Product Specification (Draft)

Pressure Sensor: HPM-100GA-D13-2

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1. Application

These specifications apply to the piezoresistive pressure sensor HPM-100GA-D13-2.

2. Rated

2-1. Absolute Maximum Rated Values

Item	Rated			Unit	Remarks
	MIN	TYP	MAX		
Storage Temp. Range	-40		85	℃	Do not freeze
Operating Temp. Rang	-30		85	℃	Do not freeze
Operating Humidity Rang	0		90	%RH	No condensation
Power Supply Voltage	-0.3		6.0	V	
Applied Pressure	-90		980	kPa	

※Do not use outside the rated maximum range.

2-2. Operating Conditions

Item	Rated			Unit	Remarks
	MIN	TYP	MAX		
Operating Pressure Rang	-29.4		68.6	kPa	
Operating Voltage Rar	4.75	5	5.25	V	
Pressure Medium	Water, Air				
Pressure Type	Gauge pressure				

2-3. Electrical Characteristics (VDD=5V, T=25° C)

Item	Rated			Unit	Remarks
	MIN	TYP	MAX		
Output Form	DC				
Output Function	0.5 + a × (P [kPa] + 29.4)			V	Output at -29.4 kPa = 0.5 V Output at 68.6 kPa = 4.5 V a = 4/100 [V/kPa] T = -10 to 60° C
Output Accuracy	-2		2	%FS	P = -29.4 to 68.6 kPa ※1 T = -10 to 60° C
Pressure linearity	-0.5		0.5	%FS	
Pressure Hysteresis	-0.3		0.3	%FS	
Insulation resistance	20	-	-	MΩ	DC500V 1min Terminal-to-port
Dielectric Withstand Voltage	-	-	1	mA	AC 1kV 1 min Terminal-to-port
Output impedance	100			Ω	※2
Current consumption	-	-	2	mA	

※1: Output span voltage [FS] Output V(P,T) for pressure P (kPa) and temperature T (° C)

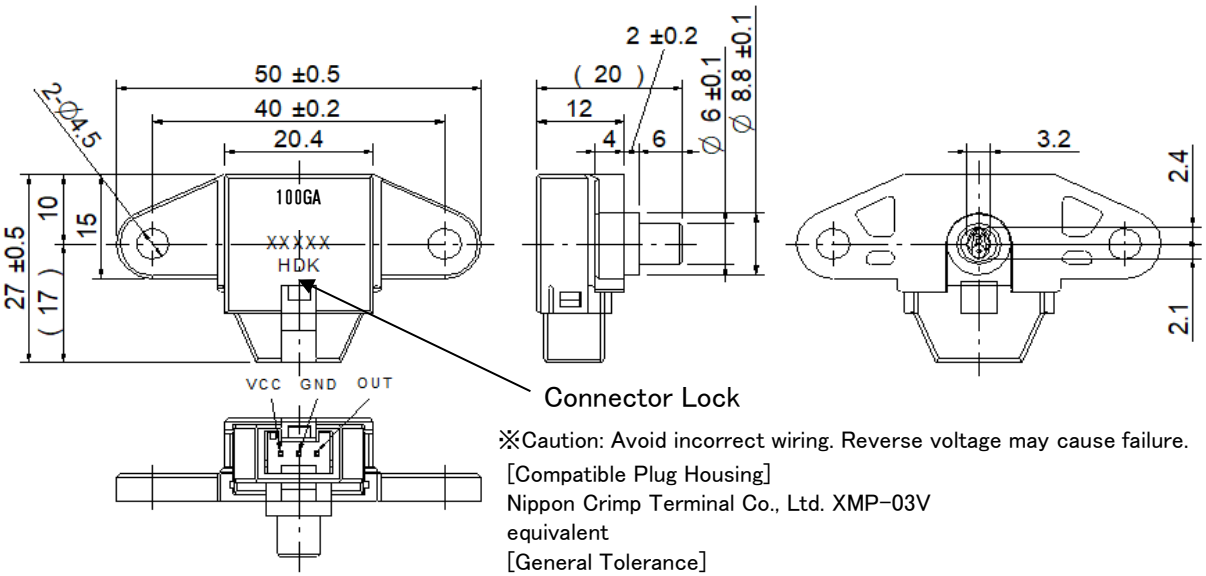
Output span voltage [FS] = V(68.6,25) - V(-29.4,25)

※2: The capacitive load connected to VOUT should be 0.01uF or less.

Use VOUT output sink current and output source current at 1mA or less.

