

Figure 1. Physical Photo of AECHV24VP2KV1MAW

FEATURES

- High precision
- Full modulation range on output voltage
- Linear regulation
- Shutdown

APPLICATIONS

This power module, AECHV24VP2KV1MAW, is designed for achieving DC-DC conversion from low voltage to high voltage. High voltage power supply is widely used in industry, agriculture, national defense, scientific research and other fields including: X-ray, spectral analysis, semiconductor manufacturing equipment, capillary electrophoresis, particles injection, ion beam, electron beam evaporation, electron beam welding, ion source, glow discharge, capacitance test, CRT monitor test, cable fault test (PD testing), Particle accelerator, capacitor charger. Microwave heating, electrostatic technology application 等.

DESCRIPTION

Draw a clear distinction between input lead and output lead: input 24V (red lead), ground electrodes (black lead),

regulation wire (white lead), reference voltage 5V (yellow lead), shutdown (blue 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.

SHUTDOWN MODE OPERATION

A logic low <0.8V or a 0V on the SDN pin will turn the device off. When SDN is in logic high >1.2V or left unconnected, the product is working well.

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.

 $T_A = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit/Note
Input Voltage	V_{VPS}		23	24	25	V
Quiescent Input Current	I_{INQQ}	$I_{OUT} = 0\text{mA}$	25	30	35	mA
Full Load Input Current	I_{INFLD}	$I_{OUT} = 1.0\text{mA}$	150	175	200	mA
Input Voltage Regulation Ratio	$\Delta V_{OUT}/\Delta V_{VPS}$	$V_{VPS} = 23\text{V} \sim 25\text{V}$		0.1		%
Output Voltage*	V_{OUT}	$I_{OUT} = 0 \sim 1.0\text{mA}$	0		2000	V
Maximum Output Current**	I_{OUTMAX}	$V_{VPS} = 23\text{V} \sim 25\text{V}$			1.0	mA
Stability of Reference Voltage	V_{REF}	$-20 \sim 50^\circ\text{C}$	4.98	5	5.02	V
Load				2		$\text{M}\Omega$
Regulation Mode			0 ~ 10V or 10k potentiometer			
Control Input vs. Output Linearity	$\Delta V_{REF}/\Delta V_{OUT}$			<0.2		%
Load Regulation Rate		$I_{OUT} = 0 \sim 1.0\text{mA}$		≤ 0.05		%
Output voltage ripple	V_{OUT_RP}	$I_{OUT} = 1.0\text{mA}$		<0.05		% V_{P-P}
Monitor Current	I_{MON}	$I_{OUT} = 0 \sim 1.0\text{mA}$	0		10	V
Instantaneous Short Circuit Current	I_{SC}			<500		mA
Shutdown Supply Current	I_{SHDN}				15	mA
Shutdown Logic Input Current	I_{LOGIC}				3	μA
Shutdown Logic Low	V_{INL}				0.8	V
Shutdown Logic High	V_{INH}		1.2			V
Full Load Efficiency	η			≥ 70		%
Temperature Coefficient	TCV_O	$-20 \sim 50^\circ\text{C}$		<0.01		%/ $^\circ\text{C}$
Time Drift	Short Time Drift			<0.5		%/min
	Long Time Drift			<1		%/h
Output Voltage Temperature Stability		$-20 \sim 50^\circ\text{C}$		$< \pm 1$		%
Operating Temperature Range	T_{opr}		-20		50	$^\circ\text{C}$
Storage Temperature Range	T_{stg}		-55		100	$^\circ\text{C}$
External Dimensions			82×55×28			mm
Weight				340		g
				0.75		lbs
				11.99		Oz

*Maximum Output Current: It is the total of output 1 and output 2, and the maximum output power is 2W.

