



MAIN FEATURES

- Built-in High Voltage Converter
- High Slew Rate: 800V/μs
- Bandwidth: Up to 1MHz
- High Current Capability: Up to 20mA
- Offset Voltage Range: 10V
- Wide Output Voltage Range:  $V_{OUT}=0\sim 2kV@V_{IN}=24V$
- Compact Size: 176.5(L)×147.0(W)×41.2(H) mm
- Weight: 2.2lb (1.0kg)

APPLICATIONS

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

DESCRIPTION

The AHVAHS2KV2X20MA 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 0 to 2kV output voltage. The analog output voltage can swing almost from 0 to 2kV when it is powered by a 24V power supply. There is three LEDs indicating if the amplifier works properly.



Figure 1. Physical Photos of AHVAHS2KV2X20MA

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	Output current indication. When going from 0 to 10V, it indicates the output current is from 0 to 20mA.
7	HVMON	Analog Output	Output voltage indication. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV.
8	OFFSO	Analog Input	Output voltage setting. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV. The pin is controlled by a potentiometer.
9	GND	Signal Ground	Signal ground pin. Connect ADC and DAC grounds to here.



Pin #	Name	Type	Description
BNC 1	INPUT	Analog Input	Output voltage setting. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV.
BNC 2	INPUT+DC	Analog Input	INPUT+DC input control signal indication.
BNC 3	VOUT	Analog Output	Output voltage for driving the load.
	OGND	Output Ground	Connect this pin to the load return terminal.

**SPECIFICATIONS**

Table 2. Characteristics (Test ambient temperature  $T_A = 25^\circ\text{C}$ )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Power Supply Input						
Input Range	$V_{VPS}$		23	24	25	V
Input Current	$I_{IN}$		0		4	A
Voltage Output						
Output Voltage	$V_{OUT}$		0		2000	V
Output Current	$I_{OUT}$		0		18	mA
SBDN Pin (Pin 3)						
SBDN Voltage	$V_{SBDN-ON}$		2.64		$V_{VPS}$	V
	$V_{SBDN-STANDBY}$		2.1		2.5	V
	$V_{SBDN-OFF}$		0		0.4	V
	$V_{SBDN-SB-HI}$ Going up from Standby to On threshold voltage		2.508		2.64	V
	$V_{SBDN-SB-LOW}$ Going down from On to Standby threshold voltage		2.5		2.6	V
	$V_{SBDN-OFF-HI}$ Going up from Off to Standby threshold voltage				2.1	V
	$V_{SBDN-OFF-LOW}$ Going down from Standby to Off threshold voltage			0.4		V
SBDN Current	$I_{SBDN}$			10	20	$\mu\text{A}$
10VR Pin (Pin 5)						
Voltage Reference	$V_{REF}$			10		V
Maximum Input Power				80		W
Maximum Slew Rate				800		V/ $\mu\text{s}$