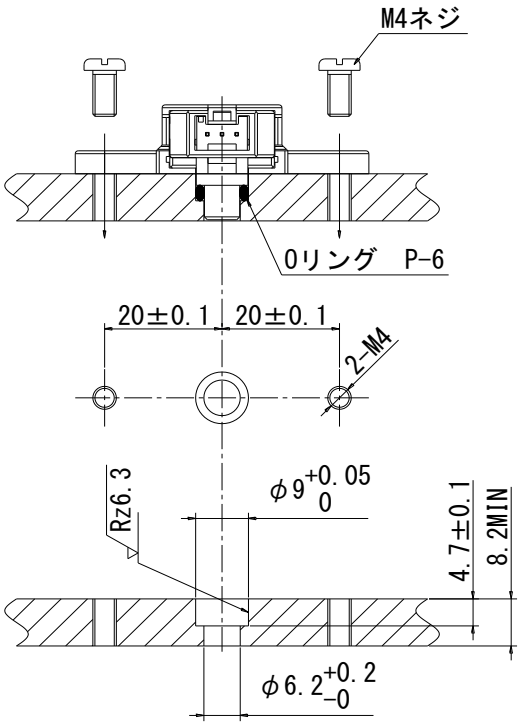
3. Dimensions and Mounting Dimensions

■Dimensions [Unit: mm]



※Caution: Avoid incorrect wiring. Reverse voltage may cause failure.
[Compatible Plug Housing]
Nippon Crimp Terminal Co., Ltd. XMP-03V
equivalent
[General Tolerance]

■Mounting Dimensions [Unit: mm]



■Marking Content

Line 1:xxx G <Pressure, Output>

- Pressure Full-Scale Span Marking
- Pressure Type
  - G: Gauge Pressure
- Output Type
  - A: Analog / D: Digital (Frequency)

