

Figure 1. Physical Photo of AM01HV12VP2KV1MAP

**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**

AM01HV12VP2KV1MAP 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**

AM01HV12VP2KV1MAP 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             | $I_{INFLD}$                     | $I_{OUT} = 1.0\text{mA}$               | 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                      | $V_{OUT}$                       | $I_{OUT} = 0 \text{ to } 1.0\text{mA}$ | 0                           |        | 2000 | V                   |
| Maximum Output Current              | $I_{OUTMAX}$                    | $V_{IN} = 11\text{V to }13\text{V}$    |                             |        | 1.0  | mA                  |
| Stability of Reference Voltage      | $V_{REF}$                       | $0 \sim 50^\circ\text{C}$              | 4.95                        | 5      | 5.05 | V                   |
| Load                                |                                 |  |                             | 2      |      | MΩ                  |
| 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 1.0mA                             |                             | ≤0.01  |      | %                   |
| Output voltage ripple               | $V_{OUT\_RP}$                   |  |                             | <0.001 |      | % $V_{P-P}$         |
| Monitor Voltage                     | $V_{MON}$                       | $V_{OUT} = 0 \sim 2\text{kV}$          | 0                           |        | 2    | V                   |
| Monitor Current                     | $I_{MON}$                       | $I_{OUT} = 0 \sim 1.0\text{mA}$        | 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    | uA                  |
| Shutdown Logic Low                  | $V_{INL}$                       |  |                             | <0.8   |      | V                   |
| Shutdown Logic High                 | $V_{INH}$                       |  |                             | ≥1.2   |      | V                   |
| Full Load Efficiency                | $\eta$                          |  |                             | ≥80    |      | %                   |
| Temperature Coefficient             | $TCV_O$                         | $0 \sim 50^\circ\text{C}$              |                             | <0.01  |      | %/ $^\circ\text{C}$ |
| Time Drift                          | Short Time Drift                | After 30 min.<br>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 2 MΩ)

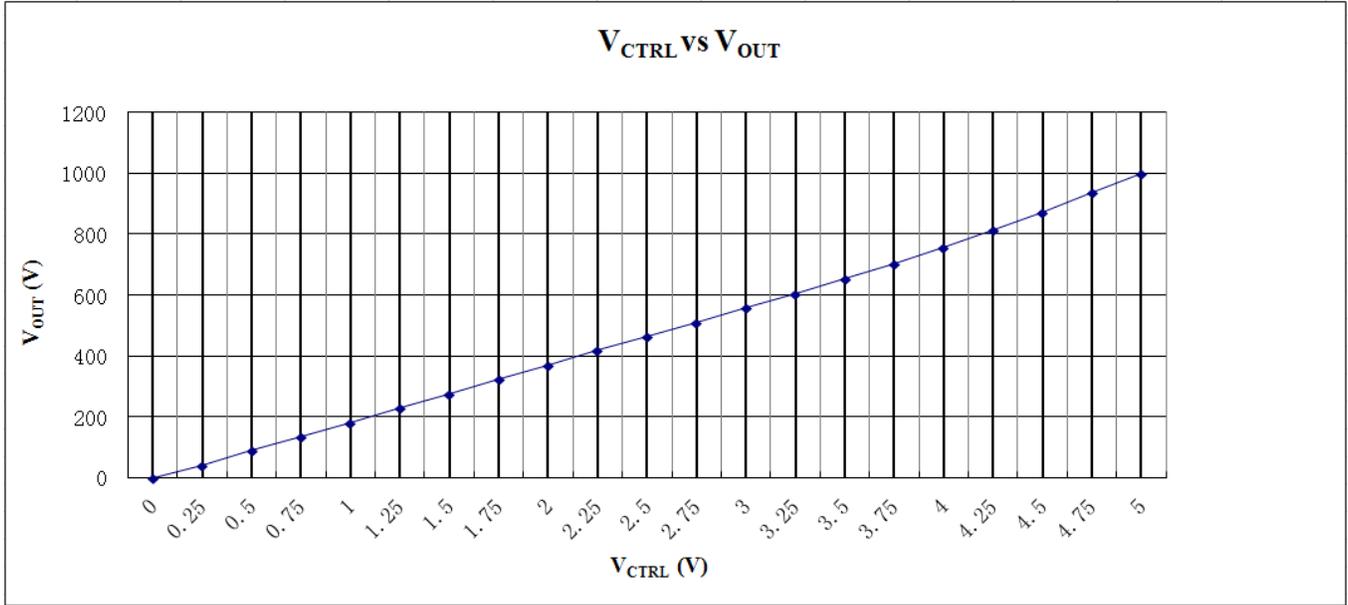
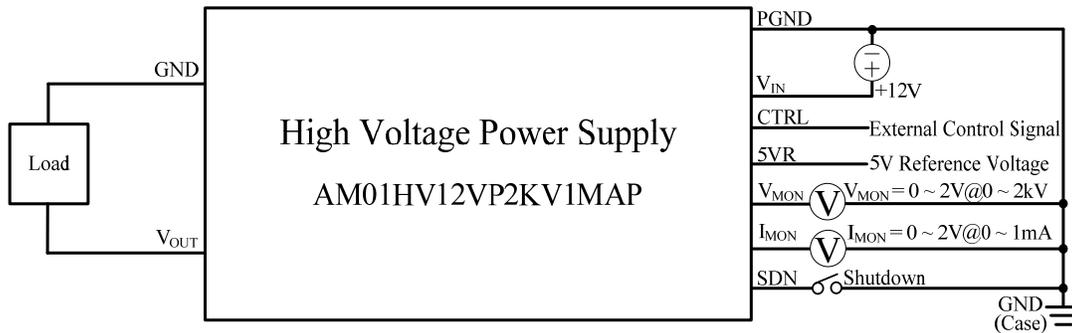


