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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. |

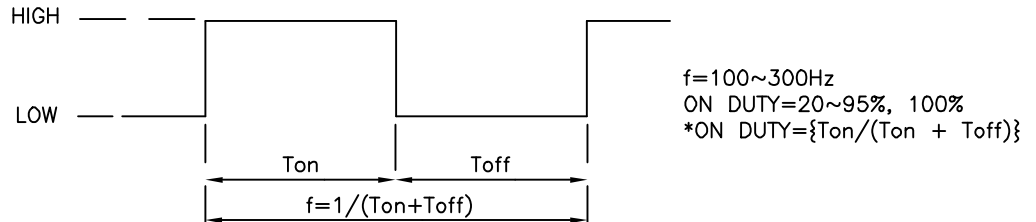
b. Input/Output Characteristics

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 | 2.0mA rms ±10% |
| Frequency | 160KHz ±10% |
| ON/OFF function | ON: ON/OFF terminal signal HIGH (2.5V ~ Vin) OFF: ON/OFF terminal signal LOW (0V ~ 0.5V) (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 |

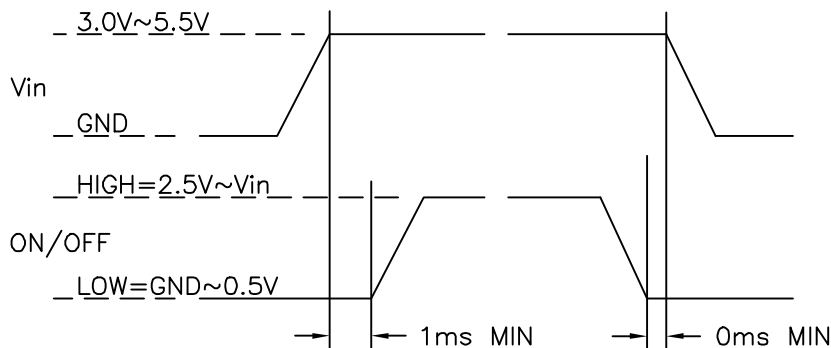
c. Dimming

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)



| | | | | |
|--|--|----------|----------------|--------------|
| FILE NAME: ACAD\MXFMR\A3130211.DWG | SCALE: NONE | REV: PRE | DATE: 01/13/03 | SHEET 1 OF 5 |
| TAMURA CORPORATION OF AMERICA 43352 BUSINESS PARK DRIVE • TEMECULA • CA • 92590 TEL: (909)699-1270 • FAX: 9096769482 | TITLE: HBL-0270 PIEZOELECTRIC INVERTER | | | |
| | 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

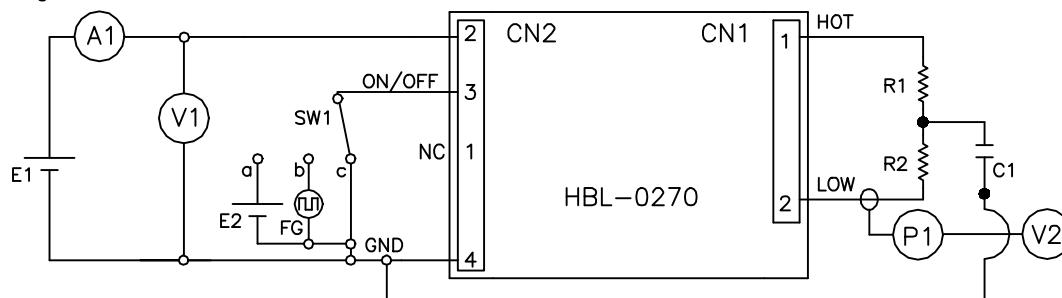
Input CN2:A4B-4PA-2DS (HIROSE)

| Pin No. | Function |
|---------|----------|
| 1 | V_{in} |
| 2 | V_{in} |
| 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: 100k Ω , 1W | |
| R2: 61k Ω , 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.

