


Figure 1.1. Physical Photos of AHVA100V2X100MA




Figure 1.2. 3D View of AHVA100V2X100MA


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## MAIN FEATURES

- Built-in High Voltage Converter
- Compact Size: 176.5(L)×147.0(W)×41.2(H) mm
- High Current Capability: Up to 100mA
- High Slew Rate: 100V/μs
- Wide Output Voltage Range: $V_{OUT}$=10~100V@$V_{IN}$=24V
- Offset Voltage Range: 10V
- Bandwidth: Up to 10kHz
- Weight: 2.2lb (1.0kg)

## APPLICATIONS

High voltage amplifications for driving piezos and other high voltage loads.

## DESCRIPTION

The AHVA100V2X100MA is an electronic module for amplifying an analog input voltage into a high voltage output. Figure 1 shows its physical photo. It comes with a high voltage DC-DC converter, which converts the 24V input voltage into a 10 to 100V output voltage. The analog output voltage can swing almost from 10 to 100V when it is powered by a 24V power supply. There is three LEDs indicating if the amplifier works properly.

## CAUTION

First, set up the AC power supply and fix it stably and firmly. Then make sure that the two switches of the high voltage amplifier are OFF. Connect the 24V DC power supply to the VPS and PGND of the high voltage amplifier. After the connection is complete, turn on the low voltage switch and set the input AC voltage or DC voltage. Then use the output monitor to check whether the input set voltage is correct. Finally turn on the high voltage switch.

Table 1. Descriptions of Terminal Block Pin Functions

| Pin # | Name | Type | Description |
|---|---|---|---|
| 1 | VPS | Power Input | Power supply 24V. |
| 2 | PGND | Power Ground | Power ground pin. |
| 3 | SBDN | Digital Input | This is a duplex pin. It sets the amplifier into Off, Standby or On mode. |
| 4 | AGND | Signal Ground | Signal ground pin. Connect ADC and DAC grounds to here. |
| 5 | 10VR | Analog Output | 10V voltage reference. |
| 6 | IHVMON | Analog Input | - |
| 7 | HVMON | Analog Output | Output voltage indication. When going from 1V to 10V, it indicates the output voltage is from 10V to 100V. |
| 8 | OFFSO | Analog Output | Output voltage setting. When going from 1V to 10V, it indicates the output voltage is from 10V to 100V. The pin is controlled by a potentiometer. |
| 9 | GND | Signal Ground | Signal ground pin. Connect ADC and DAC grounds to here. |
| BNC 1 | Input | Analog Input | Output voltage setting. When going from 1V to 10V, it indicates the output voltage is from 10V to 100V. |
| BNC 2 | Input+Offset Monitor | Analog Output | Input+Offset input control signal indication. |
| BNC 3 | HVOUT | Analog Output | Output voltage for driving the load. |
| | OGND | Output Ground | Connect this pin to the load return terminal. |


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## SPECIFICATIONS

Table 2. Characteristics (Test ambient temperature $T_A$ = 25°C)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Power Supply Input (Pin 1) | | | | | | |
| Input Range | $V_{VPS}$ | | 23 | 24 | 25 | V |
| Input Current | $I_{IN}$ | | 0 | | 4 | A |
| Voltage Output (BNC 3) | | | | | | |
| Output Voltage | $V_{OUT}$ | | 10 | | 100 | V |
| Output Current | $I_{OUT}$ | | 0 | | 100 | mA |
| SBDN Pin (Pin 3) | | | | | | |
| Off State | $V_{SBDN-OFF}$ | | 0 | | 0.4 | V |
| | $V_{SBDN-OFF-HI}$ Going up from Off to Standby threshold | | | | 2.1 | V |
| | $V_{SBDN-OFF-LOW}$ Going down from Standby to Off threshold | | 0.4 | | | V |
| SBDN State | $V_{SBDN-STANDBY}$ | | 2.1 | | 2.51 | V |
| | $V_{SBDN-SB-HI}$ Going up from Standby to On threshold | | | | 2.64 | V |
| | $V_{SBDN-SB-LOW}$ Going down from On to Standby threshold | | 2.51 | | | V |
| On State | $V_{SBDN-ON}$ | | 2.64 | | $V_{VPS}$ | V |
| SBDN Current | $I_{SBDN}$ | | | 10 | 20 | µA |
| 10VR Pin (Pin 5) | | | | | | |
| Voltage Reference | $V_{REF}$ | | | 10 | | V |
| Maximum Input Power | | | | 100 | | W |
| Maximum Slew Rate | | | | 100 | | V/µs |


