

**Subminiature Flat High Voltage Power Module**

**1. Lead wire**

Input terminal: Red wire: positive terminal of input power; black wire: input power ground; green wire: control terminal of output voltage

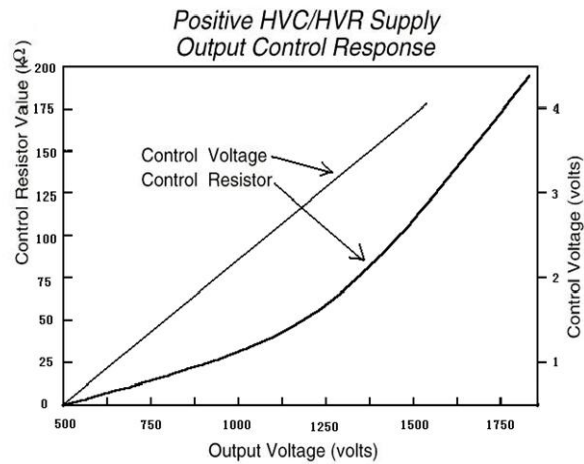
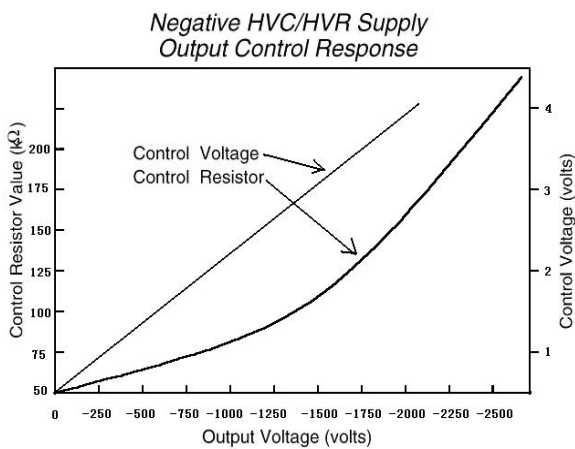
Output terminal: white wire: high voltage (input power GND and output GND share)

