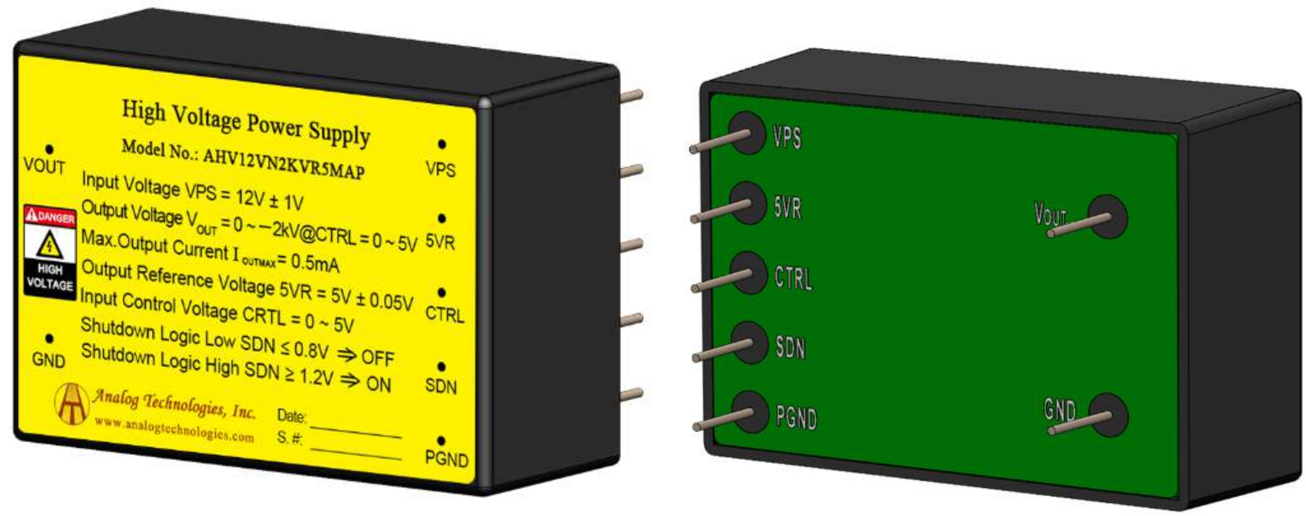


Figure 1. Physical Photo of AHV12VN2KVR5MAP

FEATURES

Low Power Consumption

High Efficiency

High Stability

Small Output Ripple, Time Drift, and Temperature Drift

Overload and Short Circuit Protection

Continuous Linear Adjustment for Output Voltage

Metal Enclosure for Zero EMIS

Easy Control and Installation

APPLICATIONS

This power module, AHV12VN2KVR5MAP, is designed for achieving DC-DC conversion from low voltage to high voltage.

DESCRIPTION

AHV12VN2KVR5MAP is a combination of switching step-up technology and linear regulation, which converts the low input voltage into a stable high output voltage. It comes with output short-circuit protection and a wide range of output voltage adjustments. This high voltage power supply also features ultra-small size, light weight, moisture proof, shockproof, metal enclosure, and zero EMIs. This is a high stability high voltage power supply, ideal for photomultiplier tube, optical measurement, light control technology, nuclear physics, medical equipment, precision instruments, etc.