**Output Voltage: Output 1 and output 2 in series output high voltage, and the maximum output power is 2W.



TESTING DATA

I. DC Testing

High voltage power supply testing data (Test condition: the load is 2MΩ)

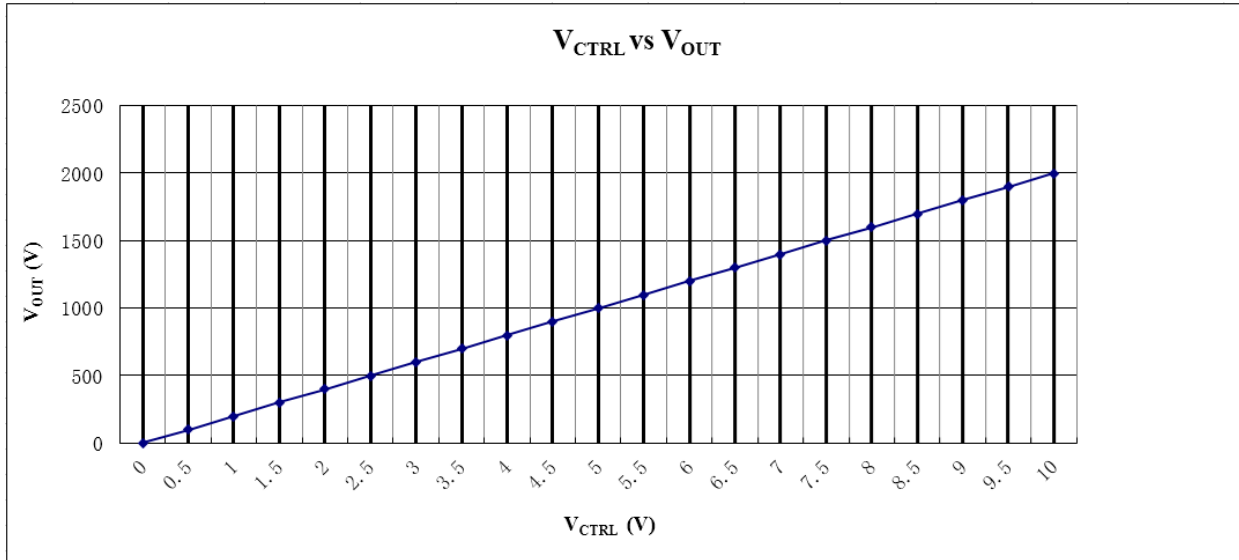


Figure 2. V_CTRL vs. V_OUT

THE CONNECTION DIAGRAM OF MODULE'S PERIPHERAL CIRCUIT

The leads colors in the figures below are identical with those in the physical AECHV24VP2KV1MAW.

