HOKURIKU

For Reference Only

Product Specification

Item : Pressure Sensor

Product No. : HPD-1000G-R03

Date : jun. 7 , 2021

HOKURIKU ELECTRIC INDUSTRY CO.,LTD.

1. Application

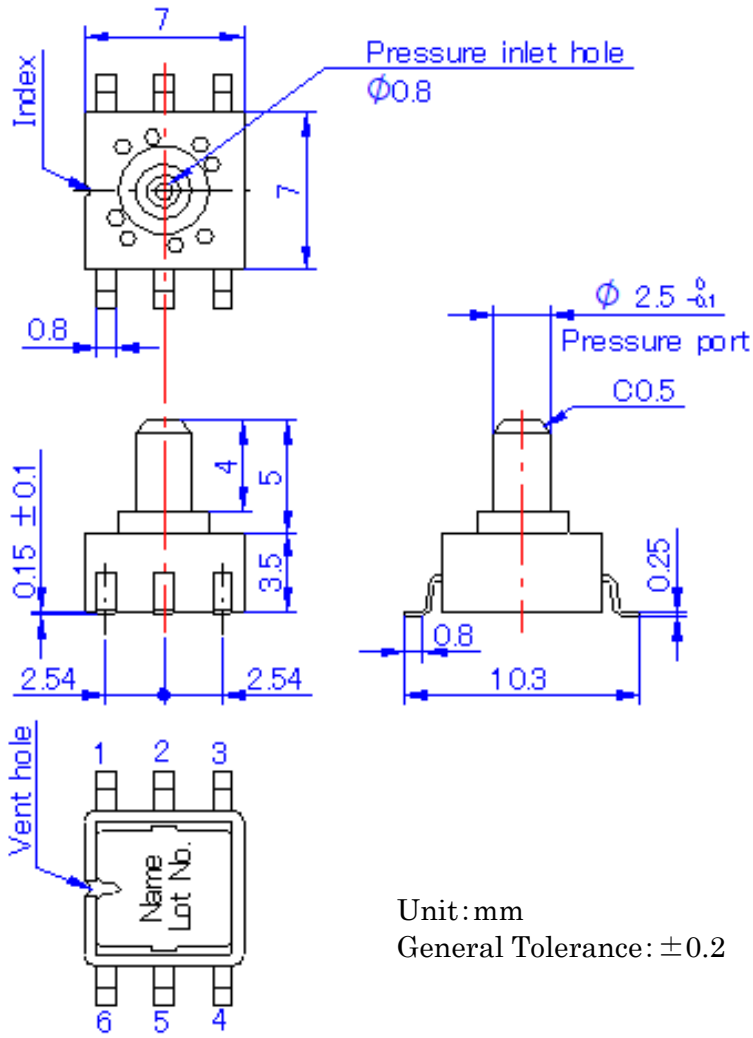
This specification shall be applied to the Semi conductive Pressure sensor used for non-corrosive gases.

2. General description

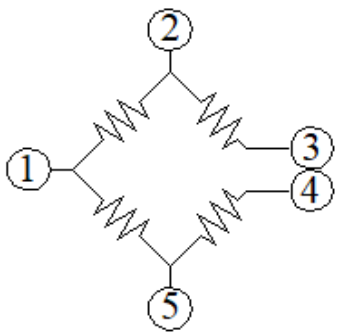
Part No.	Range of pressure	Drive current	Package	Bridge resistance
HPD-1000G-R03	-90 ～ 1000 kPa	1.5 mA	SMD 6 pin	5kΩ

3. Outline dimension and Construction

■Dimension



Unit : mm
General Tolerance : ±0.2



Internal connection

Pin number	Name
1	+Input (Power+)
2	+Out
3	-Input (Power-)
4	-Input (Power-)
5	-Out
6	NC (Open)

4. Rating

-1. Absolute Maximum Rating

Item	Rating			Unit	Note
	MIN	TYP	MAX		
Pressure type	Gauge Pressure			—	
Medium of pressure	Non-corrosive Gas			—	
Range of maximum pressure			2,000	kPa	
Maximum supply current	—	—	3	mA	
Operating temperature	-20	～	100	℃	
Storage temperature	-40	～	120	℃	

-2. Rating (Icc=1.5mA, Ta=25℃)

Item	Rating			Unit	Note
	MIN	TYP	MAX		
Rated pressure	-90	～	1,000	kPa	
Drive current	—	1.5	—	mA	
Bridge resistance	4	5	6	kΩ	
Offset voltage	-20	0	20	mV	at 0kPa
Span voltage	60	100	140	mV	at 0～1000kPa
Pressure linearity	-0.6		0.6	%FS	
Pressure hysteresis	-0.4		0.4	%FS	
Temperature characteristic of Offset voltage	-5.0		5.0	%FS	at 0～50℃
Temperature characteristic of Span voltage	-2.5		2.5	%FS	at 0～50℃

＜Definitions＞ If Pressure＝P、Temp.＝T , Output voltage＝V(P,T)

Offset voltage: Voffset = V(0,25)

Span voltage: Vspan = V(1000,25) − V(0,25)

Pressure linearity: VLIN = [V(500,25) − (Vspan/2 + V(0,25))] / Vspan × 100

Pressure hysteresis: VHYS = (Voff2 − Voff1) / Vspan × 100

Temperature characteristic of Offset voltage:
TCO1 = (V(0, 0) − V(0,25)) / Vspan × 100
TCO2 = (V(0,50) − V(0,25)) / Vspan × 100