Line 2: D xx ＜Shape＞

- Shape Number
- Custom Specifications Number

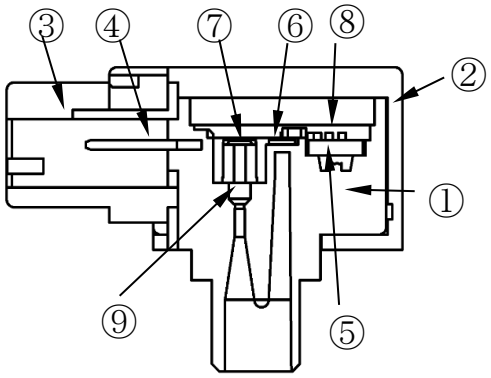
Line 3:xx x xx ＜Manufacturing Lot＞

- Year: Last two digits of the year
- Manufacturing Number: 01-99

Line 4:HDK

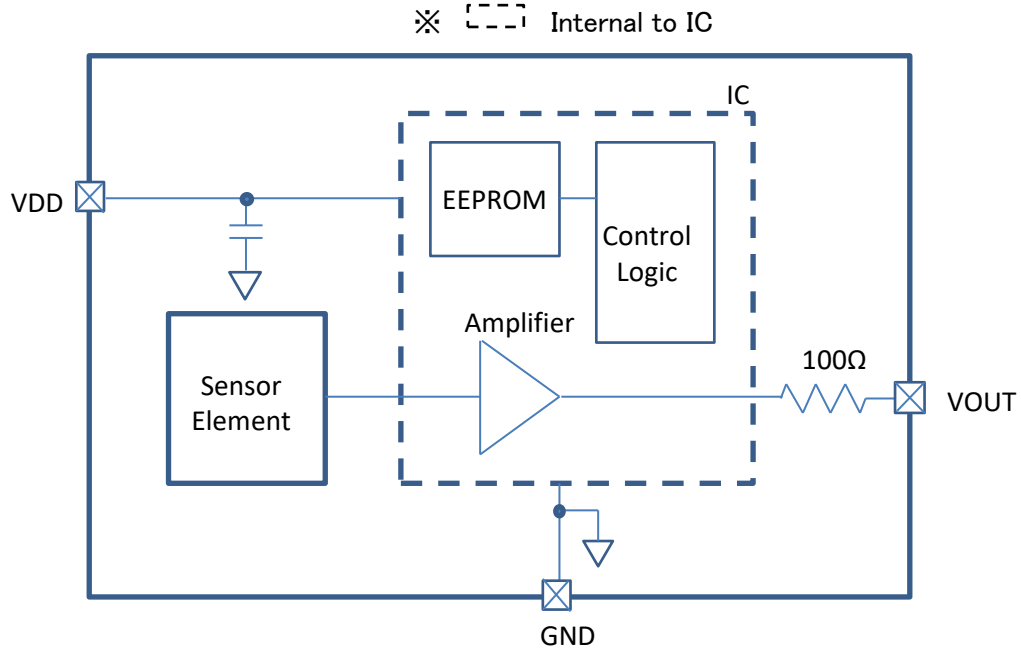
- Company Name

4. Structural Diagram and Parts List



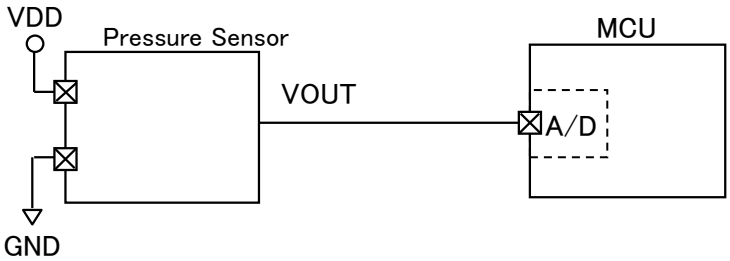
Part Number	Part Name	Note	Quantity
①	Case	Material: PPS	1
②	Cover	Material: PPS	1
③	Connector	Material: PPS	1
④	Pin	□0.6mm Material: C2680-1/2H Surface Treatment (Sn Plating)	3
⑤	Board	Material: FR-4	1
⑥	IC	Bare Chip	1
⑦	Sensor Elemer	Material: Si	1
⑧	Coat	Coating Agent	–
⑨	Oil	BARRIERTA J400 FLUID	–

5. Block Diagram



■ Connection Example

VOUT is the DC voltage analog terminal.



6. Reliability Testing Specifications

After testing, the following evaluations shall be performed on the samples:

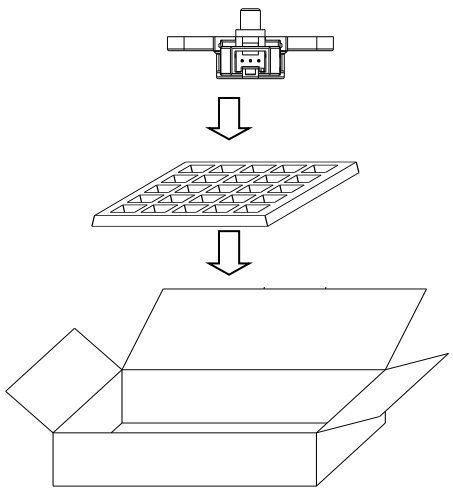
(1) Satisfaction of electrical characteristics (with output variation rate within ±3% FS)
(2) No abnormalities in appearance

Test Item	Condition	Time	nber of sam
High Temp. Storage	Temperature: 85° C	300 hr	5
Low Temperature	Temperature: −40° C	300 hr	5
Humidity Exposure	Temperature: 40° C, Humidity: 90%RH	300 hr	5
Thermal cycle	Temperature: −40° C (0.5h) ⇔ +85° C (0.5h) per cycle	100 cycles	5
Pressure Cycle	Room Temperature, Pressure: −29.4⇔68.6 kPa Cycle Time: 4 s (Duty 1:1)	100,000 cycles	5
Overpressure	Ambient Temperature, Pressure: 1MPa	2-minute hold	5

7. Packaging Specifications

We plan to deliver the product on a tray.

【Packaging Example】



① Place pressure sensors in packaging trays
※Pressure inlet facing upward
※Tray: Conductive surface treatment
Quantity: MAX 25 units/tray

② Place the packing tray containing the pressure sensor
Stack cardboard boxes vertically. 4 layers × 2 rows
※Place between top and bottom of packing trays and between packing trays.
Insert cardboard backing sheet.
Quantity: MAX 200 units = 25 units/tray × 8

Cardboard Size
W487 × D304 × H127

8. Precautions

・Use within the rated maximum specified in Section 2-1. Use outside these rated maximum values may cause damage or failure.

・This product is not splash-proof. Exposure to water or Condensation may cause malfunction. Also, do not allow the pressure medium to freeze. This may damage the diaphragm.

・Do not drop this product from a height. Also, do not subject it to strong impacts. Doing so may cause damage or failure.

・Excessive shock pressure (water hammer, sudden pressure application) may damage the diaphragm. Ensure no shock pressure is applied before use.

・Foreign objects entering the pressure inlet pipe or atmospheric inlet port may cause leaks or performance degradation.

・Do not apply static electricity or reverse voltage to this product. This may destroy electronic components and cause malfunction. Please take sufficient anti-static precautions when handling the product.

・Exposure to corrosive gases (organic solvents, sulfur dioxide gas, hydrogen sulfide gas, etc.) may adversely affect the performance of this product.

・This product is intended for use in general electrical equipment.
If you intend to use this product in applications requiring extremely high reliability where failure or malfunction could directly or indirectly cause serious damage to life, body, or property—such as Medical Equipment, safety devices, aerospace equipment, nuclear control equipment, or fuel controllers—please Contact Us beforehand.