HS Series High-voltage Power Supply Modules Characterized with Low Power Consumption

Description:

With a breakthrough in the development of components due to the increasing scale and the close cooperation with some foreign high-temperature component manufacturers, VAW Electronics Co, LTD embarks on initiative design and customization of specialized high temperature electronic components. Based on more than a decade of R & D and production, the company's electronic engineers have designed and customized a series of dedicated power components which are charactered with wide operating temperature (-55℃～+150℃, -55℃～+175℃, -55℃～+200℃, -65℃～+250℃) and various types (175℃ high-voltage lead capacitor, 350℃ magnetic core, 600℃ magnetic core, 250℃ SMD inductor, 250℃ SMD current sampler, 250℃ current sample operational amplifier, 250℃ SMD capacitor, 250℃ SMD Precision high-power resistor, 250℃ SMD discharge protector, 250℃ dedicated power control chip, 250℃ high-capacity filter capacitor, 250℃ high-power fast switching tube, 250℃ high-current fleetness rectifier tube). In addition to using the most advanced special components, HS series of high temperature and high voltage power modules also employs a number of components developed and customized based on proprietary intellectual property rights, and produced according to the technology and production quality control system of military supplies. The performance of all the products has reached a new standard. **All products in this series can work under -40℃ +225℃ ambient temperature for 4 hours without considering their reliability.**

Scope of application ： petroleum survey logging tool,petroleum drilling instrument,geophysical detecting instrument, vehicles, telecommunication, network infrastructures, enterprise and high-performance calculation.

1： Pin

Input end: red pin: positive input (yellow pin: negative input)

black pin: GND green pin: output voltage end

Output end: HV end high voltage GND end: Ground (connect with input power supply)

2： Main technical parameters：

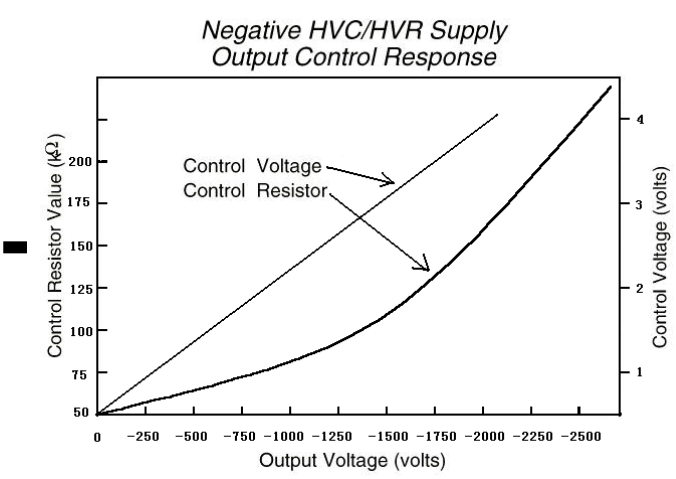
（一） Operating temperature range: widest -55℃～+225℃

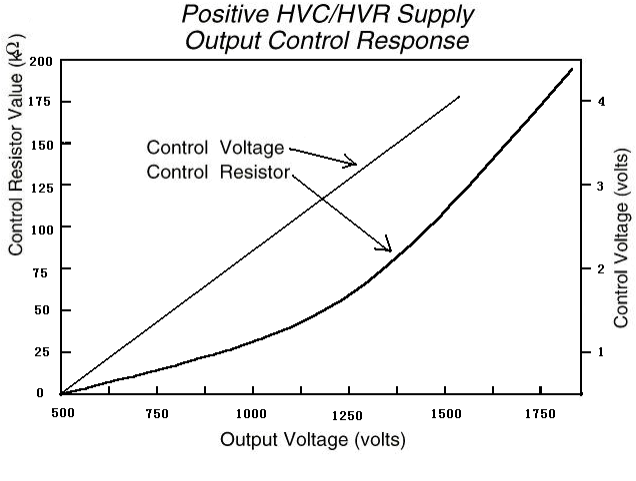
（二） Input voltage: +10V~+33V(±10~±16.5V)

