

Figure 1. Physical Photo of AM01HV12VP3KVR5MAP

FEATURES

- Low Power Consumption
- High Efficiency
- High Stability
- Output current and voltage monitors
- 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
- Customizable

APPLICATIONS

AM01HV12VP3KVR5MAP is a high stability high voltage power supply, ideal for photomultiplier tube, optical measurement, light control technology, detectors, ion beam implantation, capacitor charging, electron beam welding, nuclear physics, withstand voltage test, medical equipment, precision instruments, etc.

DESCRIPTION

AM01HV12VP3KVR5MAP 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.

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_{IN}		11	12	13	V
Quiescent Input Current	I_{INQQ}	$I_{OUT} = 0\text{mA}$	40	50	60	mA
Full Load Input Current	I_{INFLD}	$I_{OUT} = 0.5\text{mA}$	200	250	300	mA
Input Voltage Regulation Ratio	$\Delta V_{OUT}/\Delta V_{IN}$	$V_{IN} = 11\text{V to }13\text{V}$		0.005		%
Output Voltage	V_{OUT}	$I_{OUT} = 0 \text{ to } 0.5\text{mA}$	0		3000	V
Maximum Output Current	I_{OUTMAX}	$V_{IN} = 11\text{V to }13\text{V}$			0.5	mA
Stability of Reference Voltage	V_{REF}	$0 \sim 50^\circ\text{C}$	4.95	5	5.05	V
Load				6		M Ω
Regulation Mode			0 ~ 5V or 10k potentiometer			
Control Input vs. Output Linearity	$\Delta V_{REF}/\Delta V_{OUT}$			<0.1		%
Load Regulation Rate		0 to 0.5mA		≤ 0.01		%
Output voltage ripple	V_{OUT_RP}			<0.001		% V_{P-P}
Monitor Voltage	V_{MON}	$V_{OUT} = 0 \sim 3\text{kV}$	0		2	V
Monitor Current	I_{MON}	$I_{OUT} = 0 \sim 0.5\text{mA}$	0		2	V
Instantaneous Short Circuit Current	I_{SC}			<500		mA
Shutdown Supply Current	I_{SHDN}				18	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			≥ 80		%
Temperature Coefficient	TCV_O	$0 \sim 50^\circ\text{C}$		<0.01		%/ $^\circ\text{C}$
Time Drift	Short Time Drift	After 30 min. warm-up		<0.01		%/h
	Long Time Drift			<0.05		%/d
Operating Temperature Range	T_{opr}		0		50	$^\circ\text{C}$
Storage Temperature Range	T_{stg}		-40		85	$^\circ\text{C}$
External Dimensions			45×23×15			mm
Weight				30		g
				0.07		lbs
				1.06		Oz



TESTING DATA

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

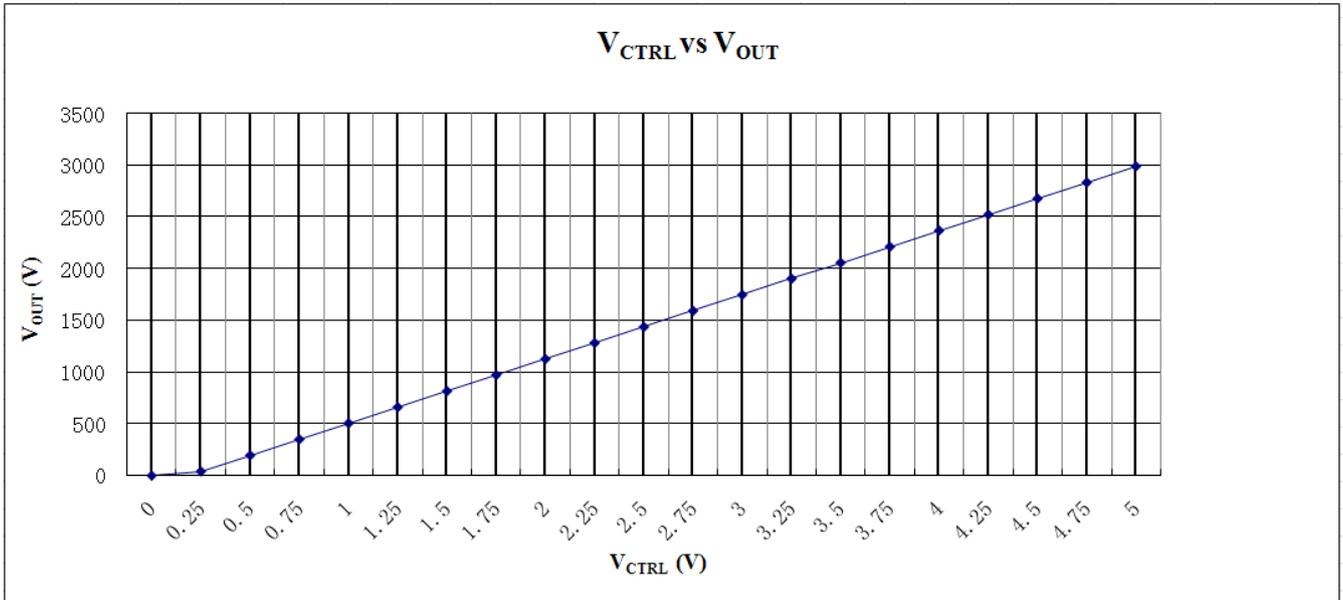
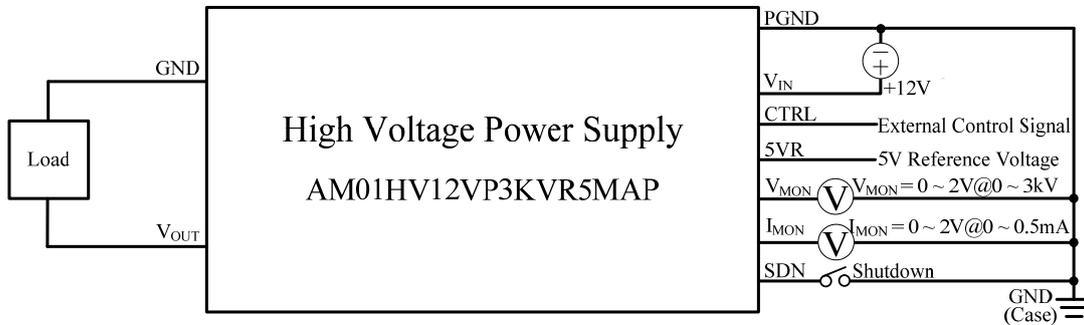


