



Figure 1. Physical Photos of AHVAHS2KV2X20MA

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.

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	AIO	Analog Input	Output current indication. When going from 0 to 10V, it indicates the output current is from 0 to 20mA.
7	ACO	Analog Output	Output voltage indication. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV.
8	BIASO	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		
SBDN Current	I_{SBDN}			10	20	μA
10VR Pin (Pin 5)						
Voltage Reference	V_{REF}			10		V
Maximum Input Power				80		W
Maximum Slew Rate				800		V/ μs

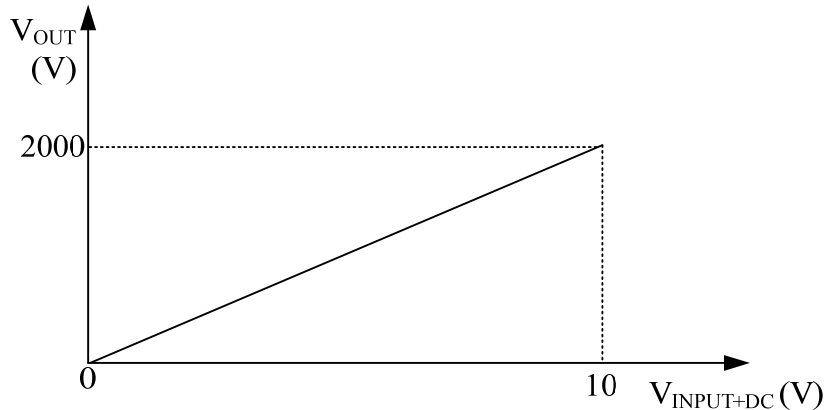


Figure 2. V_{OUT} vs. V_{VIN}

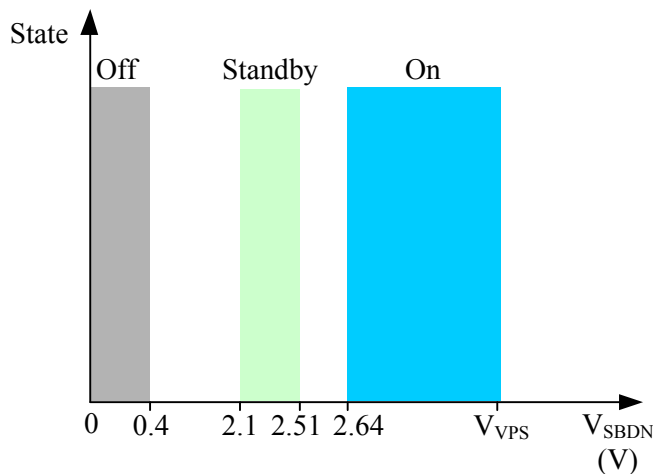
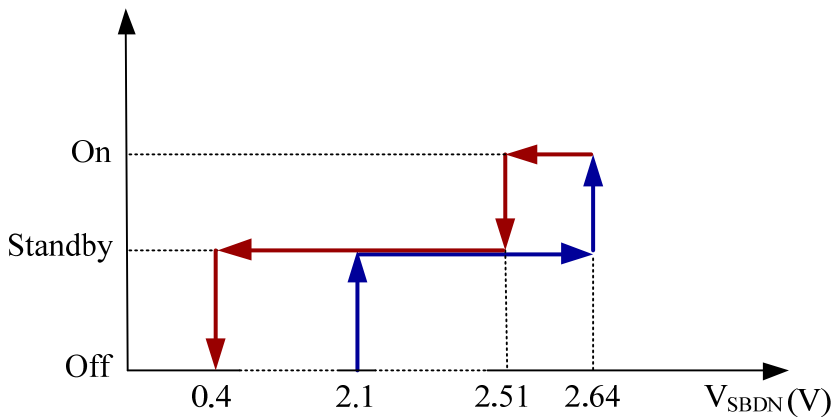


