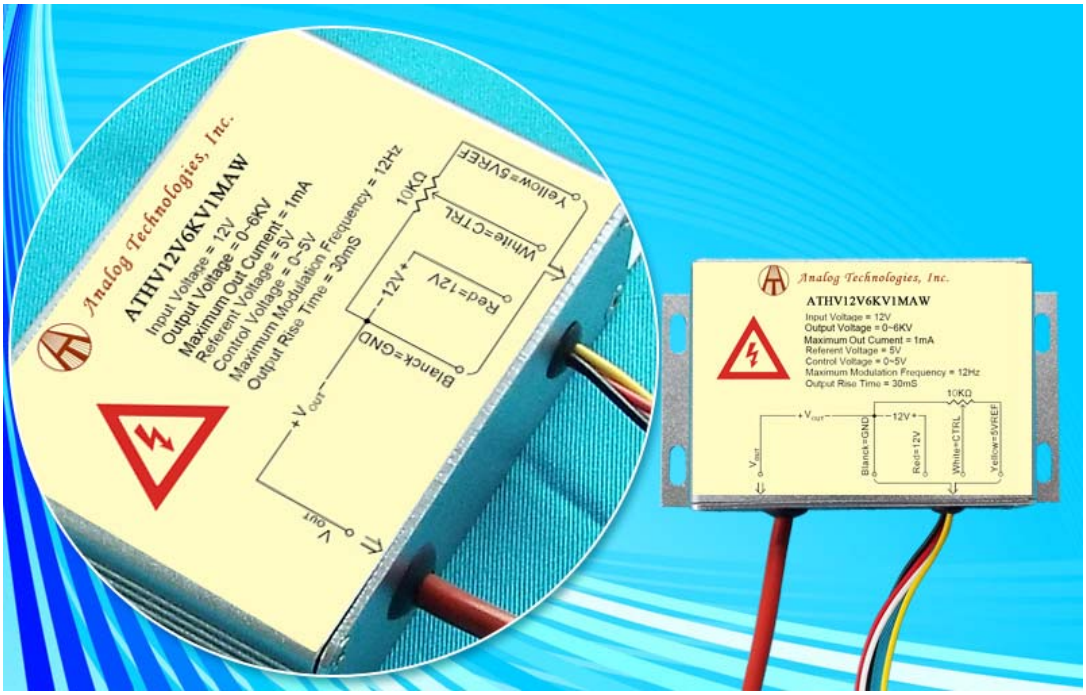


Figure 1. Physical Photo of ATHV12V6KV1MAW

FEATURES

High precision

Full modulation range on output voltage

Linear regulation

APPLICATIONS

This power module, ATHV12V6KV1MAW, is designed for achieving DC-DC conversion from low voltage to high voltage, and it can be widely used for industrial measurement and control, energy spectrum analysis, medical equipment, environmental monitoring, etc.

DESCRIPTION

Naming instructions

AT HV 12V 6KV 1MA W

- W — Connecting type: Wire
- 1MA — Output current: 1MA
- 6KV — Output voltage: 6KV
- 12V — Input voltage: 12V
- HV — Product type:High Voltage Power Supply
- AT — Company code: Analog Technologies, Inc.- AT

Draw a clear distinction between input lead and output lead: input 12V (red lead), ground electrodes (black lead), regulation wire (white lead), reference voltage 5V (yellow lead), and output high-tension cable (thick brown lead).

While regulating the potentiometer, connect the intermediate tap of the potentiometer with white lead, and connect the other two ends to ground (black lead) and reference voltage (yellow lead) respectively. Switch on the power, and regulate the potentiometer to have the required output voltage.

SAFETY PRECAUTIONS

The internal protection circuit is provided in the high voltage power supply, but the high voltage short circuit shall be avoided.

Make sure the circuit is insulated perfectly, especially between the high voltage output and the surroundings so as to avoid electronic shock.

