PIEZOELECTRIC INVERTER

1. Scope
   This applies to the Piezoelectric Inverter HBL−0270.

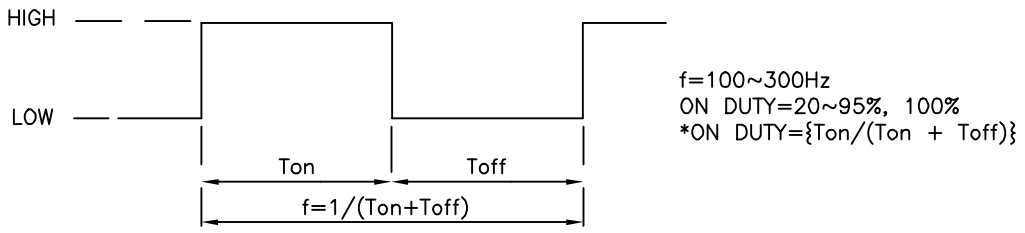
2. Electrical Characteristics
   a. Absolute Maximum Rating

| | |
|---|---|
| Input voltage | 6.0V MAX. |
| Max. output power | 0.8W MAX. |

   b. Input/Output Characteristics
      The measuring circuit and measuring method shall be as set forth in Section 4.
      (Unless otherwise specified, Ta = 25°C)
      Values are those obtained 3 minutes after the power is turned on.

| Item | Specification |
|---|---|
| Input Voltage | 3.0V ~ 5.5V |
| Input current | TBD (Vin = 3.0V) |
| Output open voltage | 900Vrms MIN (at ambient temperature 0°C) |
| Output current | 2.0mArms ±10% |
| Frequency | 160KHz ±10% |
| ON/OFF function | ON: ON/OFF terminal signal HIGH (2.5V ~ Vin)<br>OFF: ON/OFF terminal signal LOW (0V ~ 0.5V)<br>(To turn on the inverter, apply voltage to the Vin terminal, then turn on the ON/OFF terminal.) |
| Dimming | By PWM at pin 3 (On/OFF terminal) with a square wave |

   c. Dimming
      To use the dimming function, apply the following signal to the ON/OFF terminal, with a Duty rate of 20% ~ 95%.
      No Dimming function with 100% Duty rate (always High)

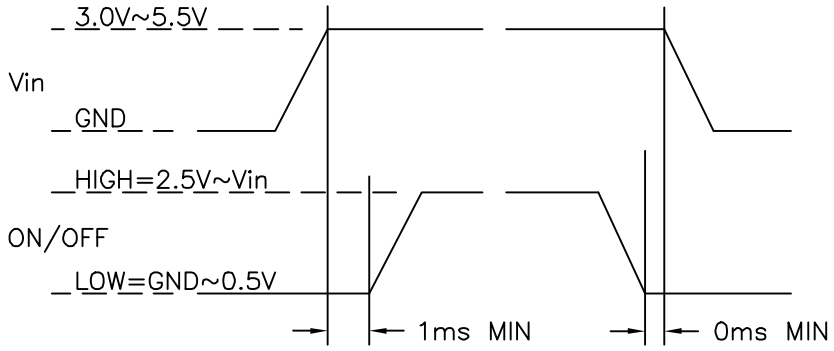



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| | DOCUMENT NUMBER: P−A3−13021 | | | |

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d. Input Sequence




The ON/OFF pin slew rate must be 1V/ms or faster. If the minimum slew rate requirement is not met, then the inverter output may not start.

3. Input/Output Interface Connection

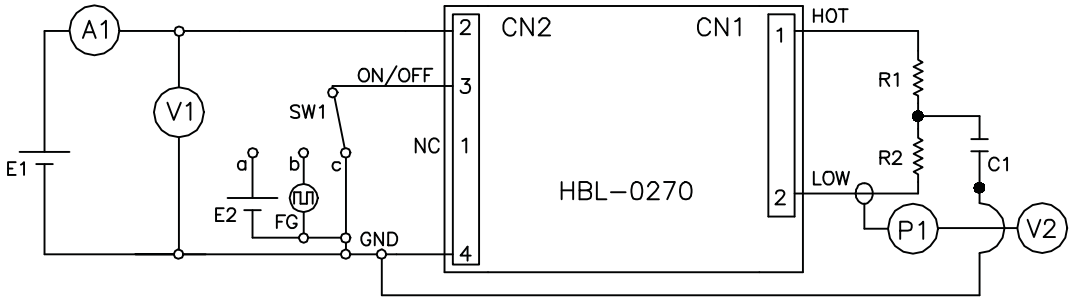
Input CN2:A4B−4PA−2DS (HIROSE)

| Pin No. | Function |
|---|---|
| 1 | Vin |
| 2 | Vin |
| 3 | ON/OFF |
| 4 | GND |
| 5 | GND |
| 6 | GND |

