION

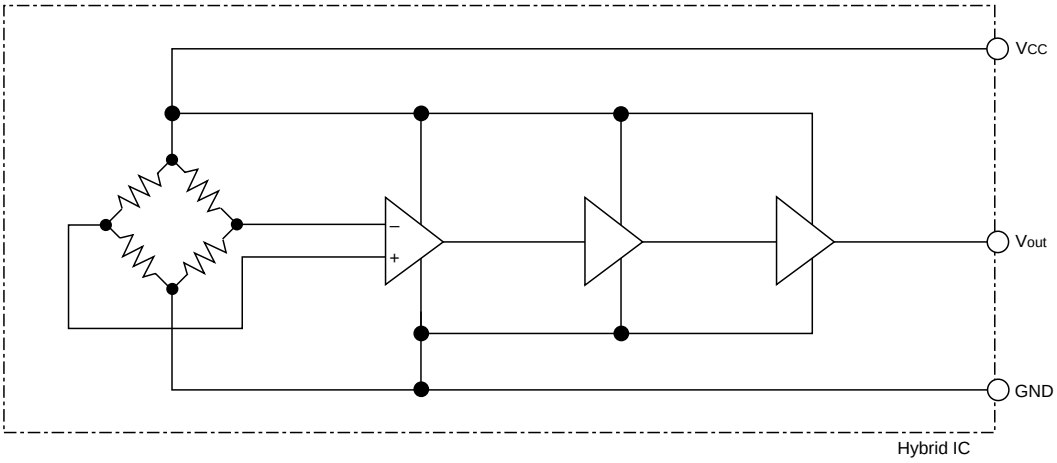
Measurement of the atmosphere

OUTLINE DRAWING

Unit : mm



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Units
P_{max}	Maximum operating pressure	Ta = 25°C	202 (1520)	kPa·abs (mmHg·abs)
$V_{CC\ max}$	Maximum operating voltage	Ta = 25°C	10	V
T_{stg}	Storage temperature		– 40~125	°C

MITSUBISHI ELECTRIC

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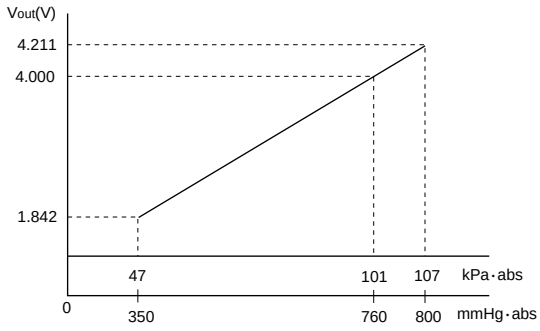
MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Units
P_r	Rated pressure	Ta = – 30 ~ 100°C	47~107 (350~800)	kPa·abs (mmHg·abs)
V_{CC}	Operating voltage	Ta = – 30 ~ 100°C	5 ± 0.25	V
T_{opr}	Operating temperature		– 30 ~ 100	°C
T_{comp}	Compensated temperature		– 30 ~ 100	°C

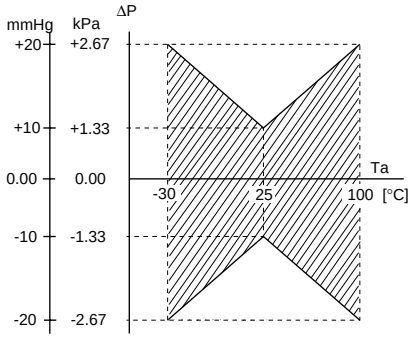
ELECTRICAL CHARACTERISTICS (Vcc = 5V unless otherwise noted)

Symbol	Parameter	Conditions		Ratings			Units
		Pressure	Ta [°C]	min.	typ.	max.	
V_{OUT}	Output voltage	47 kPa·abs (350 mmHg·abs)	25°C		1.842		V
		101 kPa·abs (760 mmHg·abs)	25°C		4.000		V
		107 kPa·abs (800 mmHg·abs)	25°C		4.211		V
dP	Temperature characteristics	47 ~ 107 kPa·abs (350 ~ 800 mmHg·abs)	25°C	–1.33		1.33	kPa
				–10		10	(mmHg)
		47 ~ 107 kPa·abs (350 ~ 800 mmHg·abs)	– 30 ~ 100°C	–2.67		2.67	kPa
				–20		20	(mmHg)
I_{CC}	Supply current	47 ~ 107 kPa·abs	25°C		5	10	mA
I_{sink}	Sink current	47 ~ 107 kPa·abs	– 30 ~ 100°C			2.0	mA
I_{source}	Source current	47 ~ 107 kPa·abs	– 30 ~ 100°C			0.07	mA

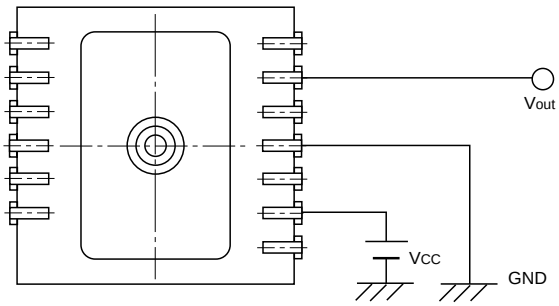
OUTPUT CHARACTERISTICS



TEMPERATURE CHARACTERISTICS (Vcc = 5V)



MEASUREMENT CIRCUIT



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HANDLING PRECAUTIONS

1. If this product is subject to mechanical shock, it might be damaged. Please handle the device carefully.
2. Some internal input/output-terminals of the operational amplifier circuit included on the hybrid IC are contacted to external lead.
   Please avoid to input surge to the external lead.
3. Some substances adhering to the sensor might cause malfunction or failure to happen. Please take care that some substances don't go through the pressure port.
4. If the sensor need to be cleaned, please don't use ultra-sonic wave cleaning. The coating of the thick film substrate might be damaged by the cleaning liquid.
5. Please don't expose the sensor to direct sun-light or other strong lights.