SPECIFICATIONS

Table 1. Characteristics

Parameter		Test Condition	Min. Value	Typ. Value	Max. Value	Unit/Note
Power Supply Voltage		25 C	11	12	13	V
Ambient Operating Temperature				−20~50		C
Maximum Output Voltage		25 C		6000		V
Maximum Output Current		25 C		1		mA
Stability of Reference Voltage−V_{REF}		25 C	4.98	5	5.02	V
Regulation mode		25 C		0 ~ 5V or 10K potentiometer		
Control input impedance		25 C		6		MΩ
Temperature drift	V_{REF} temperature drift	−20 C ~50 C		<0.2%		
	V_{OUT} temperature drift			<0.5%		
Time drift	Short time drift	25 C		<0.5%/ min		
	Long time drift	25 C		<1%/h		
Load regulation rate		6 ± 1 MΩ		±1%		
Control Input vs. Output linearity		25 C		<0.2%		
External dimensions				82×55×28		mm
Weight				210		g
				7.4		Oz

TESTING DATA

I. DC Testing.

High voltage power supply testing data (Test condition: the load is 6 MΩ)

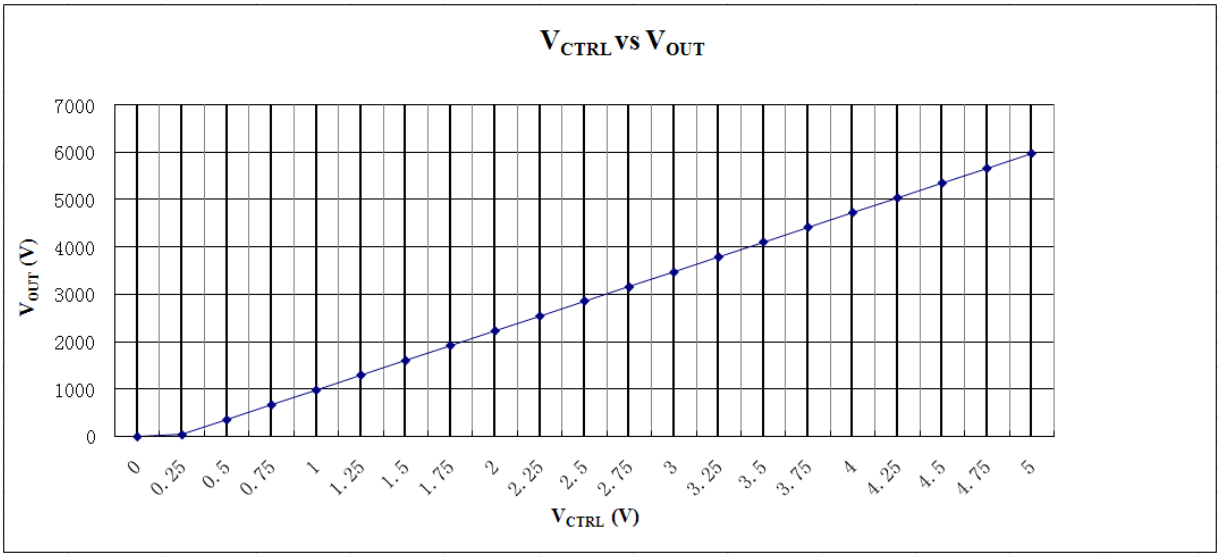


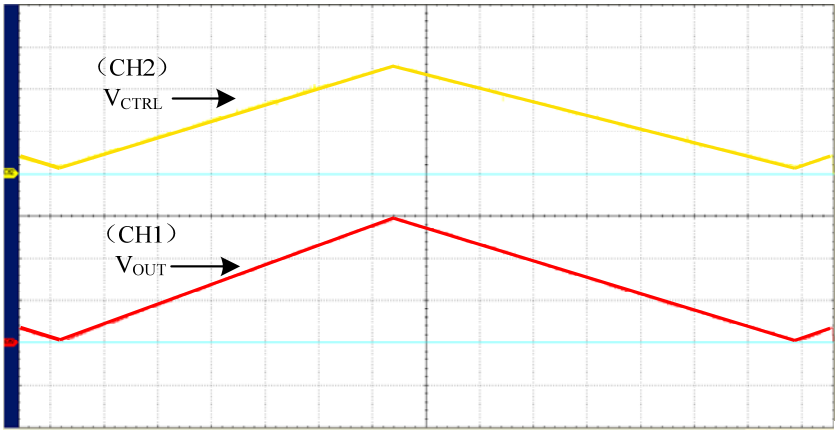
Figure 2. V_{CTRL} vs. V_{OUT}

II. AC Testing

Waveform curve and rise & fall time are tested by using the control voltage supplied by signal generator.

Under the testing condition of modulation frequency 0.1Hz, control voltage 0.25 ~ 5V, and 6MΩ load, the output voltage is 40 ~ 6000V. c

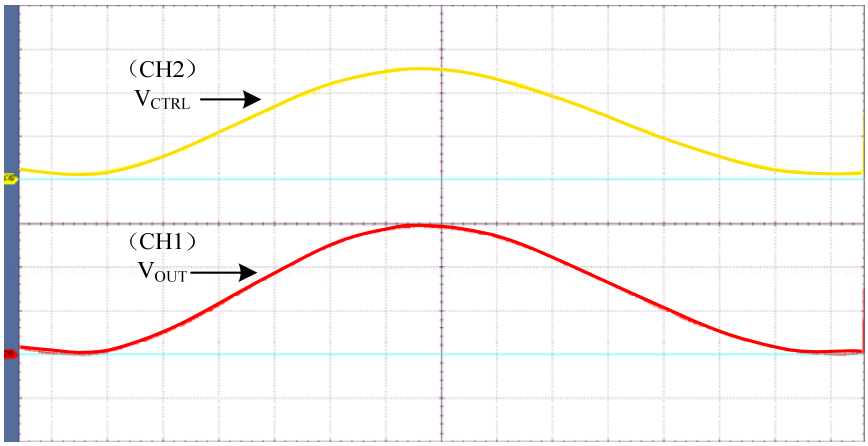
Note: as shown in the figures below, the output voltage is represented by yellow line and the control voltage by red line.