Figure 3. The States of Amplifier vs. V_{SBDN}

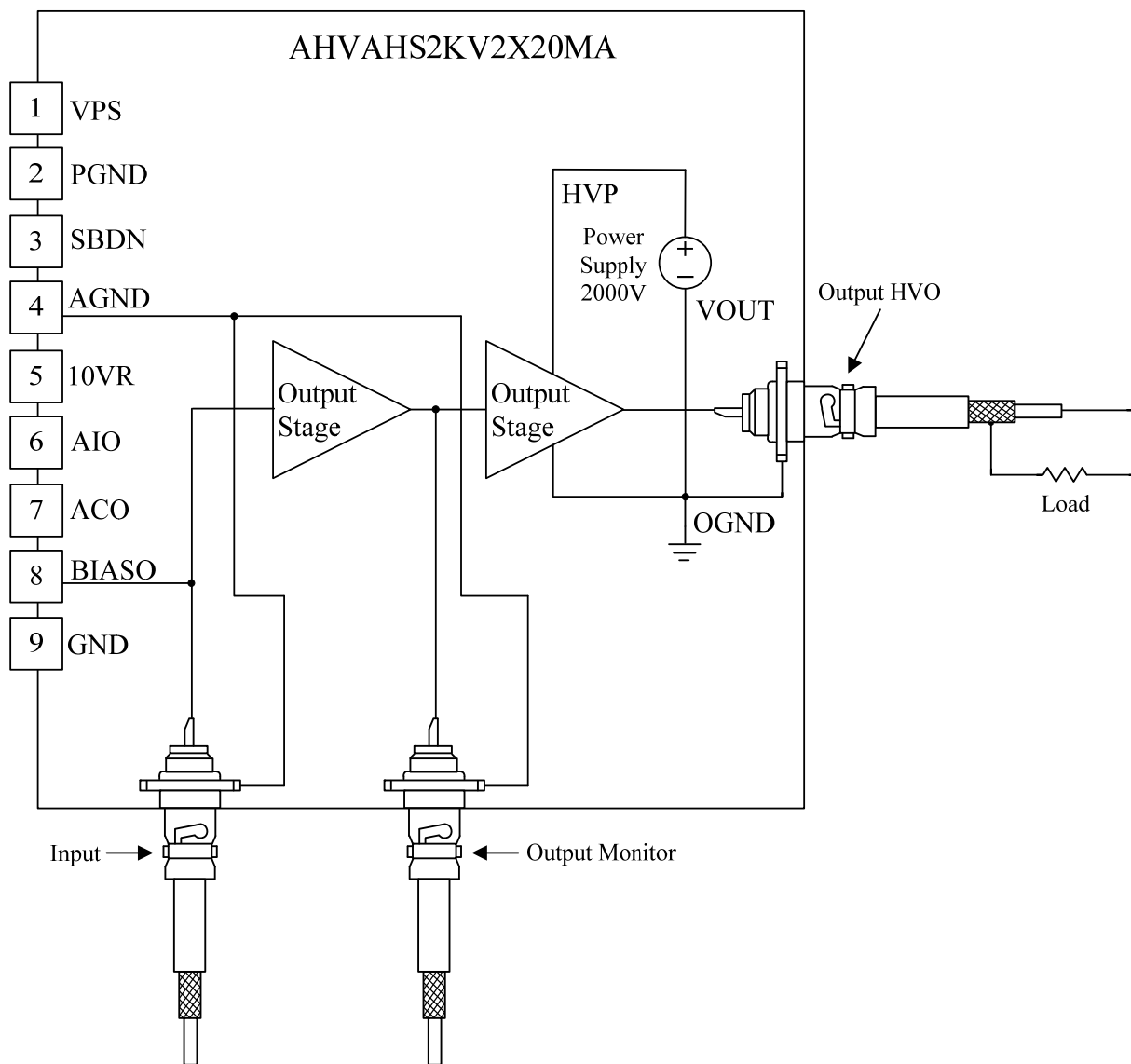


Figure 4. Schematic for Driving the Load

BLOCK DIAGRAM

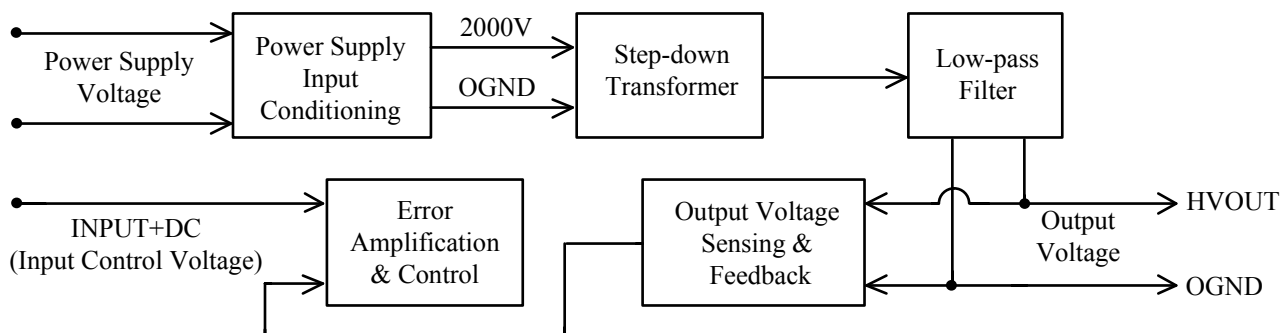


Figure 5. Block Diagram