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°C, unless otherwise noted

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit/Note
Input Voltage		V_{VPS}		11	12	13	V
Quiescent Input Current		I_{INQQ}	I_{OUT} = 0mA	50	60	70	mA
Full Load Input Current		I_{INFLD}	I_{OUT} = 0.5mA	300	350	400	mA
Input Voltage Regulation Ratio		$\Delta V_{OUT}/\Delta V_{VPS}$	V_{VPS} = 11V to 13V		0.2		%
Output Voltage		V_{OUT}	I_{OUT} = 0 to 0.5mA	0		-2000	V
Maximum Output Current		I_{OUTMAX}	V_{VPS} = 11V to 13V			0.5	mA
Stability of Reference Voltage		V_{REF}	−20 ~ 50°C	4.98	5	5.02	V
Load					4		MΩ
Regulation Mode				0 ~ 5V or 10k potentiometer			
Control Input vs. Output Linearity		$\Delta V_{REF}/\Delta V_{OUT}$			<0.2		%
Load Regulation Rate			0 to 0.5mA		≤0.05		%
Instantaneous Short Circuit Current		I_{SC}			<500		mA
Shutdown Supply Current		I_{SHDN}				18	mA
Shutdown Logic Input Current		I_{LOGIC}				3	uA
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 ~ 50°C		<0.01		%/°C
Time Drift	Short Time Drift				<0.5		%/ min
	Long Time Drift				<1		%/h
Output Voltage Temperature Stability			−20 ~ 50°C		<±1		%
Operating Temperature Range		T_{opr}		−20		55	°C
Storage Temperature Range		T_{stg}		−40		85	°C
External Dimensions				55×35×20			mm
Weight					70		g
					0.16		lbs
					2.47		Oz

TESTING DATA

I. DC Testing

High voltage power supply testing data (Test condition: the load is 4 MΩ)

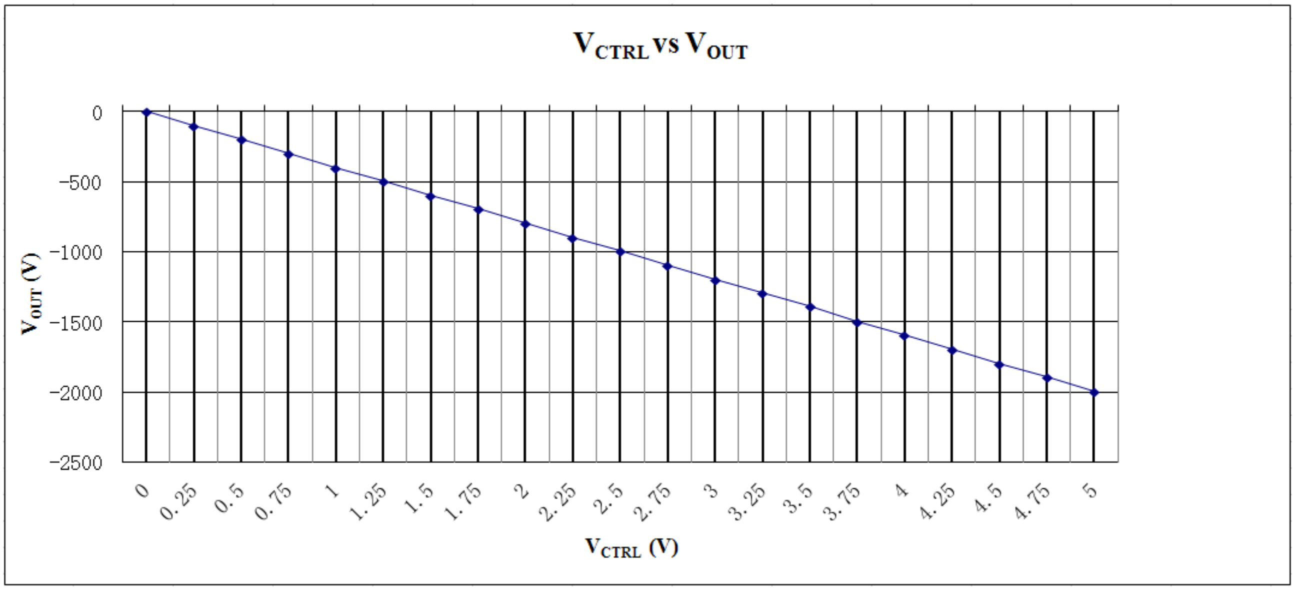
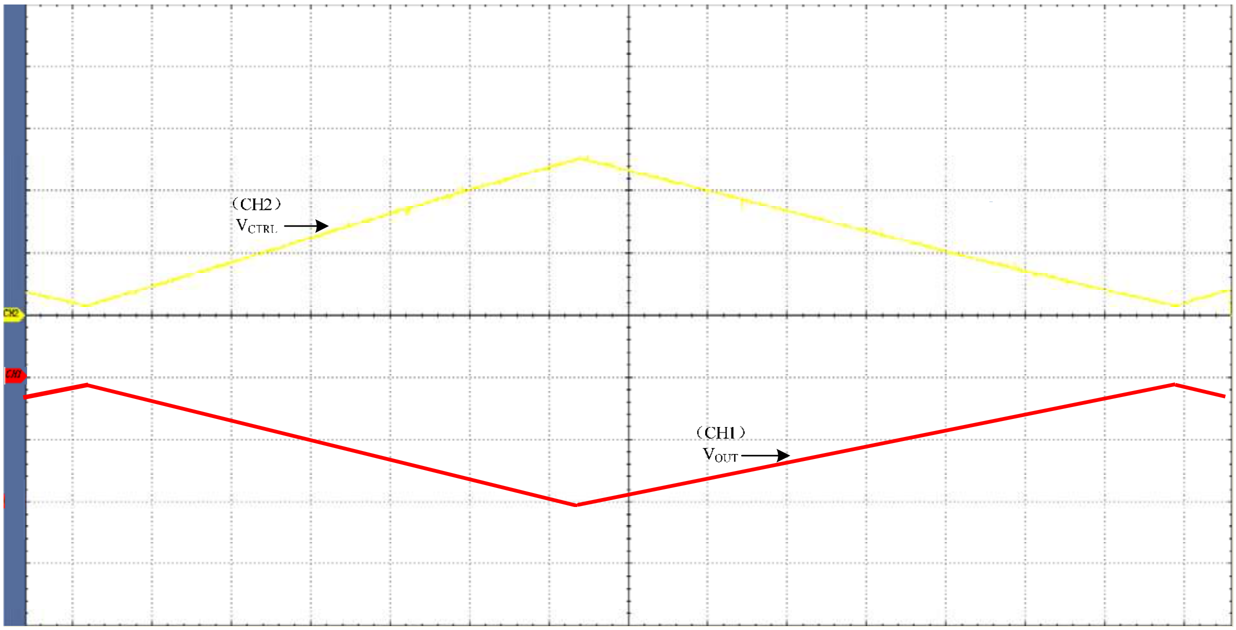