CH1: 2000V/Div CH2: 2V/Div M: 500ms

V_{CTRL}: 0.25V~5V V_{OUT}: 40V~6000V

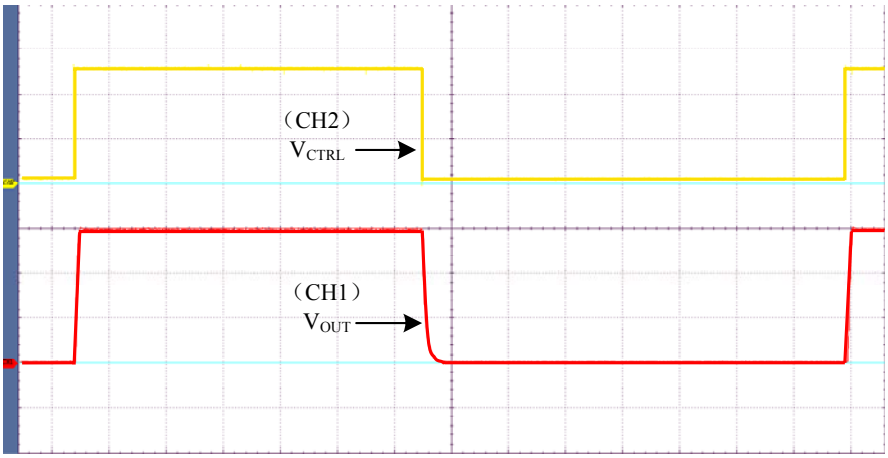
Figure 3. Triangle Wave



CH1: 2000V/Div CH2: 2V/Div M: 500ms

V_{CTRL}: 0.25V~5V V_{OUT}: 40V~6000V

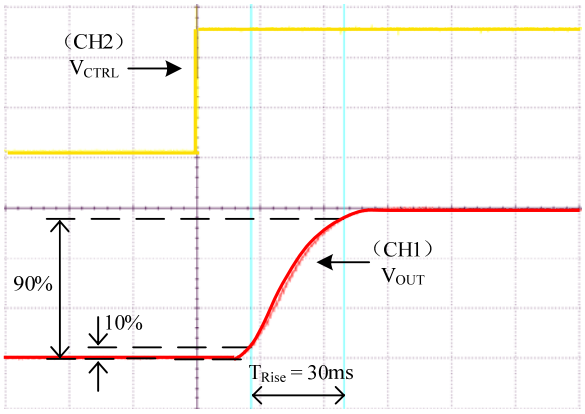
Figure 4. Sine Wave



CH1: 2000V/Div CH2: 2V/Div M: 500ms

V_{CTRL}: 0.25V~5V V_{OUT}: 40V~6000V

Figure 5. Square Wave

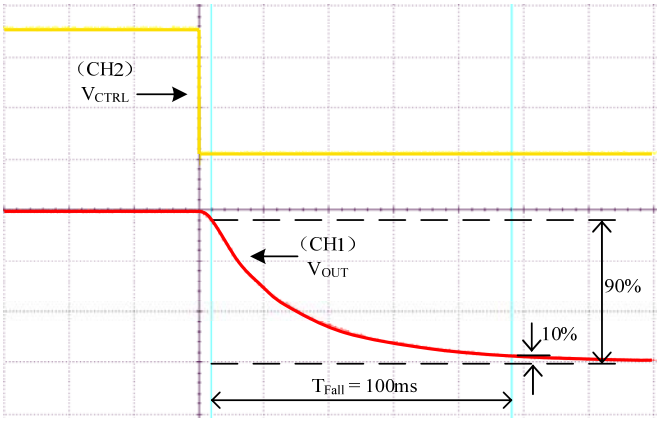


CH1: 2000V/Div CH2: 2V/Div M: 20ms

V_{CTRL}: 0.25V~5V V_{OUT}: 40V~6000V

Figure 6. Rise Time

As shown in Figure 6, when a square wave of 0.25V ~ 5V, F=0.10Hz is applied to Control, measure the waveform. The rise time is about 30ms.



CH1: 2000V/Div CH2: 2V/Div M: 20ms

V_{CTRL}: 0.25V~5V V_{OUT}: 40V~6000V

Figure 7. Fall Time

As shown in Figure 7, when a square wave of 0.25V ~ 5V, F=0.10Hz is applied to Controlc, measure the waveform. The fall time is about 100ms.

THE CONNECTION DIAGRAM OF MODULE'S PERIPHERAL CIRCUIT

The leads colors in the figures below are identical with those in the physical ATHV12V6KV1MAW.