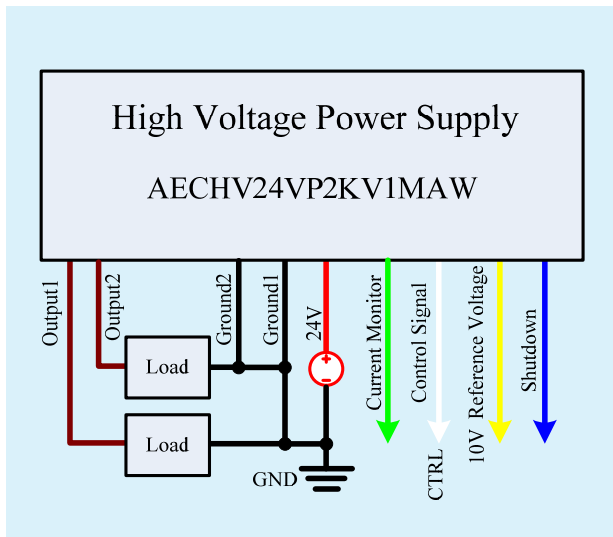


Figure 3. Control by External Signal Source

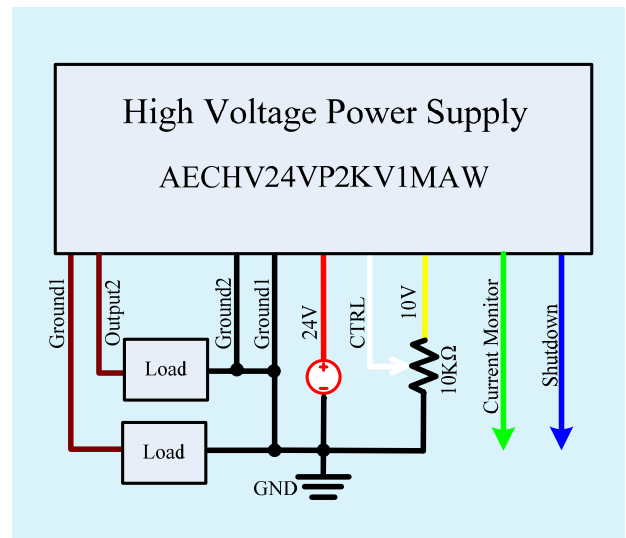


Figure 4. Constant Output Voltage



NAMING INSTRUCTIONS

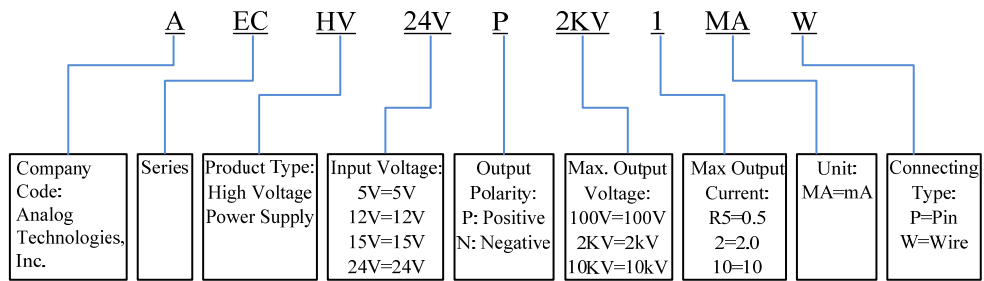


Figure 5. Naming Rules of AECHV24VP2KV1MAW

DIMENSIONS

I. Dimension of the leads.



Figure 6. Leads of AECHV24VP2KV1MAW

Leads	Diameter (mm)	Length (m)
Two Thick brown lead and 输出地线	4.5	2
Yellow, black, green and white leads	1.5	0.3
Red, black, blue	1.5	0.3



II. Dimension of AECHV24VP2KV1MAW.

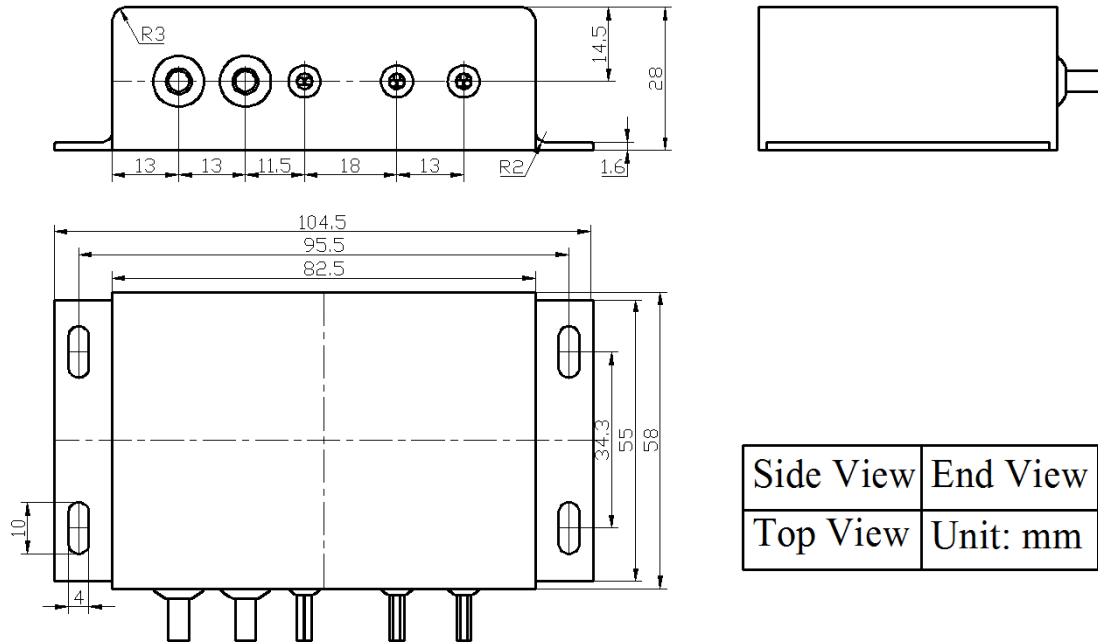


Figure 7. Dimensions for AECHV24VP2KV1MAW

PRICES

Quantity	1~9pcs	10~49pcs	50~99pcs	≥100pcs
AECHV24VP2KV1MAW	\$109	\$99	\$89	\$79



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