Figure 1A. 3D View

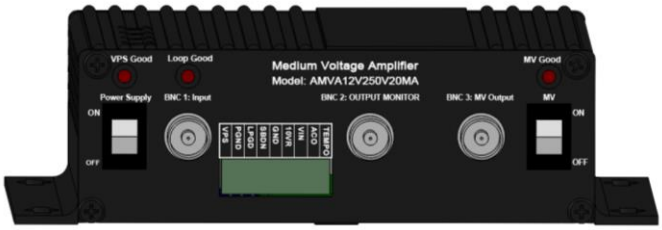


Figure 1B. Top and Front View

Figure 1D. Top and Back View

Figure 1C. Top and Side View

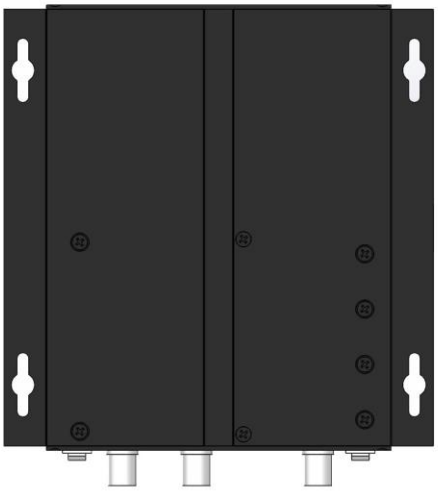


Figure 1E. Bottom View

FEATURES

- Built-in Medium Voltage Power Supply Converter
- High Current Capability: Up to 20mA
- High Slew Rate: 100V/μs
- Bandwidth: Up to 10kHz
- Offset Voltage Range: 10V
- Wide Output Voltage Range: V_{OUT} = 10V ~ 250V @V_{IN} = 0.4V ~ 10V
- Compact Size: 6.50(L)×5.79(W)×1.62(H) (inch) 165.1(L)×147.0(W)×41.2(H) (mm)
- Weight: 2.2lb (1.0kg)

APPLICATIONS

Medium voltage amplifications for driving piezos and other medium voltage loads.

DESCRIPTION

The AMVA12V250V20MA is an electronic module for amplifying an analog input voltage into a medium voltage output. Figure 1 shows its physical photos. It comes with a medium voltage DC-DC converter, which converts the 12V input voltage into a 10V to 250V output voltage. The analog output voltage can swing almost from 10V to 250V when it is powered by a 12V power supply. There is three LEDs indicating if the amplifier works properly.

WARNINGS

1. **Never touch the high voltage output by hand.**
2. **Do not place any foreign objects on the face plate.**
3. **Never connect the high voltage output to any connectors on low voltage side connectors. Keep them at least 1 inch (25mm) apart.**
4. **Before connecting or disconnecting high voltage output, make sure to turn off the amplifier power.**