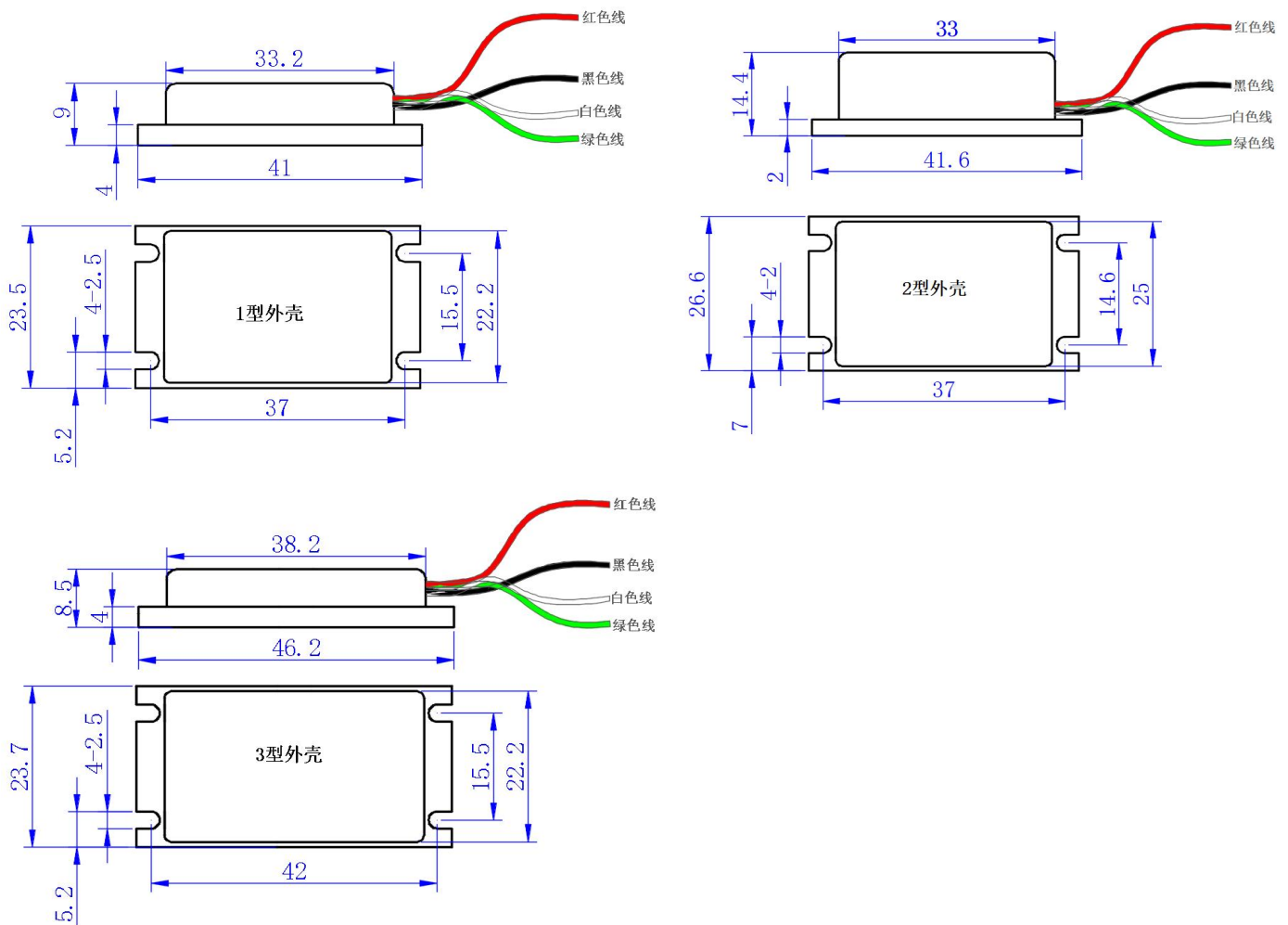
**2. Technical parameters**

- (1) Working temperature range:  $-55^{\circ}\text{C} \sim +225^{\circ}\text{C}$
- (2) Input voltage:  $+5\text{V} \sim +33\text{V}$
- (3) Input current:  $12\text{mA} @ 1600\text{V}$  with 22M load (24V IN)  
 $50\text{mA} @ 2400\text{V}$  with 7 M load (24V IN)
- (4) Output voltage:  $0\text{V} \sim \pm 2400\text{V}$
- (5) Output current:  $0.1 \sim 0.5\text{mA}$
- (6) Temperature stability: lower than  $\pm 40\text{PPM}/^{\circ}\text{C}$ , typical  $\pm 20\text{PPM}/^{\circ}\text{C}$
- (7) Linear adjust rate:  $\pm 0.1\%$  (10% linear variation)
- (8) Load adjust rate:  $\pm 0.05$  (50% load variation)
- (9) Shock resistance: 25G, 0-300Hz
- (10) Output ripple: 1.0Vp-p, typical 200mVp-p (with recommended filter of 2mVp-p, typical 0.5mVp-p)
- (11) Output characteristics:
- (12) Dimension: type 1: L\*W\*H:33\*22\*8.9MM; type 2: L\*W\*H:33\*25\*14.5MM; type 3: L\*W\*H:38.2\*22.2\*8.9MM



The three dimensions do not include the size of the mounting base





Note: 1、 Mounting hole and mounting hole spacing dimension tolerance is  $\pm 0.1\text{mm}$   
2、 The tolerance of external dimension is  $\pm 0.2\text{mm}$

1型外壳: Type 1 shell,

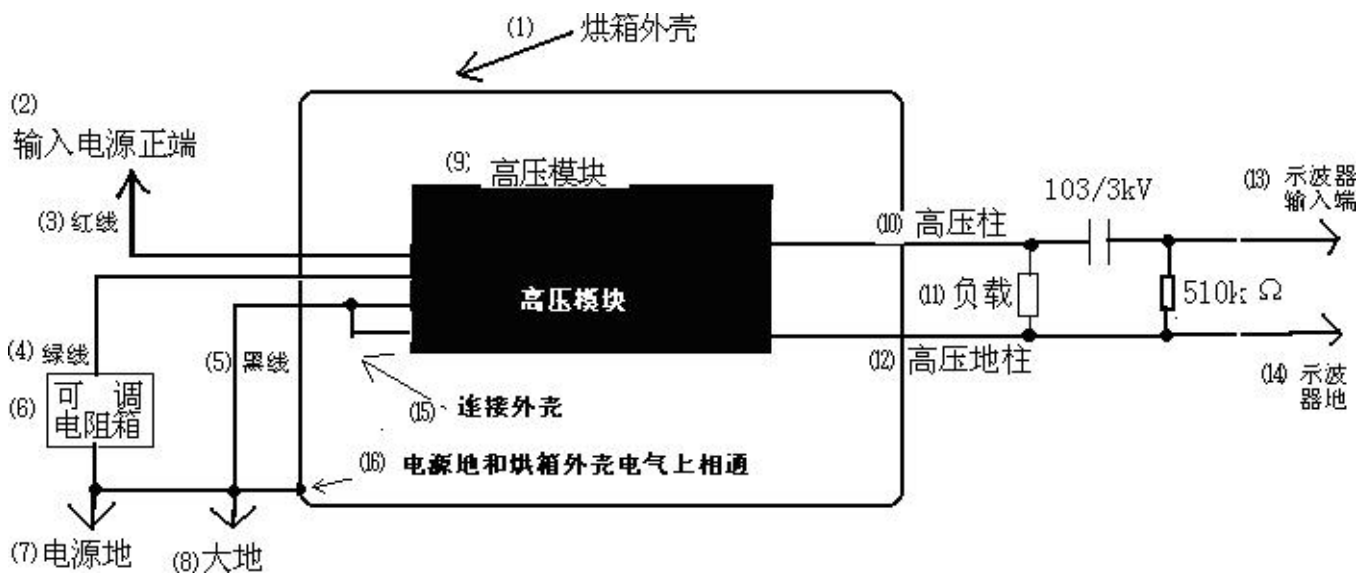
红色线 Red wire 黑色线 Black wire 白色线 White wire 绿色线 Green wire