Temperature characteristic of Span voltage:
Vspan(0) = V(1000,0) − V(0,0)
Vspan(50) = V(1000,50) − V(0,50)
Vspan(TCS)1 = (Vspan(0) − Vspan) / Vspan × 100
Vspan(TCS)2 = (Vspan(50) − Vspan) / Vspan × 100

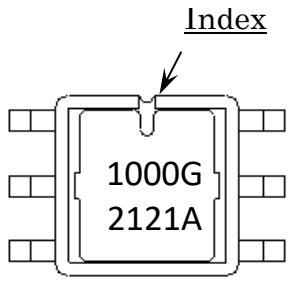
5. Reliability Test Specification

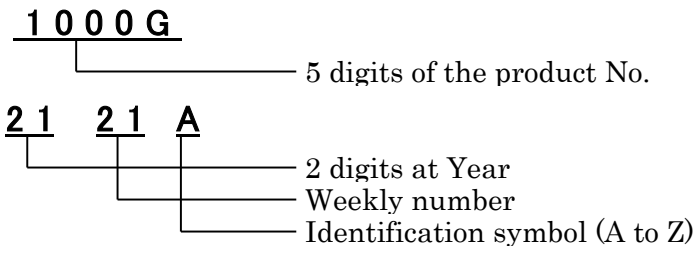
No.	Item	Test conditions	Testing time
1	High temperature strage test	120℃	1,000 hr
2	Low temperature strage test	-40℃	1,000 hr
3	High humidity strage test	40℃、90%RH	1,000 hr
4	Temperature cycle test	-40℃ ⇔ 120℃、each 30minutes	100 cyc
5	Heat shock test	0℃ ⇔ 100℃、each 5minutes	10 cyc
6	High temperature high humidity operation test	40℃、90%RH Rated pressure applied 1,000,000 cyc	1,000,000 cyc
7	Drop test (Goods)	Dropped from 100cm high to the P tile on concrete grounding	Random 3 times

・Unless otherwise specified, measurements are taken at a drive current of 1.5mA and a temperature of 25℃.
・The criteria for the test are as follows.

Item	Criterion
・Span voltage ・Offset voltage	Within ±5%FS of the initial value
・Bridge resistance	Within ±5% of the initial value
・Pressure linearity ・Pressure hysteresis ・Temp. characteristic of Offset voltage ・Temp. characteristic of Span voltage	Within 1.2 times the standard value

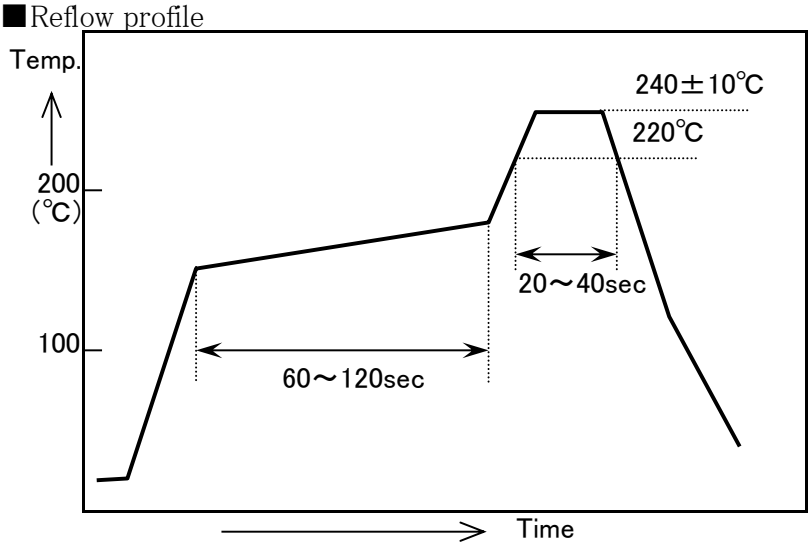
6. Marking





7. Recommended reflow profile

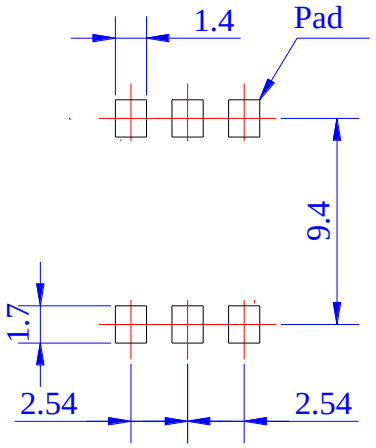
■Reflow profile



Main heating
peak 250℃MAX、less than 10sec
220℃以上、20～40sec

Preheating
150～180℃、60～120sec

■Soldering pad



※ This footprint and Temperature profile do not guarantee of soldering quality. Please check in advance at your factory before use.

8. Notes

・Please use this product within the range of absolute maximum ratings. There is fear of damage and the breakdown when used outside the range of absolute maximum ratings.

・There are possibilities of abnormalities or inferior performances, when irregular objects are put inside a pressure conductive hole.

・These sensors are not of drip-proof construction. When they are sprayed with water, etc., or dew drops are produced, there are possibilities where specified performances are not satisfied.

・These sensors do not correspond to washing. Please use it by no washing.
And then, Reflow soldering is possible to 2 times.

・ If this product touches corrosive gas (organic solvent, sulfurous acid gas, hydrogen sulfide gas, etc.), it may have bad influence on performance.

9. Others

This product is intended to be used for general electrical equipment.
Please contact us in advance in case of the following application to be used;
Extremely-high reliability demanding applications, such as medical equipment, safety device, aerospace instrument, nuclear energy control equipment, combustion control apparatus and so on, which failure and/or malfunction could do serious damage to human life, body, property and so on, directly or indirectly.