（三） Input current: 11mA@ 1600V with load22M（24V IN）
50mA @2400V with load7 M（24V IN）

（四） Output voltage: 0V～-±2400V

（五）Output current: 500uA。1000uA 5000 uA (with filter 2mVp-p, typical 0.5mVp-p)





（六）Temperature Stability: less than±30PPM/^{0} C (typical±20PPM/^{0} C)

（七） Line regulation: ±0.1% (10% linear change)

（八）Load regulation: ±0.01(50% load change)

（九）Earthquake resistance: 50G, 0 ~ 200Hz

（十）Output ripple: 50mVp-p (typical 30mVp-p)

（十一）Output characteristics:

3 Service Requirements：

（一） The ambient temperature shall not be higher than the maximum operating temperature of the module for a long time. The module can work reliably in the rated temperature range without thermal damage for a long time and, the maximum experimental time of the continuous work is 200 hours. **However, the working environment temperature higher than the rated operating temperature can accelerate damage and aging of the devices and material, doubling the probability of failure**. According to ten years of statistics for the HVC series, the reliability data obtained are as follows: (there is no statistical data for HS series temporarily because of their just being launched)

(1) In the rated temperature range, there is no limit on working hours and, the accidental failure period is more than three years and, the constant failure rate (CFR) is less than 1%.

(2) Beyond +25℃ of the rated working temperature range for two hours each time, the failure rate is less than 1 percent in the first year, about five percent in the second year, and about 10 percent in the third year.

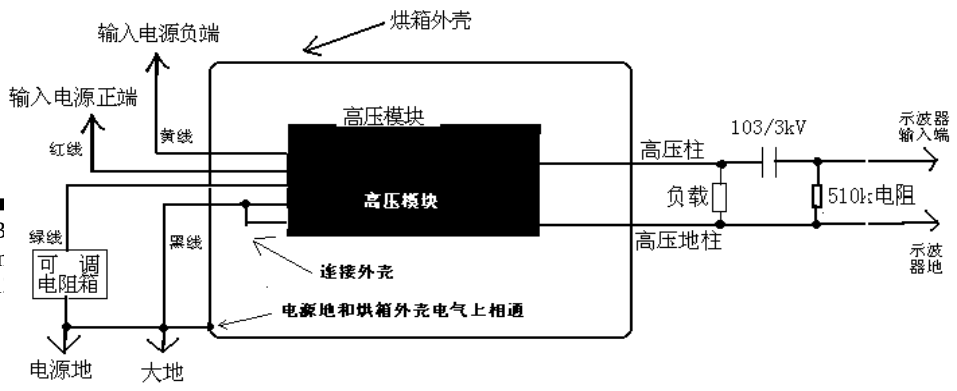
(3) Beyond +50℃ of the rated working temperature range for two hours each time, the failure rate is less than10 percent in the first year, about fifty percent in the second year, and about seventy percent in the third year.

（二） Output voltage shall facilitate the installation of connection, in some occasions, if the output voltage and input power are connected to the line where there may be interference, input power shall be shared.

（三） To make high-voltage output ripple less in use, the accompanying resistance and high-voltage capacitor provided by our company can be used to form a RC filter, and the ripple generally could be less than 1 mVp-p. See the attached figure for connection method.

（四） When a voltage control mode is applied to high-voltage negative supply, a resistor shall be connected in series with the green pilot wire, whose resistance value is exactly the value of the high-voltage output change beginning from zero volt when the resistor is under the control mode, then the high voltage output conforms to the curve of electric diagram.

4 Testing notes：



（一） The connection diagram for testing is shown above, and the high-voltage pinout shall employ the high-voltage and high-temperature endurable wire.

（二） Before a formal test, power the high-voltage module with 0 ~ +4 V DC (The DC power supply shall be switched on) when the high-voltage module is not activated, the ripple measured by an oscilloscope is that of the testing system itself. After a normal measurement, the ripple measured by an oscilloscope to remove the ripple inherent in the test system itself is that of the high-voltage module.