Figure 2. V_{CTRL} vs. V_{OUT}

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 4MΩ load, the output voltage is –100 ~ –2000V.

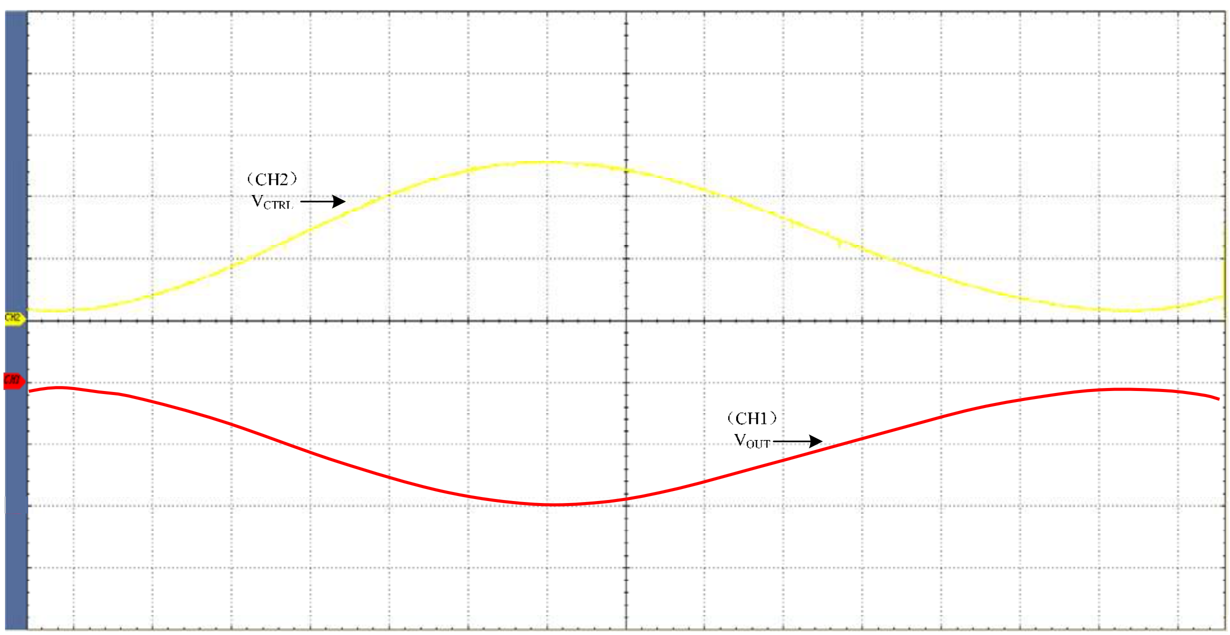
Note: as shown in the figures below, the output voltage is represented by yellow line and the control voltage by red line.