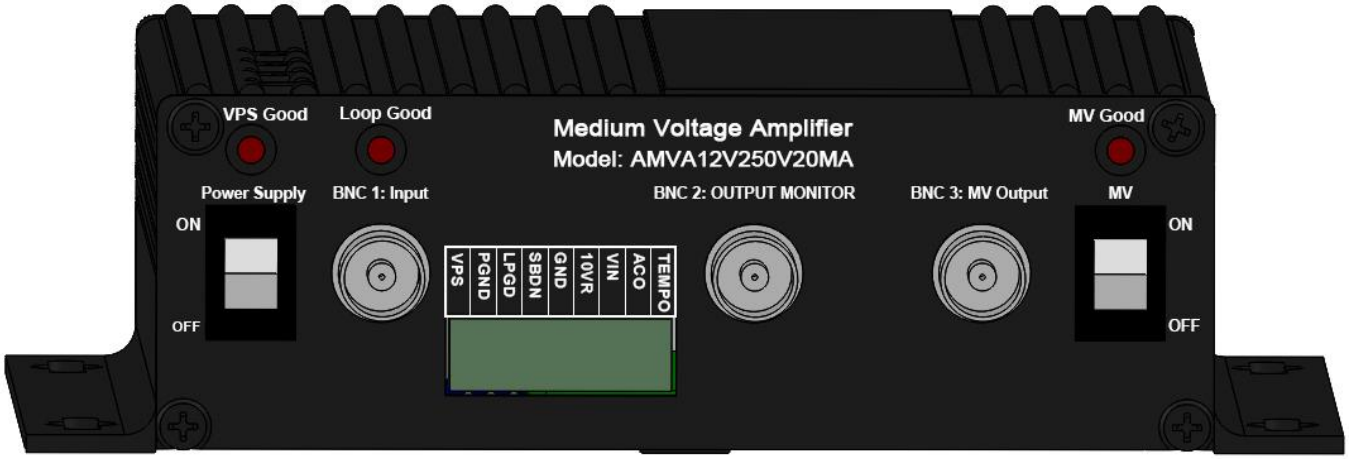


Table 1. Terminal Block Pin Functions

Pin #	Name	Type	Description
1	VPS	Power Input	Power supply 12V.
2	PGND	Power Ground	Power ground pin.
3	LPGD	Digital Output	Loop good indication. When the medium voltage amplifier is working properly, this pin is pulled high. Otherwise, it is pulled low.
4	SBDN	Digital Input	This is a duplex pin. It sets the amplifier into **Off**, **Standby** or **On** mode.
5	GND	Signal Ground	Signal ground pin. Connect ADC and DAC grounds to here.
6	10VR	Analog Output	10V voltage reference.

Pin #	Name	Type	Description
7	VIN	Analog Input	Intput voltage indication. When seeing its voltage is from 0.4V to 10V, it indicates the output voltage is from 10V to 250V.
8	ACO	Analog Output	Output voltage indication. When seeing its voltage is from 0.4V to 10V, it indicates the output voltage is from 10V to 250V.
9	TEMPO	Analog output	The amplifier internal temperature indication output. Operating internally temperature.
BNC 1	INPUT	Analog Input	A signal voltage to be amplified into high voltage swing at the output. When going from 0.4V to 10V, the output voltage should change from 10V to 250V. $V_{OUT}=25\times V_{INPUT}$, V_{INPUT} = 0.4 ~10V.
BNC 2	OUTPUT MONITOR	Analog Output	Output voltage indication. When seeing its voltage is from 0.4V to 10V, it indicates the output voltage is from 10V to 250V. $V_{OUT}=25\times V_{MONITOR}$
BNC 3	HVOUT	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 (Pin 1&2)						
Input Range	V_{VPS}		11.5	12	12.5	V
Input Current	I_{IN}		0		4	A
Voltage Output (BNC2)						
Output Voltage	V_{OUT}		10		250	V
Output Current	I_{OUT}		0		20	mA
Maximum Slew Rate				100		V/μs
SBDN (Pin 4)						
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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
On State	$V_{SBDN-ON}$		2.64		V_{VPS}	V
SBDN Current	I_{SBDN}			10	20	µA
10VR (Pin 6)						
Voltage Reference	V_{REF}			10		V

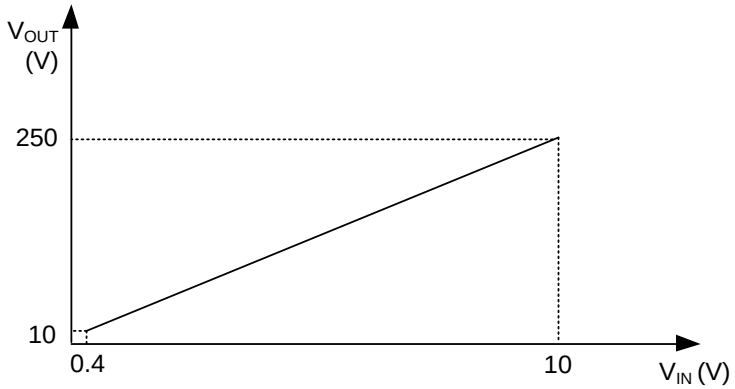
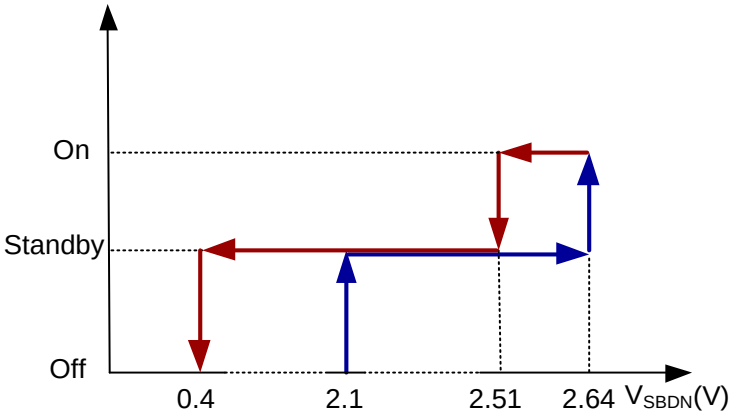