### 3. Service requirement

- (1) The ambient temperature should not be higher than the maximum working temperature of the module for a long time. The module is able to work reliably for a long time within the rated working temperature range without thermal damage. The maximum test working time lasts 200 hours. But if the ambient temperature is higher than its rated working temperature, the damage and aging to components and material will be accelerated.
- (2) If you want to lessen the high voltage output ripple during its service, please make use of resistance and high voltage capacitance we provide to constitute a RC filter, which generally can lessen the ripple lower than 1mVp-p. See attached diagram for connection.
- (3) When using voltage to control negative high voltage power, please connect a resistance in green control wire (the resistance value should be the value of high voltage output varies from zero V), then the high voltage output will be in line with the curve of control diagram.
- (4) Module shell should be connected to input ground in service.

### 4. Attention for test

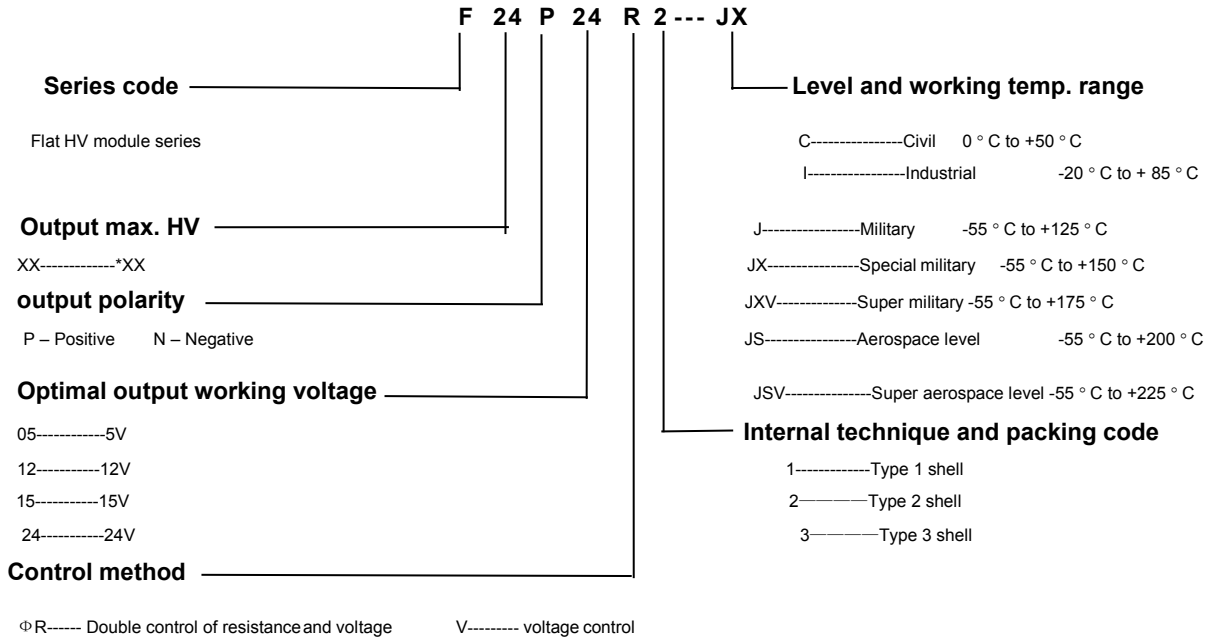
- (1) The test connection diagram is as shown below. The high voltage lead wire should be the wire resistance to high voltage and temperature.
- (2) Supply the high voltage module with direct current of 0~+4V before the test formally starts (the direct power source should be enabled), and the high voltage module does not start, and the ripple measured by filter is intrinsic in test system. In the normal measurement, the ripple of high voltage module is obtained by subtracting the intrinsic ripple of the test system from the ripple measured by the filter.
- (3) The load of high voltage module is 400k at most and infinite at lowest (with HE3 tube). After the control resistance value is given, the high voltage output will be a mere value which does not vary along with the input voltage. But the maximum output value of the high voltage module relates to input voltage and load. The higher the input voltage is, the higher the load resistance value will be and its maximum output value will be higher. If high voltage varies along with input voltage, it is certain that the input voltage or load resistance value is low. Thus it is necessary to increase the load resistance value or raise the input voltage.
- (4) The load resistance to be used in test should be the one resistance to 3KV high voltage.
- (5) During the test, if the high voltage value and high voltage ripple flash along with the On/Off of oven, please check the oven's GND line and whether there is current leakage.