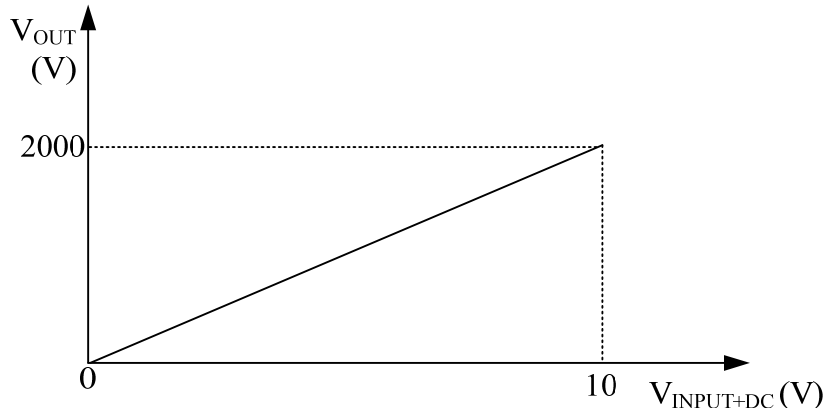


Figure 2.  $V_{OUT}$  vs.  $V_{VIN}$

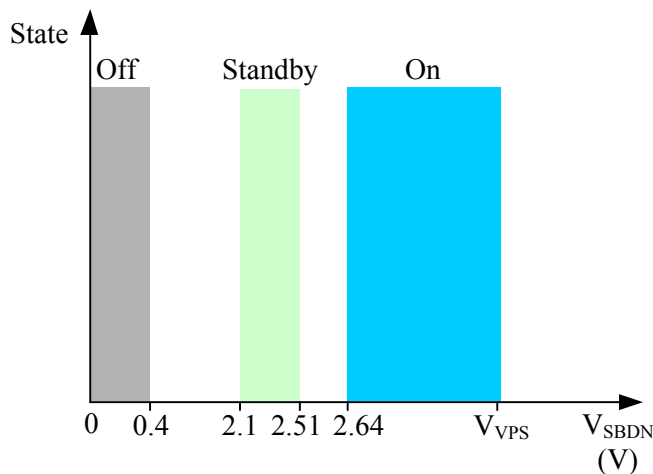
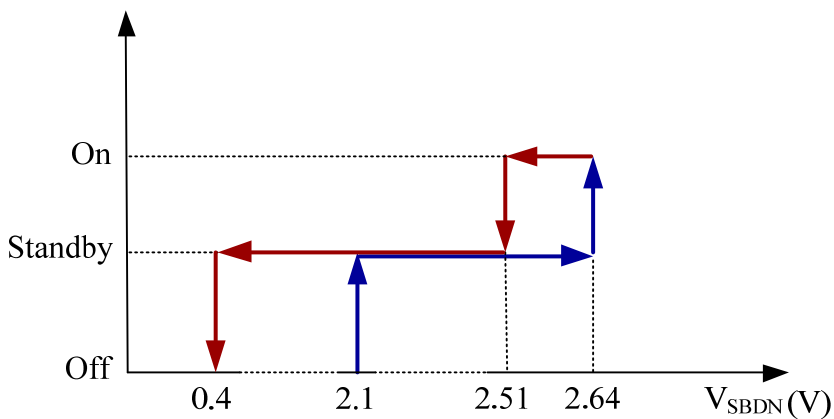