Figure 2. V_{IN} vs. V_{OUT}



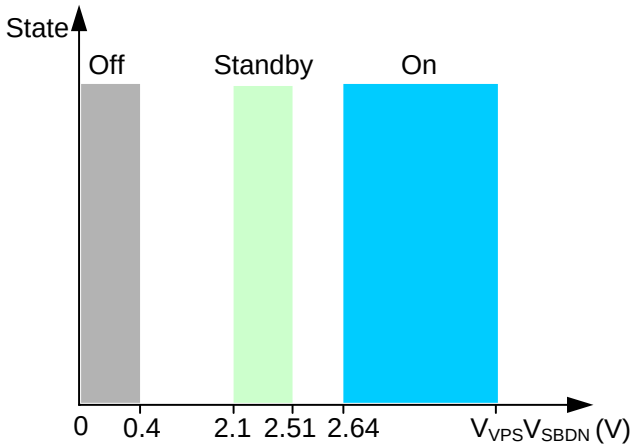


Figure 3. V_{SBDN} vs. Amplifier States

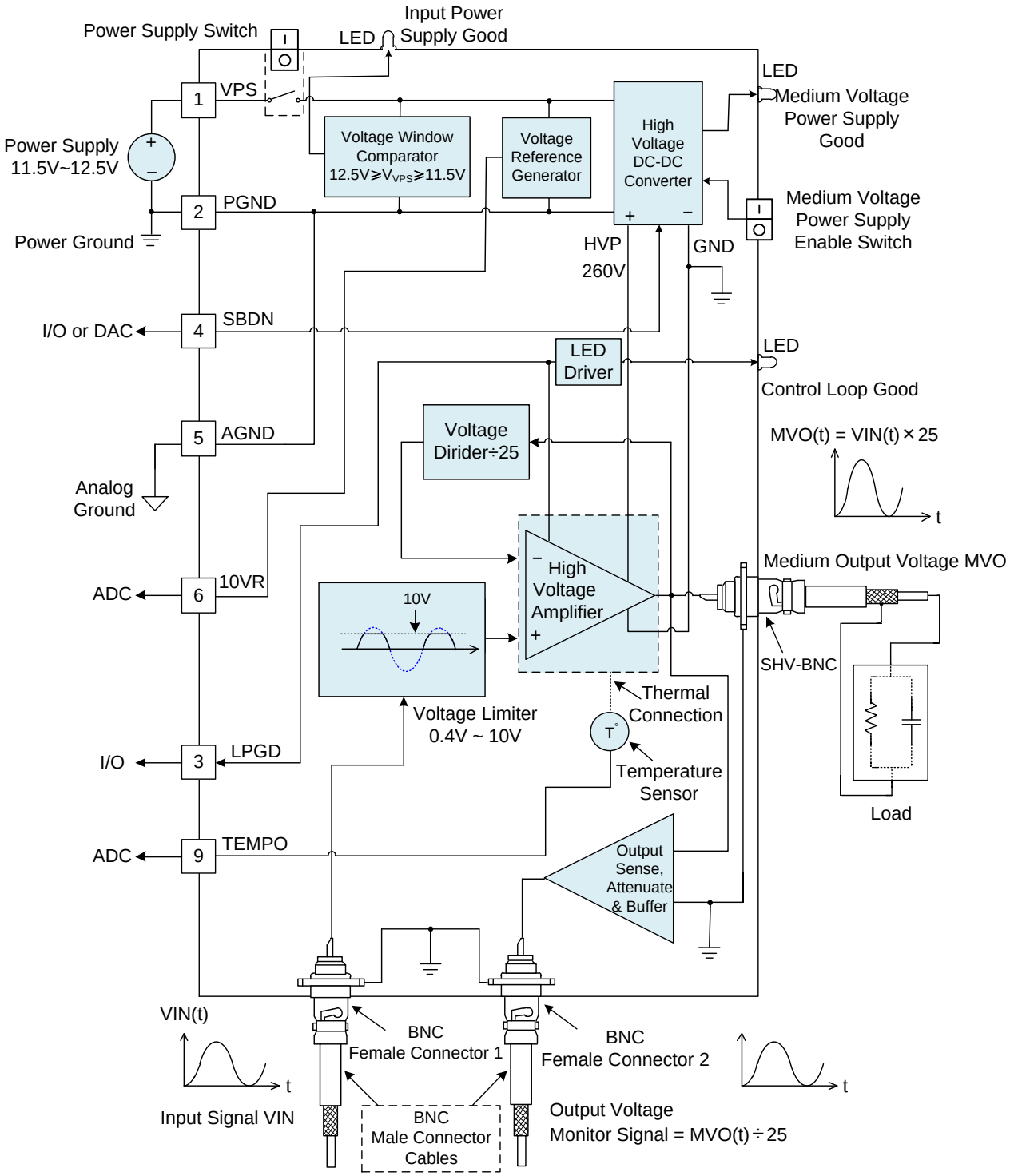


Figure 4. Block Diagram and Application Schematic

PART NUMBER CONVENTION

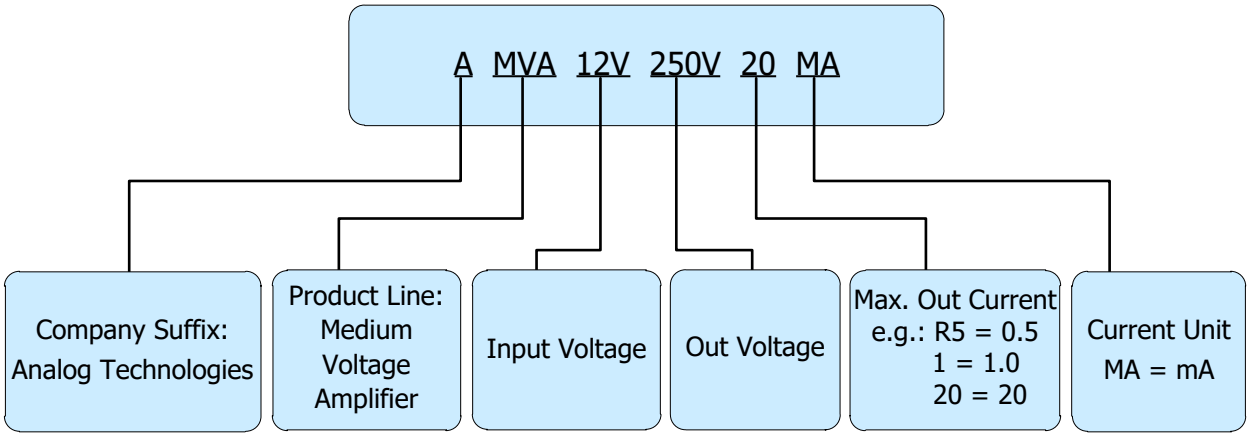


Figure 5. Part Number Convention

MECHANICAL DIMENSIONS

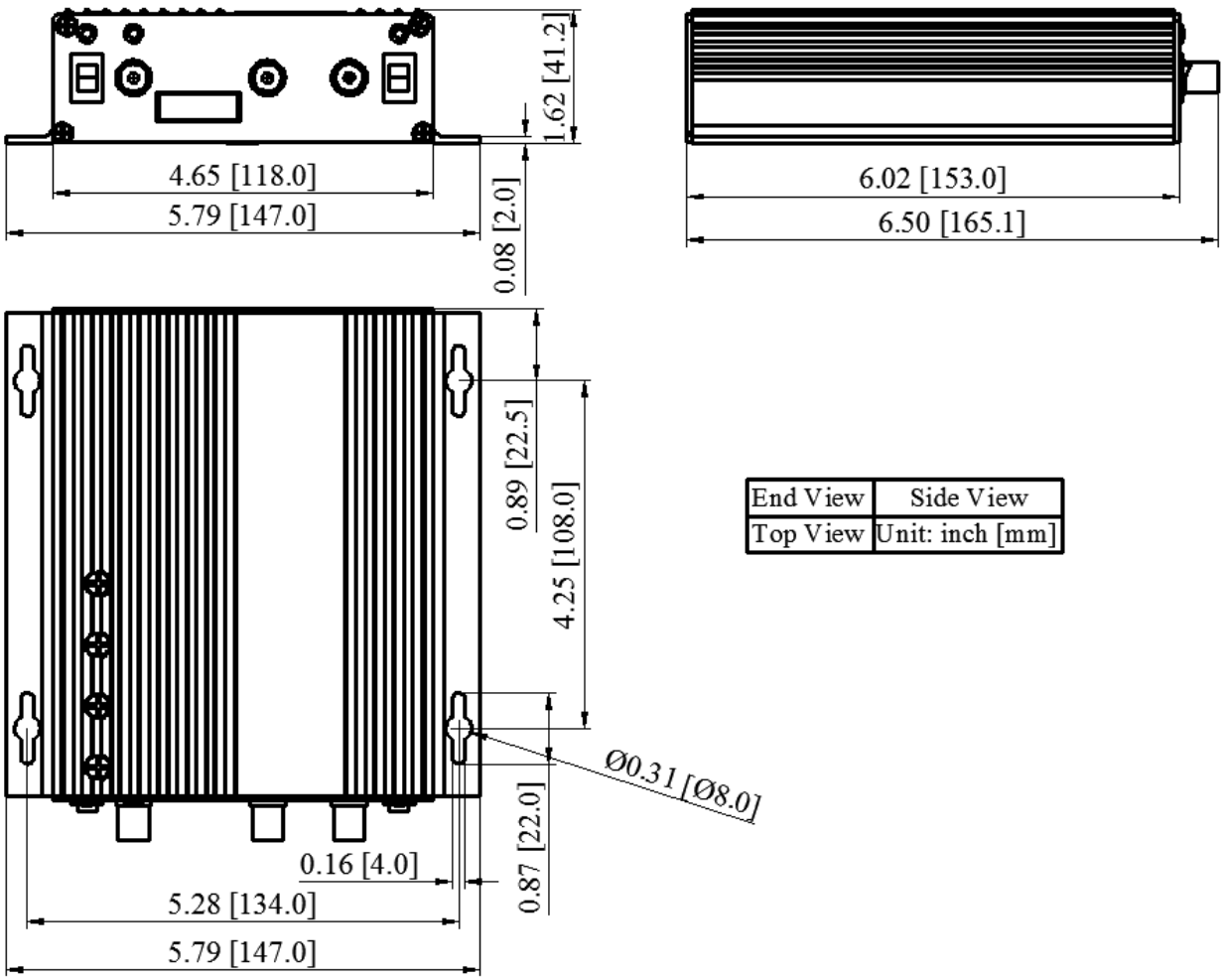


Figure 6. Dimensions of AMVA12V250V20MA

ORDERING INFORMATION

Table 3. Ordering Information

Part Number	Buy Now
AMVA12V250V20MA	* *

*: both and are our online store icons. Our products can be ordered from either one of them with the same pricing and delivery time.

RELATED PRODUCTS

Input Voltage: 12V, Output Voltage: 250V.

Part #	Datasheet	Output Current (mA)	Description	Buy Now*
AMVA12V250V10MA	Contact Us	10	Positive 250V 10mA module	Contact Us
AMVA12V250V20MA		20	Positive 250V 20mA module	* *