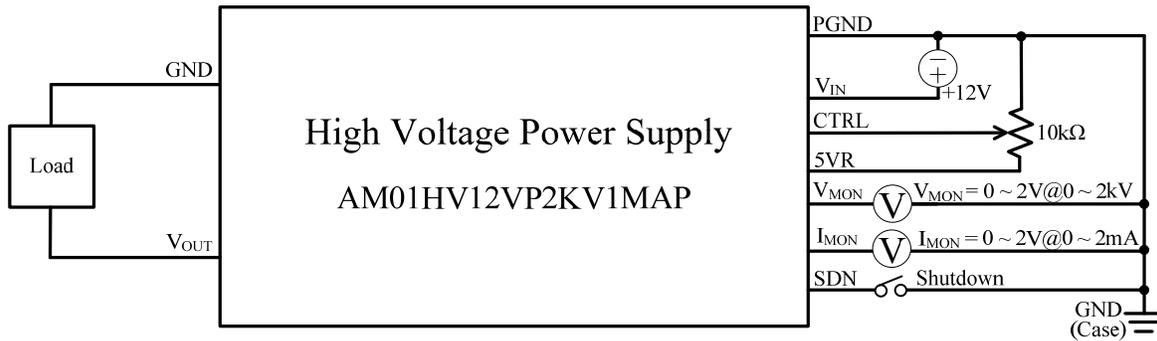
Figure 2. V\_CTRL vs. V\_OUT

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**

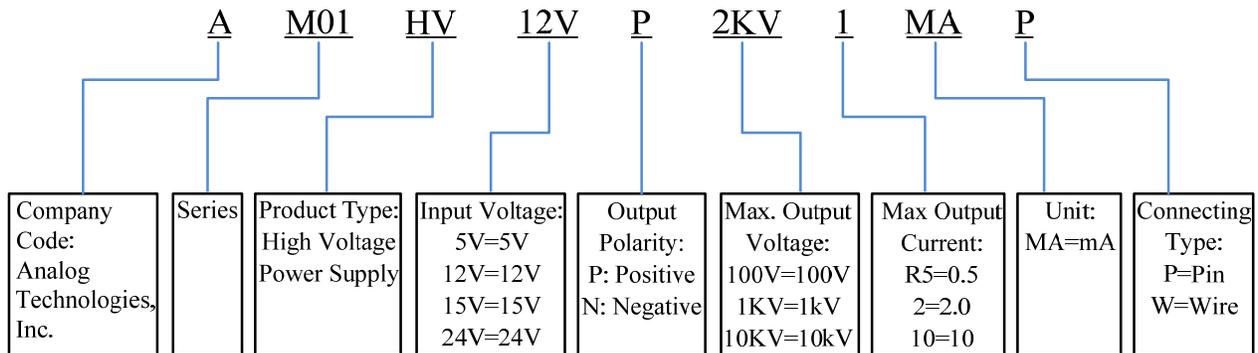


Figure 5. Naming Rules of AM01HV12VP2KV1MAP

**DIMENSIONS**

I. Pin layout

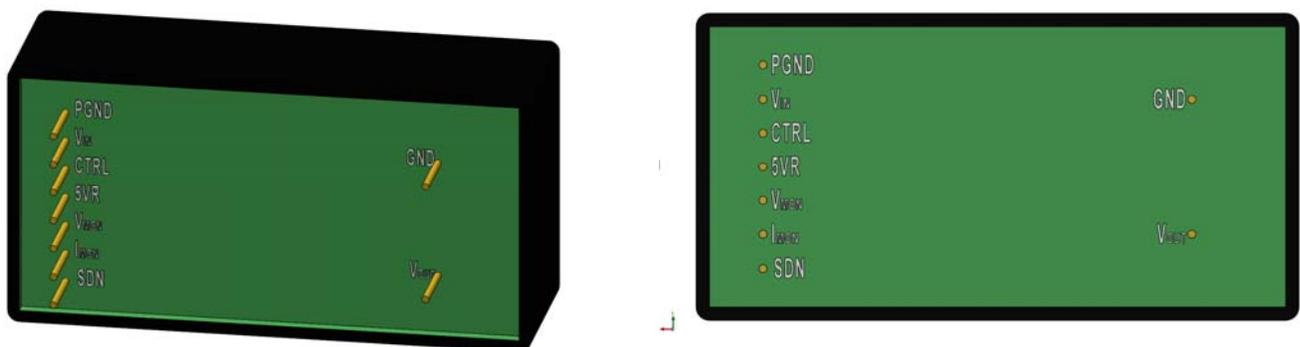


Figure 6. Pin Layout for AM01HV12VP2KV1MAP