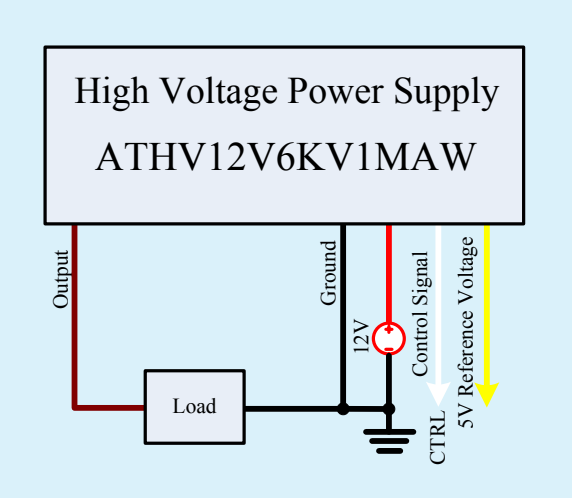


Figure 8. Control by External Signal Source

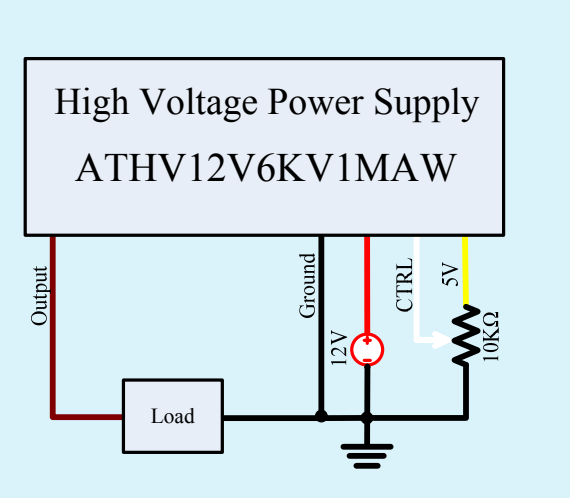


Figure 9. Constant Output Voltage

DIMENSIONS

I. Dimension of the leads.

Figure 10. Leads of ATHV12V6KV1MAW

Leads	Diameter (mm)	Length (mm)
Thick brown lead	4.5	26
Yellow, red, black and white leads	1.5	23

II. Dimension of ATHV12V6KV1MAW.

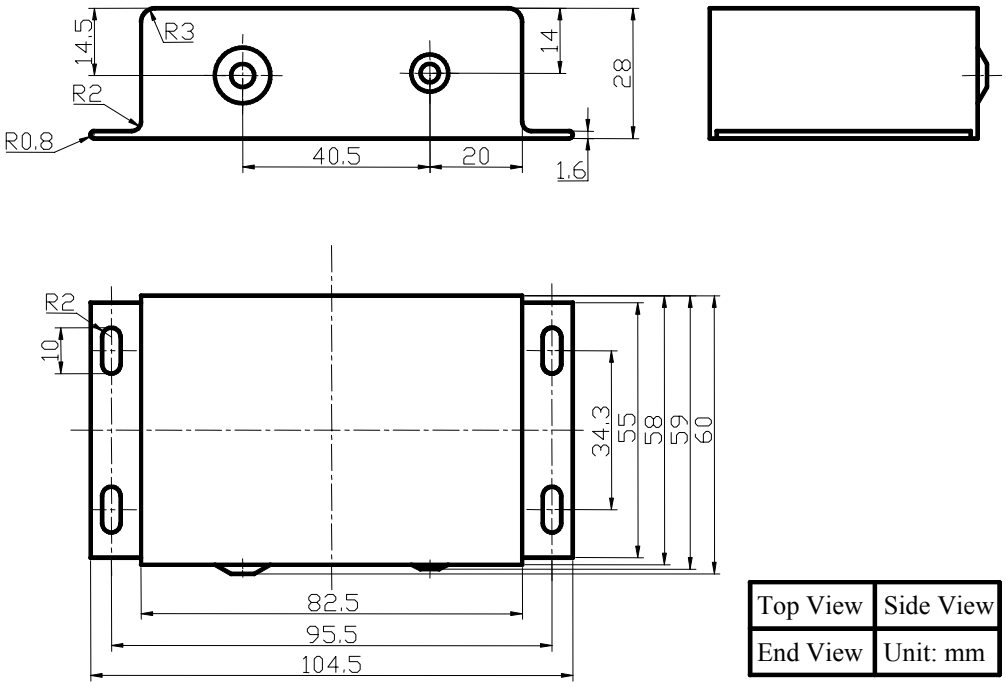


Figure 11. Dimensions for ATHV12V6KV1MAW

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