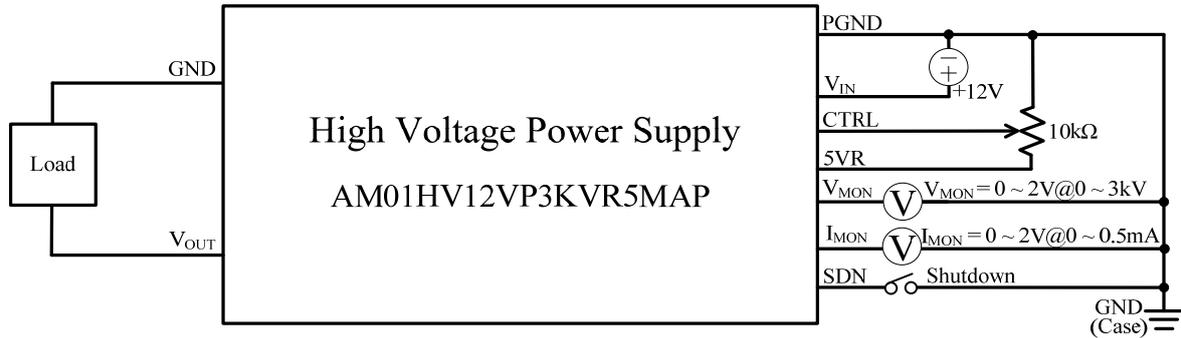
Figure 2. V_CTRL vs. V_OUT

THE CONNECTION DIAGRAM OF MODULE'S PERIPHERAL CIRCUIT



- *5VR: 5V reference voltage can only be used as the power supply for the potentiometer, not for any other parts.
- *SDN: Shutdown Logic Low SDN < 0.8V or 0V on the SDN pin will turn off the high voltage output.
Shutdown Logic High SDN > 1.2V or left unconnected will turn on the high voltage output.
- *The PGND and GND are connected inside with the case and should be well grounded.

Figure 3. Controlled by External Source



- *5VR: 5V reference voltage can only be used as the power supply for the potentiometer, not for any other parts.
- *SDN: Shutdown Logic Low $SDN < 0.8V$ or $0V$ on the SDN pin will turn off the high voltage output.
Shutdown Logic High $SDN > 1.2V$ or left unconnected will turn on the high voltage output.
- *The PGND and GND are connected inside with the case and should be well grounded.

