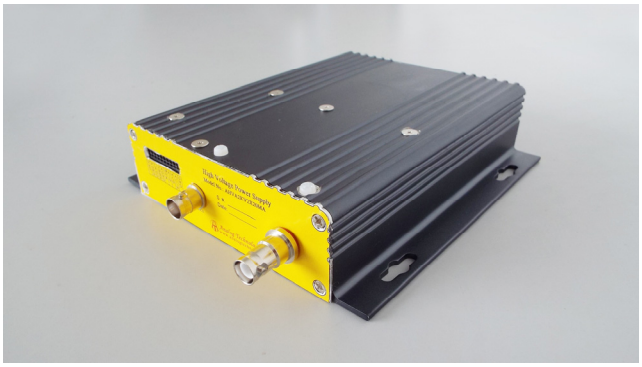

Figure 1. The Physical Photos of AHVA2KV2X20MA

MAIN FEATURES

- Built-in High Voltage Power Supply
- Compact Size: 150(L)×120(W)×30(H) mm
- High Current Capability: Up to 20mA
- High Slew Rate: 150V/μs
- Wide Output Voltage Range: V_{OUT}=0~2kV@V_{IN}=24V
- Bandwidth: Up to 10kHz

APPLICATIONS

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

DESCRIPTION

The AHVA2KV2X20MA 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 10kV when it is powered by a 24V power supply. There is an LED light 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	LPGD	Digital output	Loop good indication. When the amplifier is working properly, this pin goes high; otherwise, it goes low.
4	SBDN	Digital input	This is a duplex pin. It sets the amplifier into Off, Standby or On mode.
5	AGND	Signal Ground	Signal ground pin. Connect ADC and DAC grounds to here.
6	10VR	Analog output	10V voltage reference.
7	AIO	Analog input	Output current indication. When going from 0 to 10V, it indicates the output current is from 0 to 20mA.
8	ACO	Analog output	Output voltage indication. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV.
9	ACIN	Analog input	Output voltage setting. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV.
10	GND	Signal Ground	Signal ground pin. Connect ADC and DAC grounds to here.

Pin #	Name	Type	Description
BNC 1	ACIN	Analog input	Output voltage setting. When going from 0 to 10V, it indicates the output voltage is from 0 to 2kV.
BNC 2	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 $T_A = 25°C$)

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		20	mA
SBDN Pin (Pin 4)						
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}					µA
LPGD Pin (Pin 3)						
LPGD Voltage	$V_{LPGD-LOW}$	$V_{DD}=5V$ Sourcing current=8mA			0.6	V
	$V_{LPGD-HI}$	$V_{DD}=5V$ Sourcing current=3.5mA	$V_{DD}-0.7$			V

10VR Pin (Pin 6)						
Voltage Reference	V_{REF}			10		V
Maximum Input Power				80		W
Maximum Slew Rate				150		V/μs