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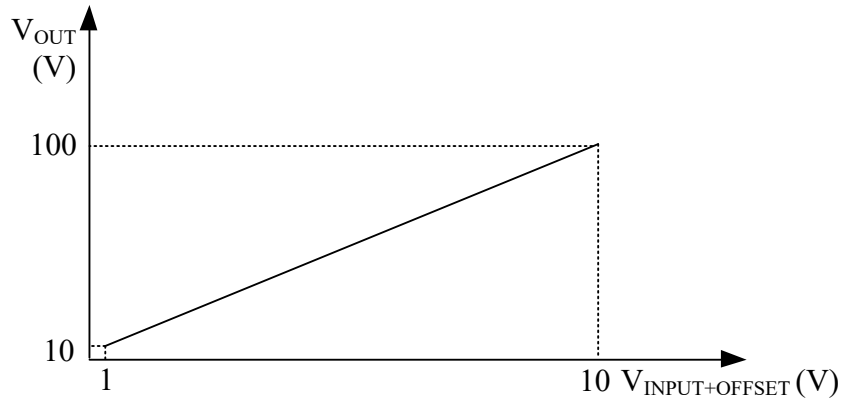



Figure 2. $V_{INPUT+OFFSET}$ vs. $V_{OUT}$

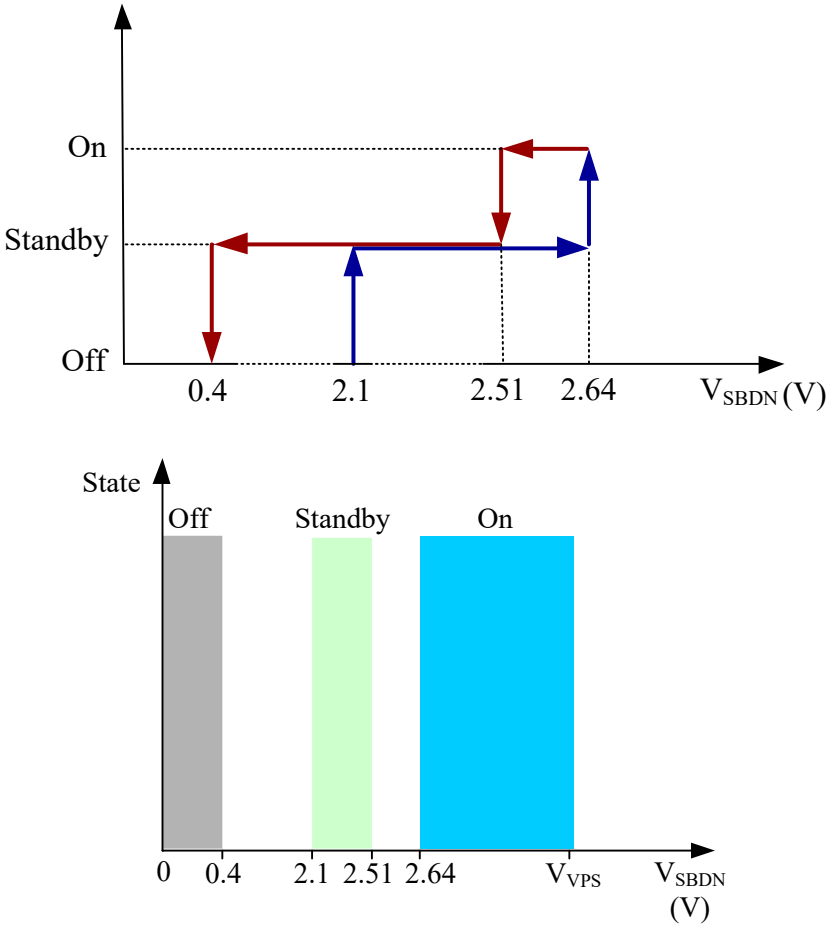



Figure 3. $V_{SBDN}$ vs. Amplifier States


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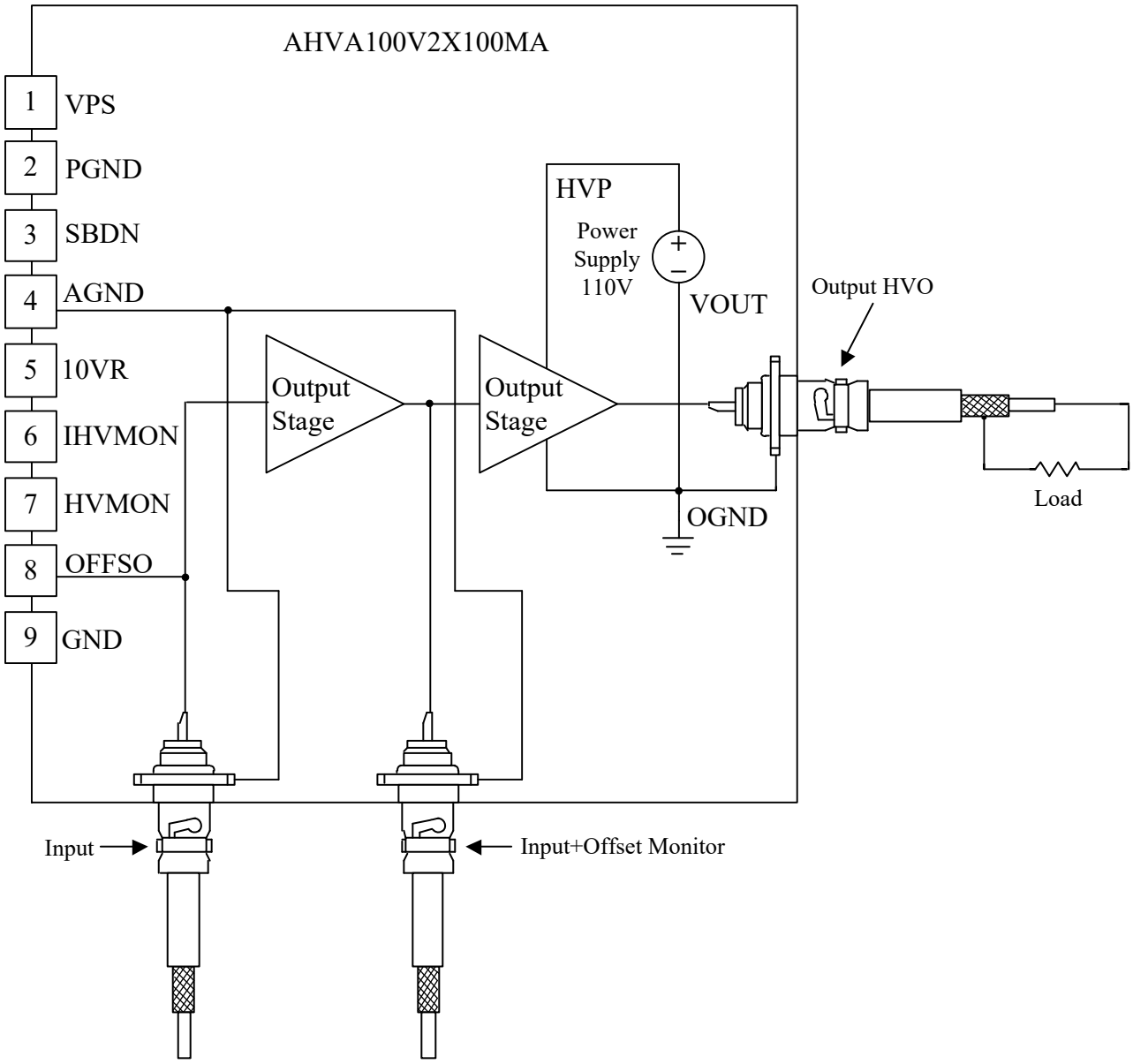