Figure 4. Controlled by Potentiometer

NAMING INSTRUCTIONS

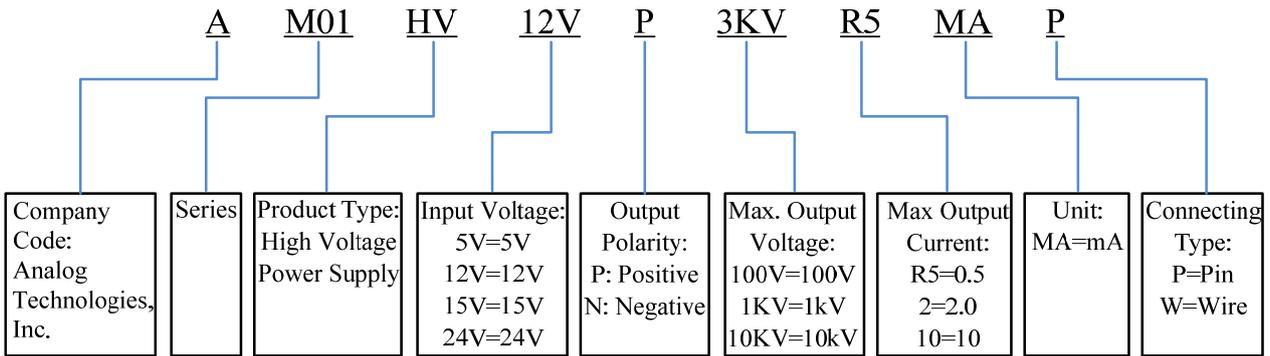


Figure 5. Naming Rules of AM01HV12VP3KVR5MAP

DIMENSIONS

I. Pin layout

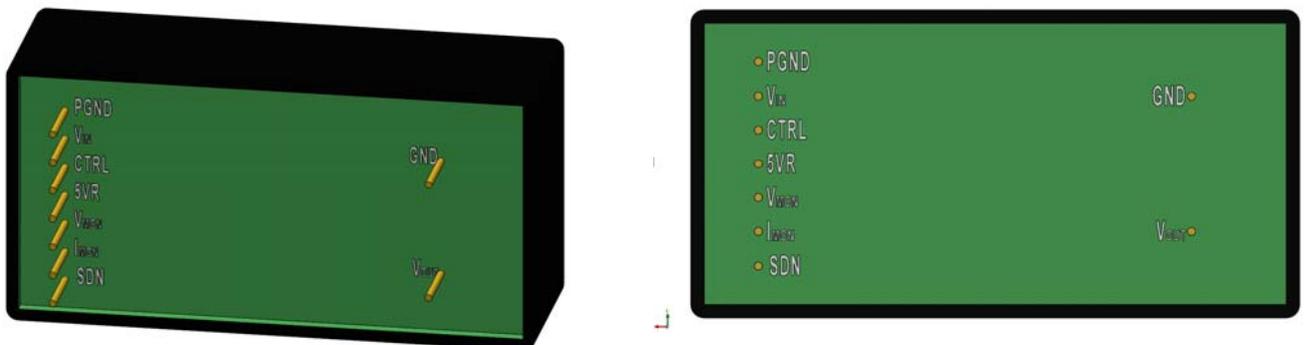


Figure 6. Pin Layout for AM01HV12VP3KVR5MAP



II. Dimension of AM01HV12VP3KVR5MAP.

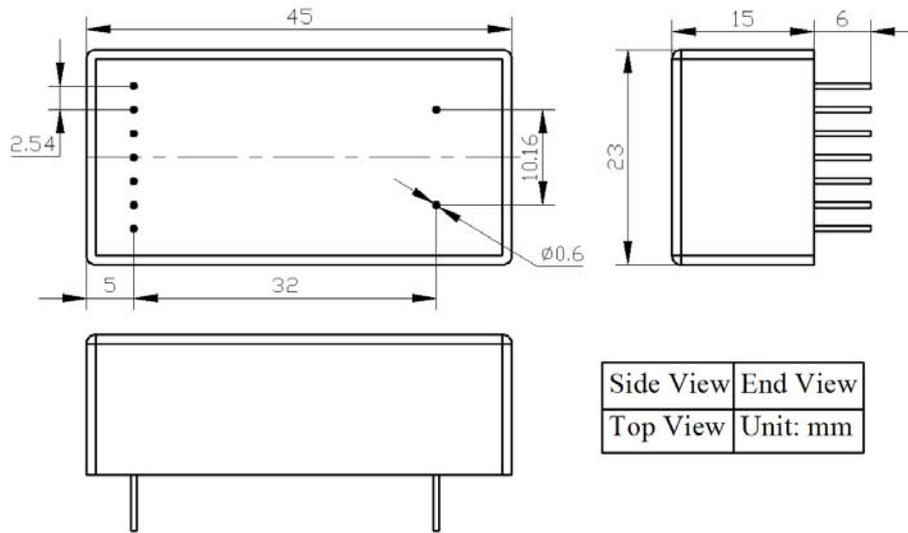


Figure 7. Dimensions for AM01HV12VP3KVR5MAP

PRICES

Quantity	1~9pcs	10~49pcs	50~99pcs	≥100pcs
AM01HV12VP3KVR5MAP	\$139	\$129	\$119	\$109

NOTICE

- ATI warrants performance of its products for one year to the specifications applicable at the time of sale, except for those being damaged by excessive abuse. Products found not meeting the specifications within one year from the date of sale can be exchanged free of charge.
- ATI reserves the right to make changes to its products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete.
- All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgment, including those pertaining to warranty, patent infringement, and limitation of liability. Testing and other quality control techniques are utilized to the extent ATI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.
- Customers are responsible for their applications using ATI components. In order to minimize risks associated with the customers' applications, adequate design and operating safeguards must be provided by the customers to minimize inherent or procedural hazards. ATI assumes no liability for applications assistance or customer product design.
- ATI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of ATI covering or relating to any combination, machine, or process in which such products or services might be or are used. ATI's publication of information regarding any third party's products or services does not constitute ATI's approval, warranty or endorsement thereof.



6. IP (Intellectual Property) Ownership: ATI retains the ownership of full rights for special technologies and/or techniques embedded in its products, the designs for mechanics, optics, plus all modifications, improvements, and inventions made by ATI for its products and/or projects.