AMVA12V250V50MA	Contact Us	50	Positive 250V 50mA module	Contact Us
AMVA12V250V100MA	Contact Us	100	Positive 250V 100mA module	Contact Us
AMVA12V250V500MA	Contact Us	500	Positive 250V 500mA module	Contact Us
AMVA12V250V1A	Contact Us	1000	Positive 250V 1000mA module	Contact Us

NOTICE

1. It is important to carefully read and follow the warnings, cautions, and product-specific notes provided with electronic components. These instructions are designed to ensure the safe and proper use of the component and to prevent damage to the component or surrounding equipment. Failure to follow these instructions could result in malfunction or failure of the component, damage to surrounding equipment, or even injury or harm to individuals. Always take the necessary precautions and seek professional assistance if unsure about proper use or handling of electronic components.
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9. ATI retains ownership of all rights for special technologies, techniques, and designs for its products and projects, as well as any modifications, improvements, and inventions made by ATI.
10. Despite operating the electronic modules as specified, malfunctions or failures may occur before the end of their usual service life due to the current state of technology. Therefore, it is crucial for customer applications that require a high level of operational safety, especially in accident prevention or life-saving systems where the malfunction or failure of electronic modules could pose a risk to human life or health, to ensure that suitable measures are taken. The customer should design their application or implement protective circuitry or redundancy to prevent injury or damage to third parties in the event of an electronic module malfunction or failure.