Output CN1:HV−2P−HF (JAE)

| Pin No. | Function |
|---|---|
| 1 | HOT |
| 2 | COLD |

4. Measuring Circuit and Method for Electrical Characteristic




E1: DC regulated power supply — 3.0V ~ 5.5V
E2: DC regulated power supply — 2.5V
V1: Effective value voltmeter — 3400B (YHP) or equivalent
A1: DC ammeter — Type 2011 Class 0.5 (YEW) or equivalent
P1: Probe — P6021 (Tektronix) or equivalent
FG: Function generator
Equivalent load
R1: 100kΩ, 1W
R2: 61kΩ, 1W
C1: 5pF, 3kV

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5. Ambient Conditions

a. Temperature
Operating temperature: 0°C ~ 50°C
Storage temperature: −20°C ~ 70°C

b. Humidity
Operating humidity: 20% ~ 80% (No condensation)
Storage humidity: 5% ~ 90% (No condensation)

6. Reliability
The reliability is verified on the following items

| Item | Specification | Sample Qty |
|---|---|---|
| Left at high temp. | Ambient temperature 70°C, 240H | 4 |
| Left at low temp. | Ambient temperature −20°C, 240H | 4 |
| Left at High temp. and high humidity | Ambient temperature 40°C, Humidity 95%, 240H | 4 |
| Temperature Cycle | −20°C ~ 70°C, 5 cycles | 4 |
| High temperature power on | Ambient temperature 50°C, input voltage 5.5V, output current 1.4mArms, 500H (Equivalent load resistance) | 11 |
| ON/OFF test | 1 min:ON, 1min:OFF, 50000 times (Input voltage 5.5V, output current 1.4mArms, Equivalent load resistance) | 5 |
| Vibration | Acceleration 3G, frequency sweep 10~55Hz for 45 min. Once in each of X, Y, and Z directions. | 3 |
| Shock | Acceleration 80G, acting time 11ms, 3 times in each of X, Y, and Z directions. | 3 |

After the end of each test. leave the product at room temperature and humidity for 24 hours. The Electrical and Mechanical characteristics shall remain within spec.

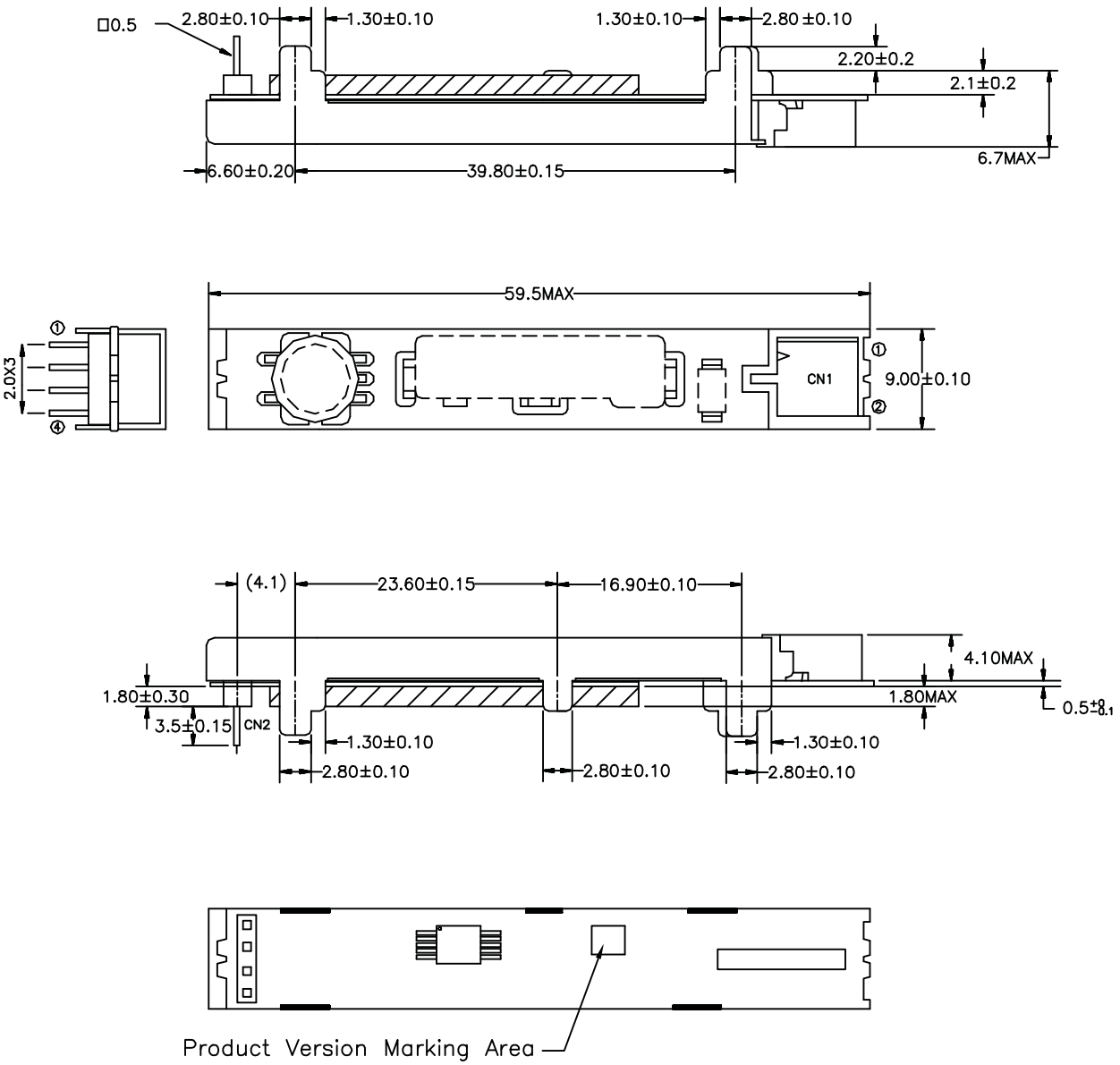
7. Precautions for static electricity
When transporting this product, use materials that will not develop an electrical charge. When handling this product, be sure to wear antistatic wrist bands or other protective equipment to prevent the product from being damaged by any electric charge.