- (1)、Oven shell
- (2)、Positive terminal of input power
- (3)、Red wire
- (4)、Green wire
- (5)、Black wire
- (6)、Adjustable resistance box
- (7)、Power GND
- (8)、GND
- (9)、HV module
- (10)、HV column
- (11)、Load
- (12)、HV GND column
- (13)、Filter's input terminal
- (14)、Filter GND

- (15)、Connecting shell
- (16)、Power GND is interlinked with electricity of oven shell

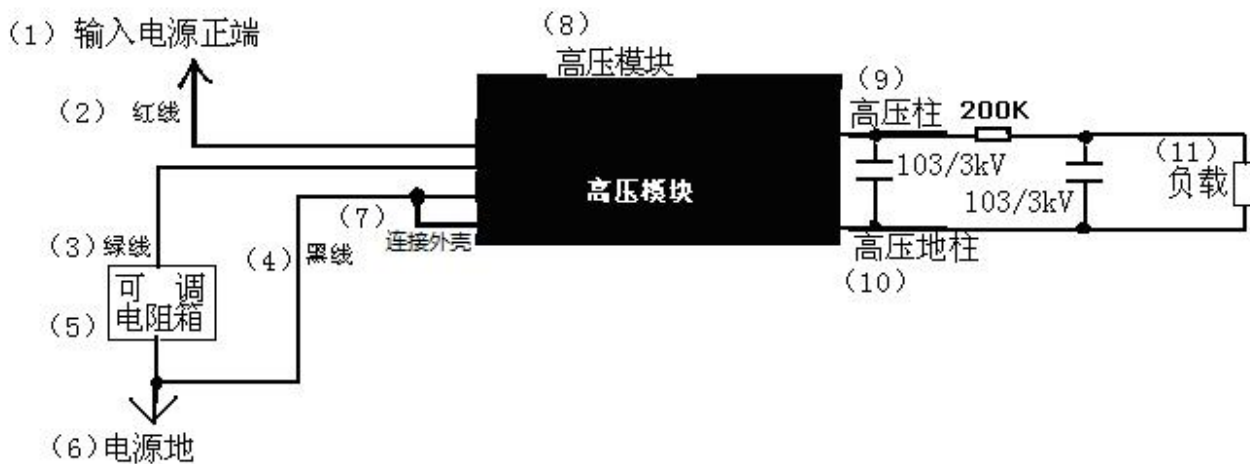
**5. Rules for naming**



**Attention for type selection:**

1. Type 1 has the smallest size, it only has C, I, J, JX, JXV and JS levels available for choose. It not has JSV level.
2. Type 2 is produced using the components that have independent intellectual property right. The reliability of the same level is higher than that of type 1, 3, but it only has J, JX and JXV levels. It has no 5V input module. It has the maximum height.
3. The technical index of type 3 is neutral covering all levels and input voltage.

**6. Recommended filter connection**



- (1) Positive terminal of input power
- (2) Red wire
- (3) Green wire
- (4) Black wire

- (5) Adjustable resistance box
- (6) Power GND
- (7) Connecting shell
- (8) HV module
- (9) HV column
- (10) HV GND column
- (11) Load

**Product performance, reliability and information are subject to change without prior notice.**

**June 17,2024**