CH1: 1000V/Div CH2: 2V/Div M: 500ms

V_{CTRL}: 0.25V ~ 5V V_{OUT}: -100V ~ -2000V

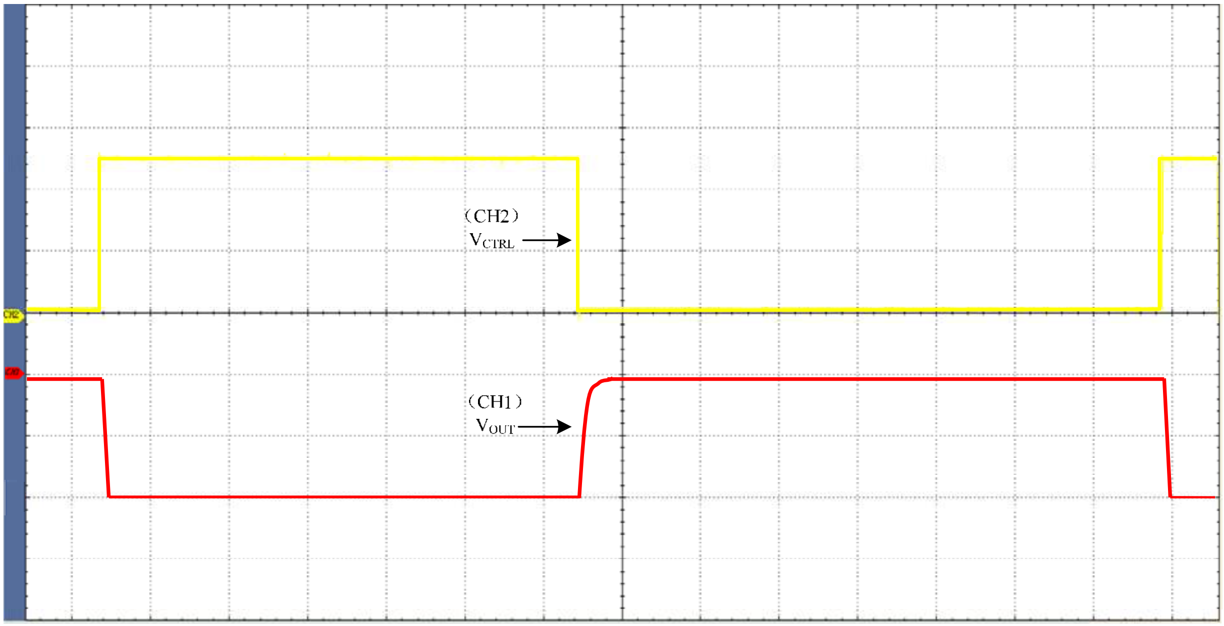
Figure 3. Triangle Wave



CH1: 1000V/Div CH2: 2V/Div M: 500ms

V_{CTRL}: 0.25V ~ 5V V_{OUT}: -100V ~ -2000V

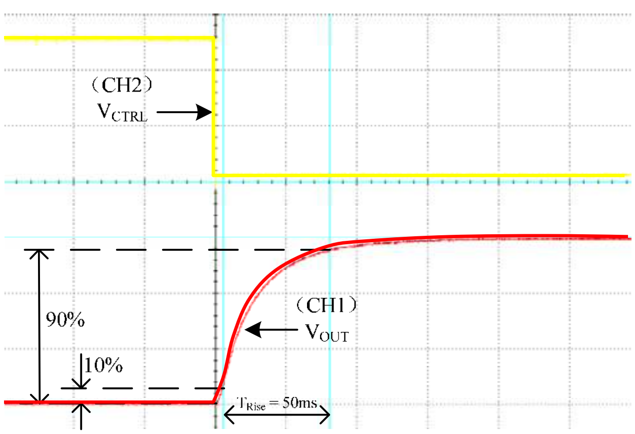
Figure 4. Sine Wave



CH1: 1000V/Div CH2: 2V/Div M: 500ms

V_{CTRL}: 0.25V ~ 5V V_{OUT}: -100V ~ -2000V

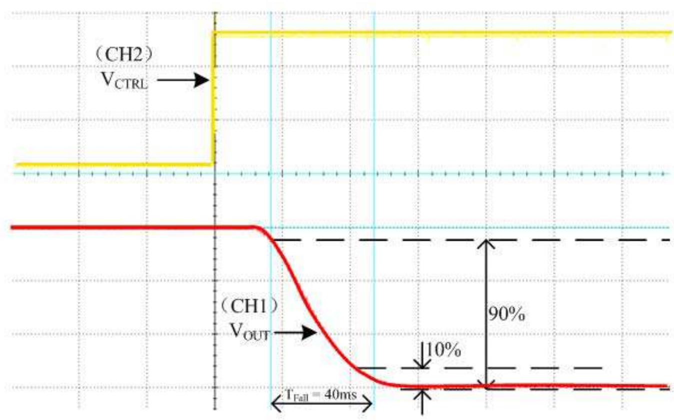
Figure 5. Square Wave



V_{CTRL}: 0.25V~5V V_{OUT}: －100V ~ －2000V

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.



V_{CTRL}: 0.25V~5V V_{OUT}: −50V ~ －1000V

Figure 7. Fall Time

As shown in Figure 7, when a square wave of 0.25V ~ 5V, F=0.10Hz is applied to Control, 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 AHV12VN2KVR5MAP.