DIMENSIONS

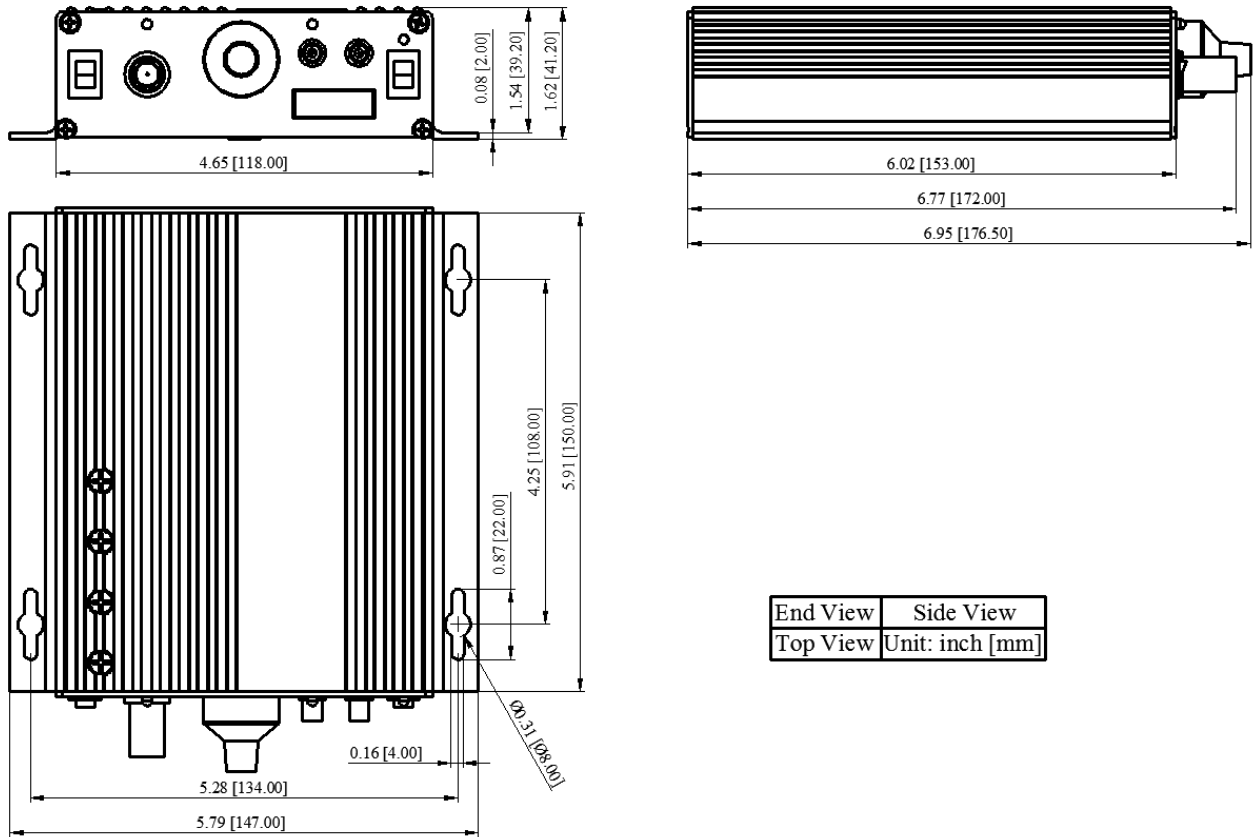


Figure 6. Dimensions of AHVAHS2KV2X20MA

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



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