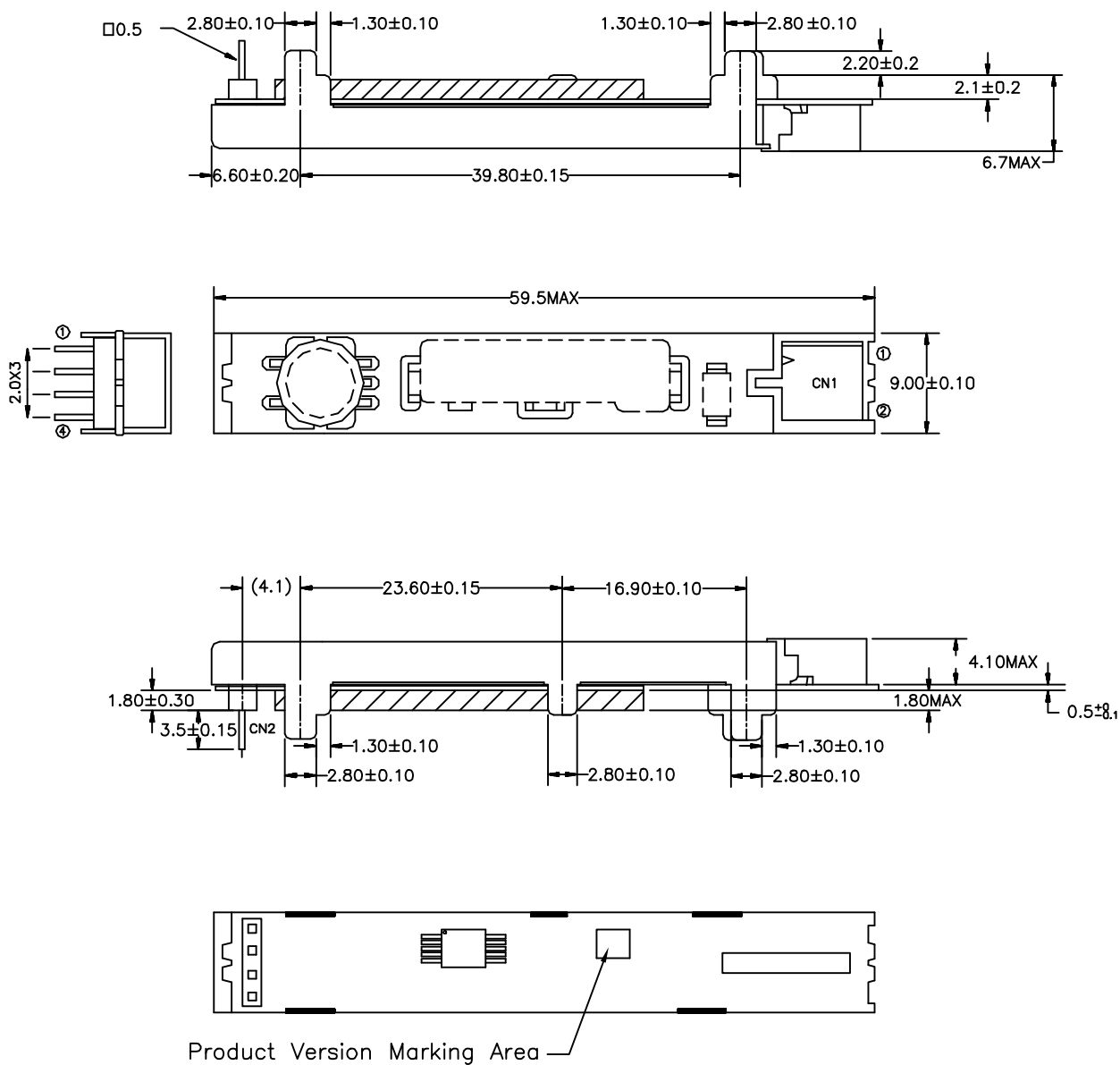
7. Precautions for static electricity

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)

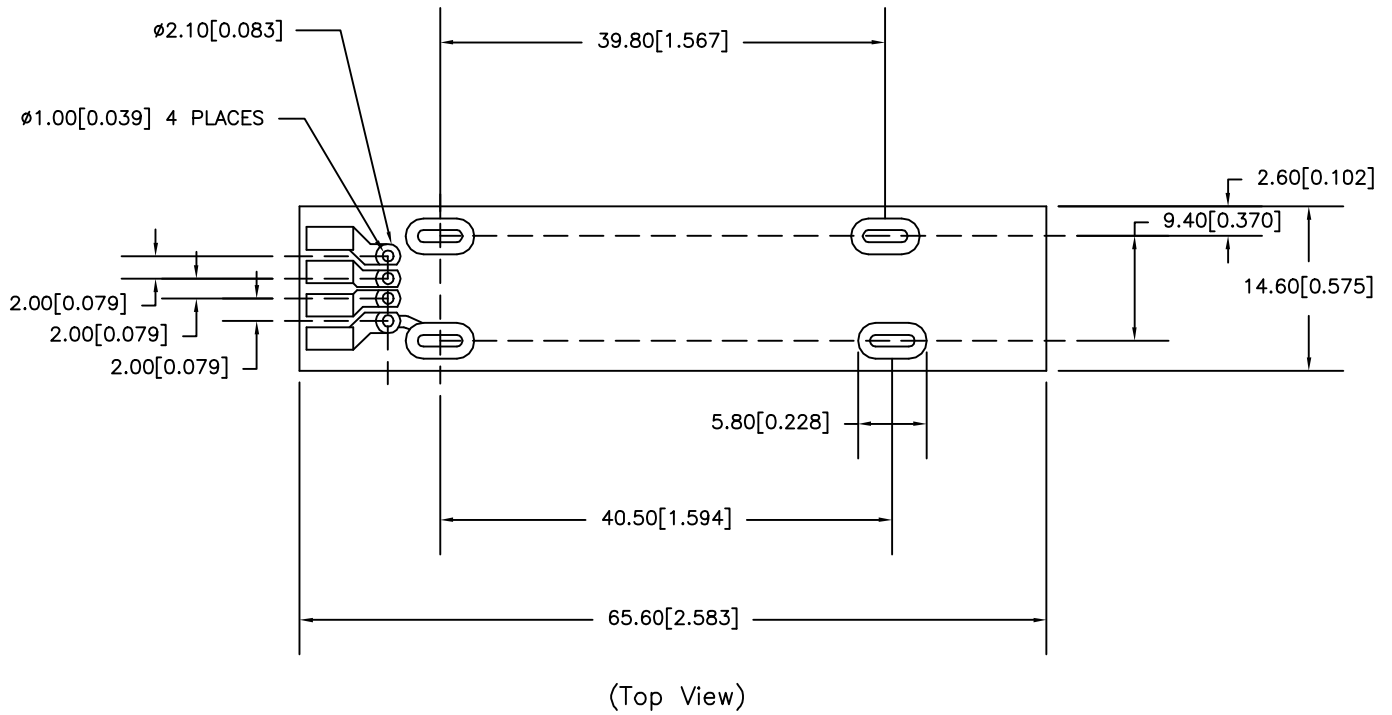
- ① Vcc
- ② Vin
- ③ ON/OFF
- ④ GND

Through Hole Soldering

| | | | | |
|---|-------------|---|----------------|--------------|
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10. Recommended board layout



| | | | | |
|--|-------------|---|----------------|--------------|
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