（三） The maximum load of the high-voltage module is 7M, and the minimum load can be infinite (with tube HE3). When the control resistance is given, the high-voltage output will be a unique value, without changing with the input voltage. However, the maximum output value of the high-voltage module is relative to the input voltage and load (the greater the input voltage is, the greater the load resistance is, and the higher its maximum output value is). If the high voltage changes with the input voltage, the input voltage or the load resistance must be less, then it is important to either increase the load resistance or increase the input voltage.

（四） The load resistor used in the testing shall use 3KV high-voltage endurable one.

（五） During the process of testing, when the switches of the high-voltage value and the high-voltage ripple oven are flashing, check the earthwire and leakage of the oven.

（六） When series power supply modules with positive and negative input are used, we can use a single power supply if the yellow line (negative terminal input of the power supply) is connected with the black line (input power to FG) .

5： Rules of name：

H S 24 P 24 R ----- JX

Family Code
HS series components
Output high voltage
XX----------100*XX
Output polarity
Positive – 正 N –negative
Best input operating voltage
05----------5v
12----------12V
B12----------正负12V
15----------15V
B15----------正负15V
24----------24v
90----------90v
control mode
R------ both resistance and voltage control V--------- voltage control

Level and scope of operating temperature
C---------- Civilian 0 ° C to +50 ° C
I ---------- Industrial -20 ° C to + 85 ° C
J---------- Civilian - 55 ° C to +125 ° C
JX---------- Special military -55 ° C to +150 ° C
JXV---------- Super military -55 ° C to +175 ° C
JS---------- Aerospace -55 ° C to +200 ° C
JSV---------- Super aerospace -55 ° C to +225 ° C

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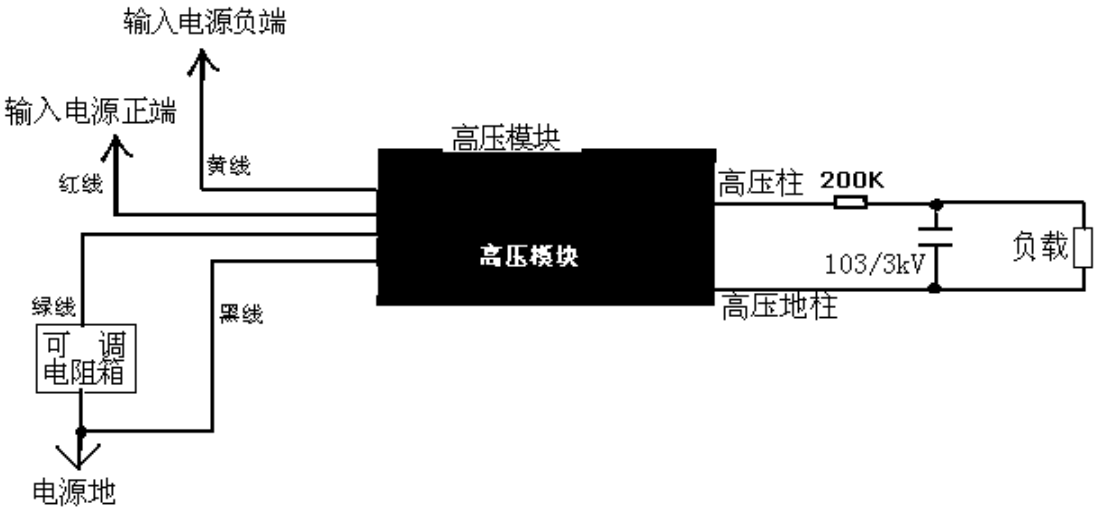
6. Recommended filter connection method:

Negative end of input power



输入电源正端 Positive end of input power

红线 Red line

黄线 Yellow line

黑线 Black line

绿线 Green line

电源地 Power ground

高压模块 High voltage module

高压柱 High voltage column

高压地柱 High voltage ground column

可调电阻箱 Adjustable resistance box

负载 Loading

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