II. Dimension of AM01HV12VP2KV1MAP.

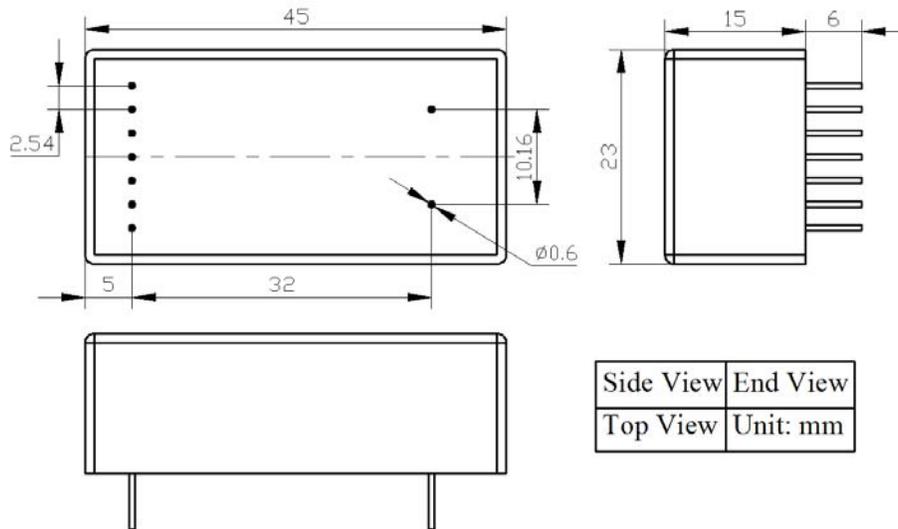


Figure 7. Dimensions for AM01HV12VP2KV1MAP

PRICES

| Quantity          | 1~9pcs | 10~49pcs | 50~99pcs | ≥100pcs |
|-------------------|--------|----------|----------|---------|
| AM01HV12VP2KV1MAP | \$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.