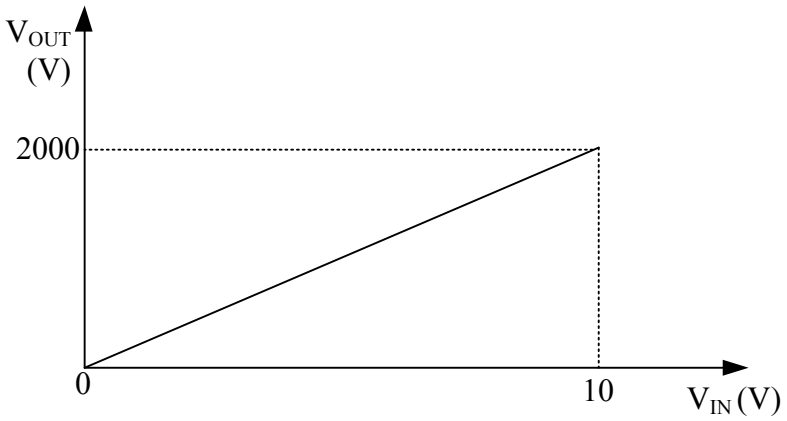

Figure 2. V_{OUT} vs. V_{VIN}

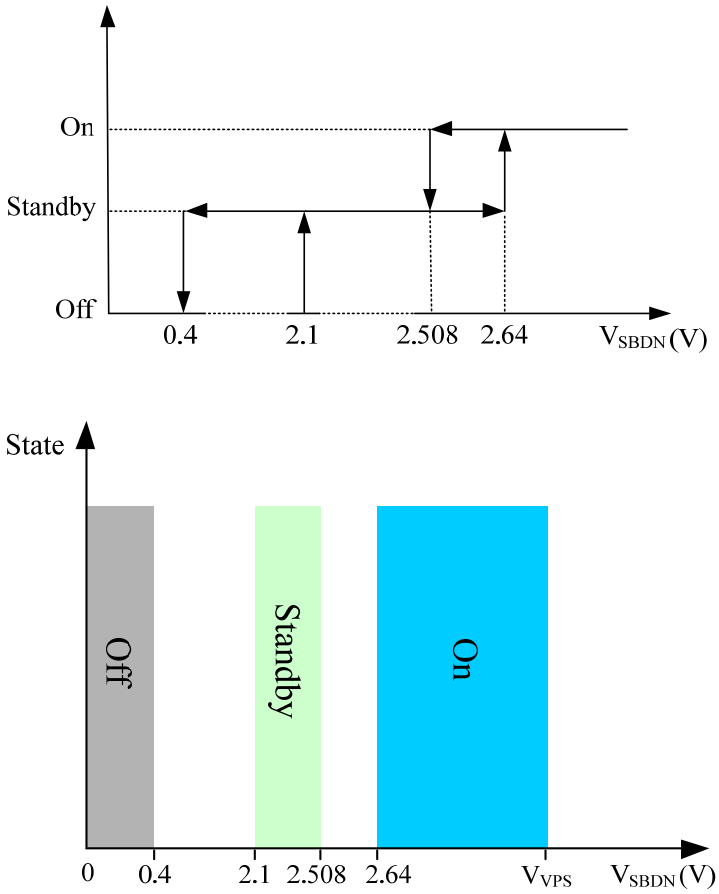

Figure 3. The States of Amplifier vs. V_{SBDN}

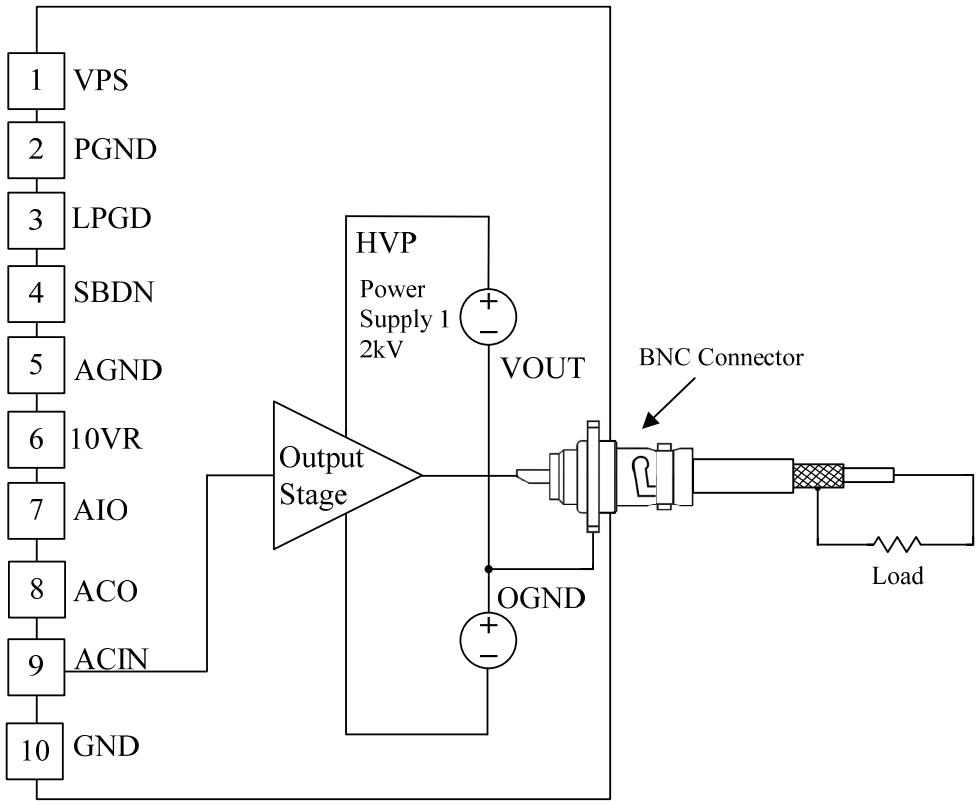