8. An input fuse is built into this inverter.



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9. Dimensions and Connectors




CN1: HV−2P−HF (JAE)
① High
② Low

Mating Connector: HV−2S−C1 (JAE)
IL−Z−C1−A−7000 (Contact)

CN2: A4B−4PA−2DSA (HRS)
① Vcc
② Vin
③ ON/OFF
④ GND

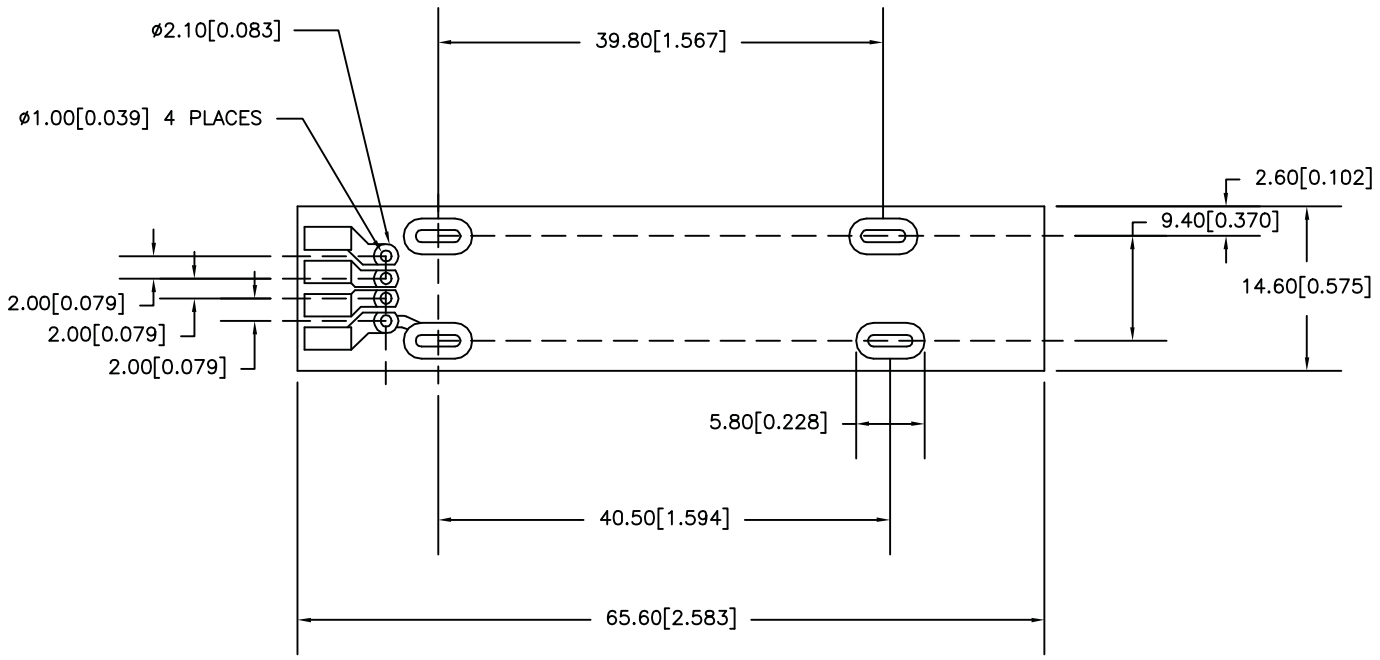
Through Hole Soldering

| | | | | |
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10. Recommended board layout




(Top View)

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