Figure 3. The States of Amplifier vs.  $V_{SBDN}$

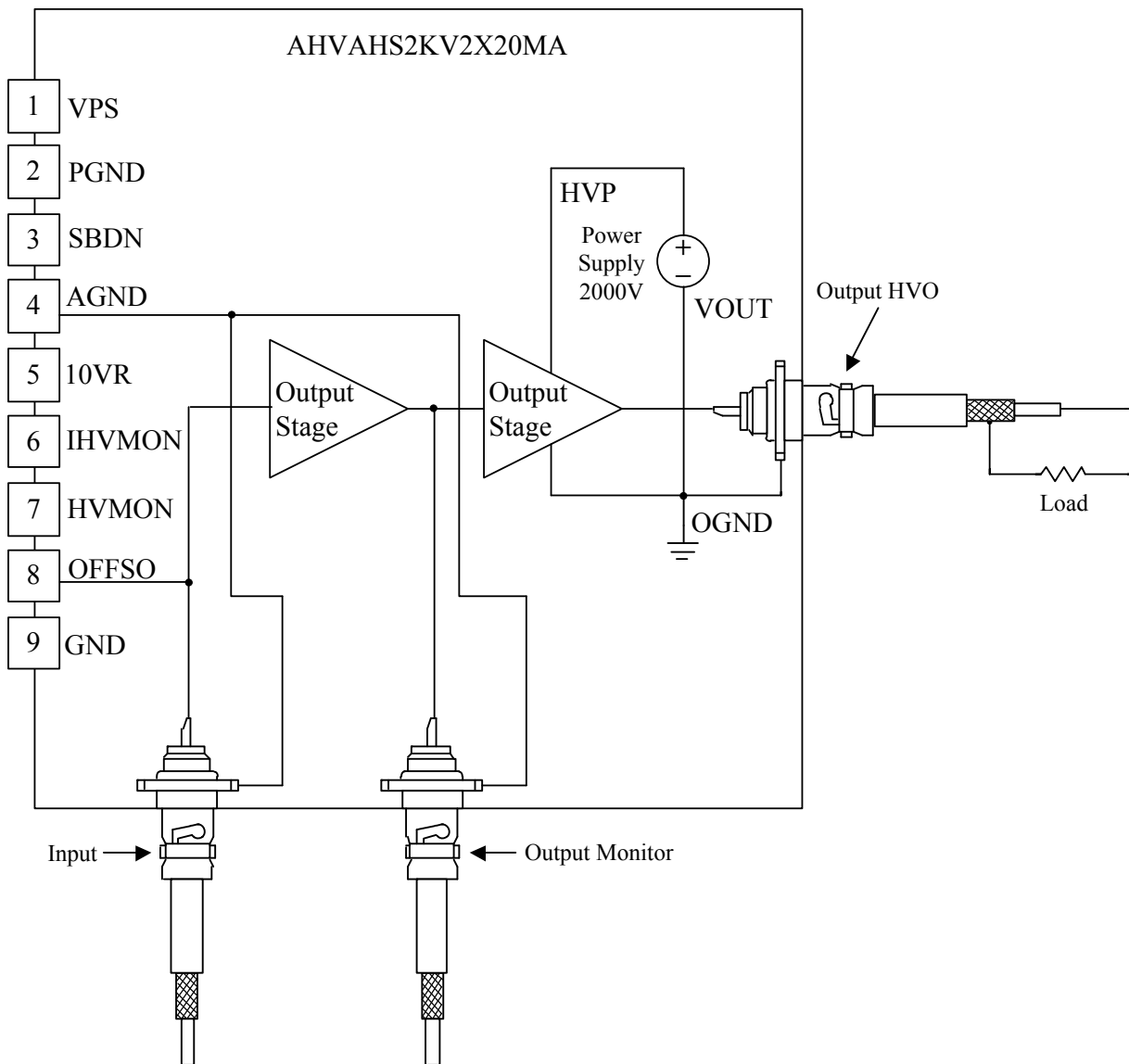


Figure 4. Schematic for Driving the Load

**BLOCK DIAGRAM**

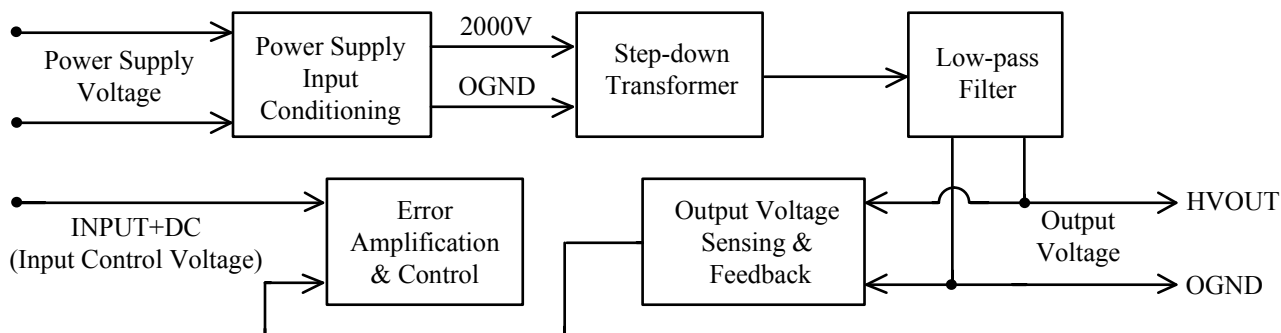
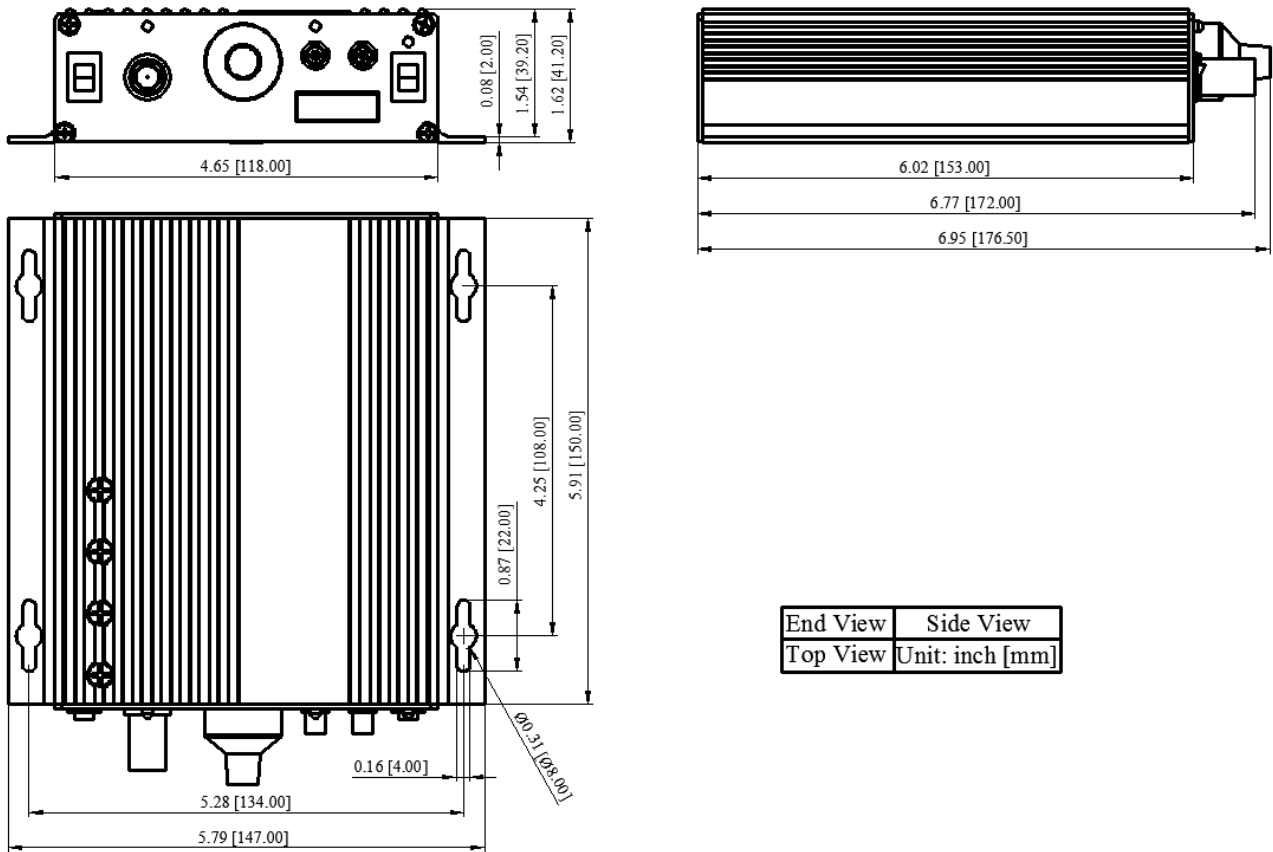


Figure 5. Block Diagram



**DIMENSIONS**



End View	Side View
Top View	Unit: inch [mm]

Figure 6. Dimensions of AHVAHS2KV2X20MA

**ORDERING INFORMATION**

**Table 3. Part Number**

Part Number	Description
AHVAHS2KV2X20MA	2kV high voltage high speed amplifier

**Table 4. Unit Price**

Quantity (pcs)	1 – 4	5 – 8	9 – 12	13 – 16	17 – 20	≥21
Unit Price	\$1999	\$1949	\$1899	\$1849	\$1799	\$1749



**NOTICE**

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