Figure 4. Schematic for Driving the Load

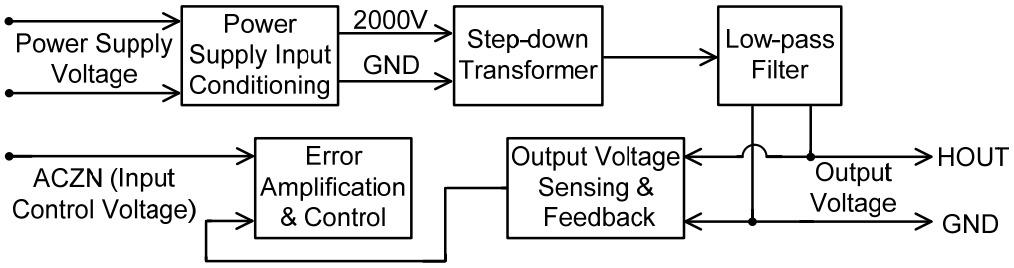

Figure 5. Block Diagram

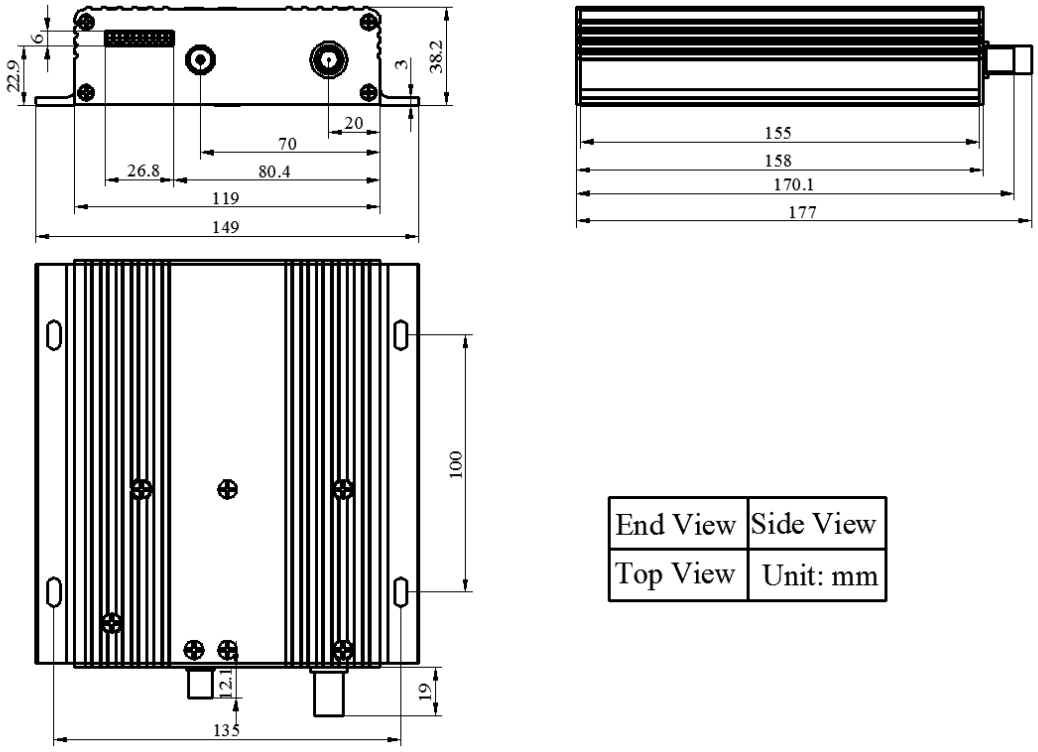

Figure 6. Dimensions of AHVA2KV2X20MA

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