Figure 4. Schematic for Driving the Load


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## DIMENSIONS

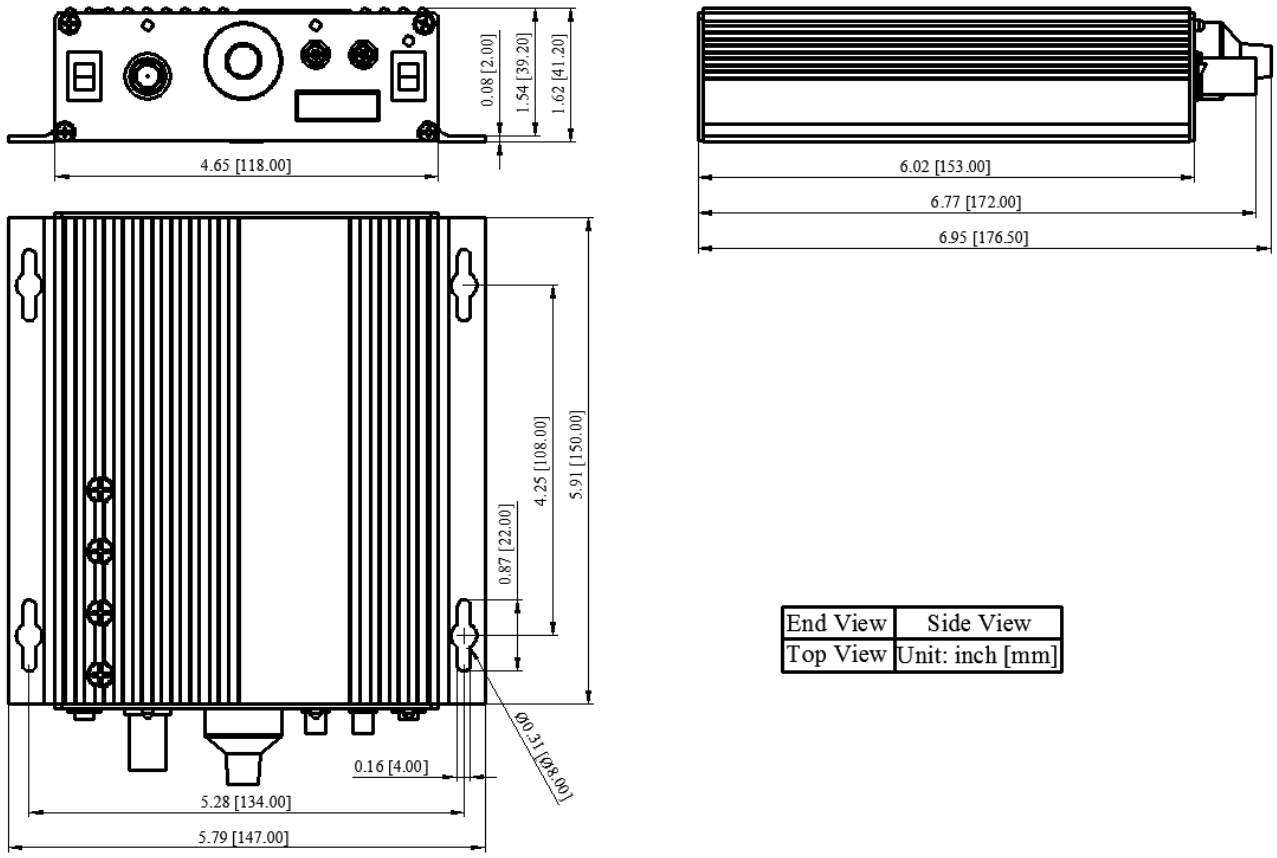



Figure 5. Dimensions of AHVA100V2X100MA

## ORDERING INFORMATION

**Table 3. Part Number**

| Part Number | Description |
|---|---|
| AHVA100V2X100MA | 100V high voltage amplifier |


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