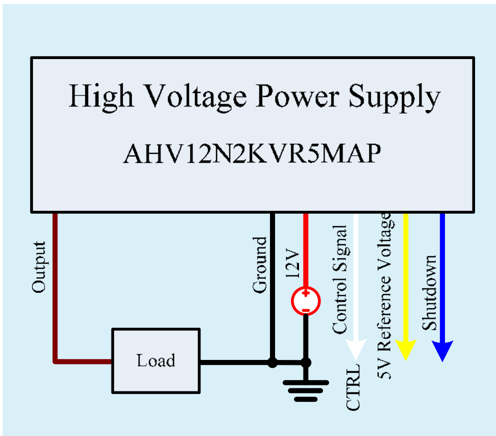


Figure 8. Control by External Signal Source

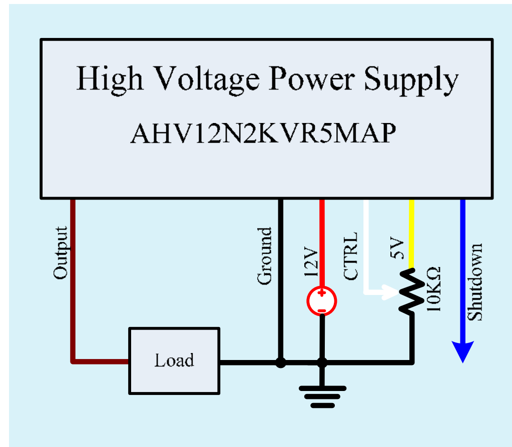


Figure 9. Constant Output Voltage

NAMING PRINCIPLE

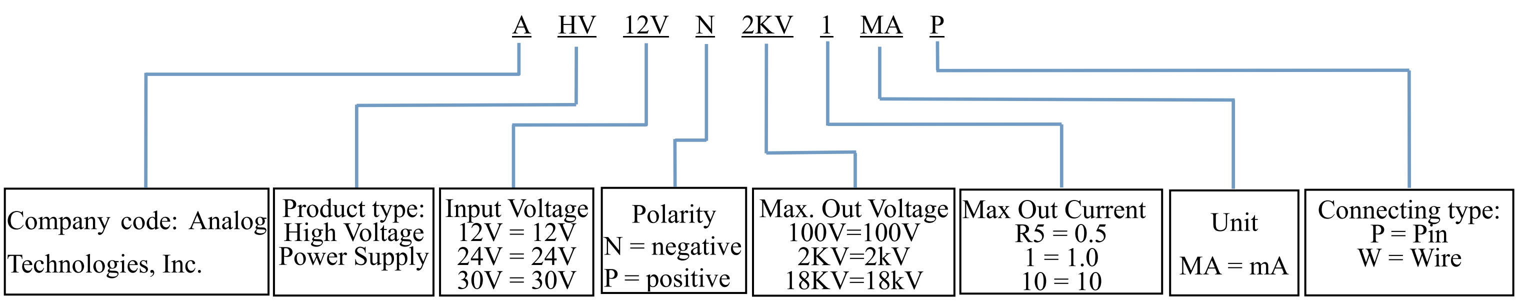


Figure 10. Naming Principle of AHV12VN2KVR5MAP

BLOCK DIAGRAM

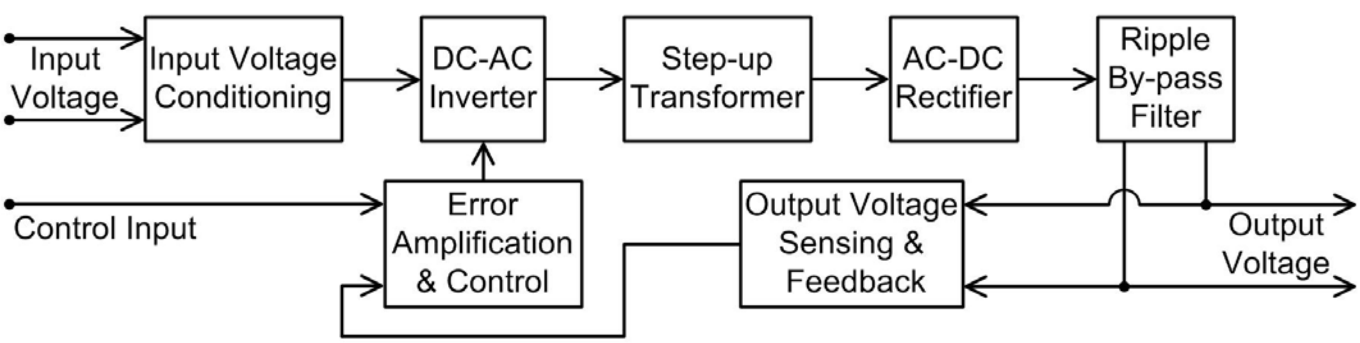


Figure 11. Block Diagram

DIMENSIONS

I. Pin layout

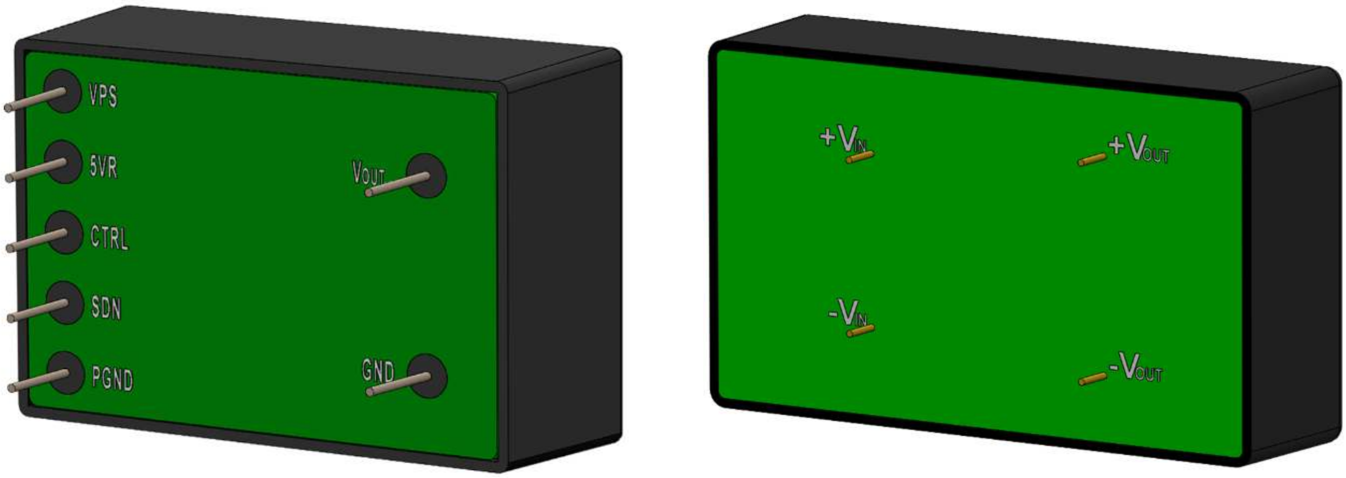


Figure 12. Pin Layout for AHV12VN2KVR5MAP

II. Dimension of AHV12VN2KVR5MAP.

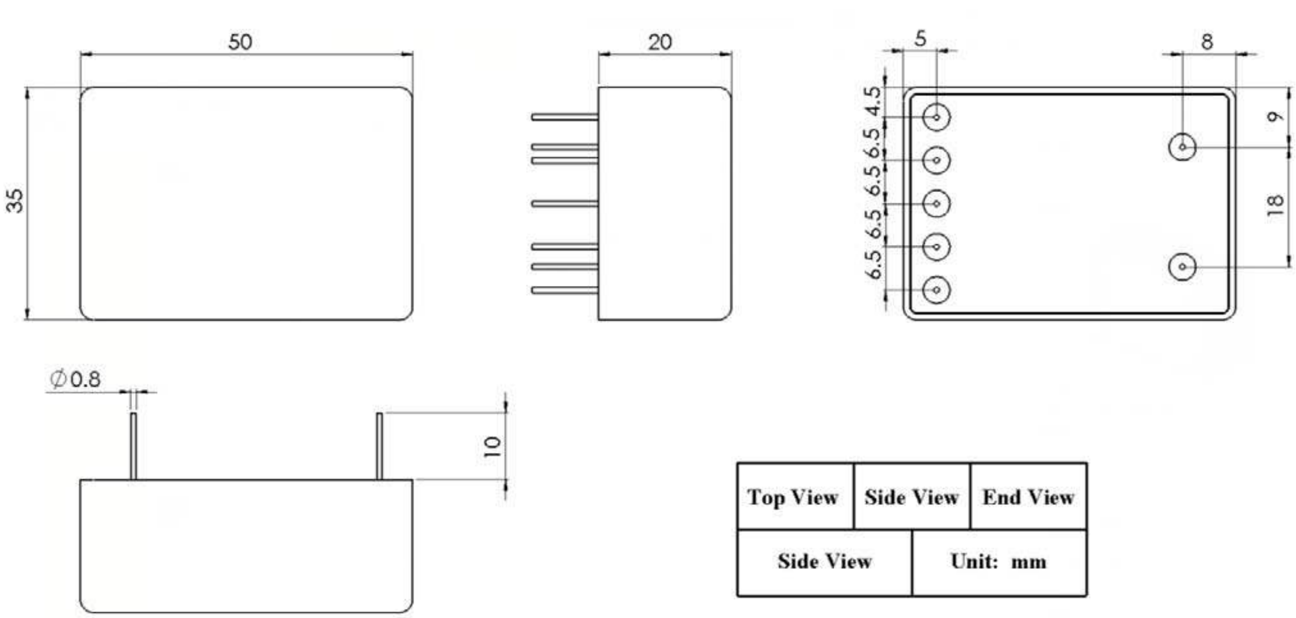


Figure 13. Dimensions for AHV12VN2KVR5MAP

PRICES

Quantity	1~9pcs	10~49pcs	50~99pcs	≥100pcs
AHV12VN2KVR5MAP	$109	$99	$89	$79

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