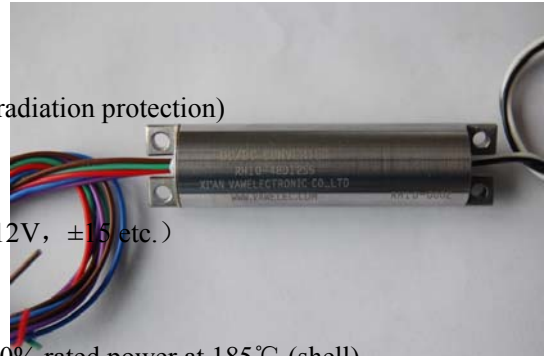


RH10 Series Power Module for Oil Production Logging Instrument

Features:

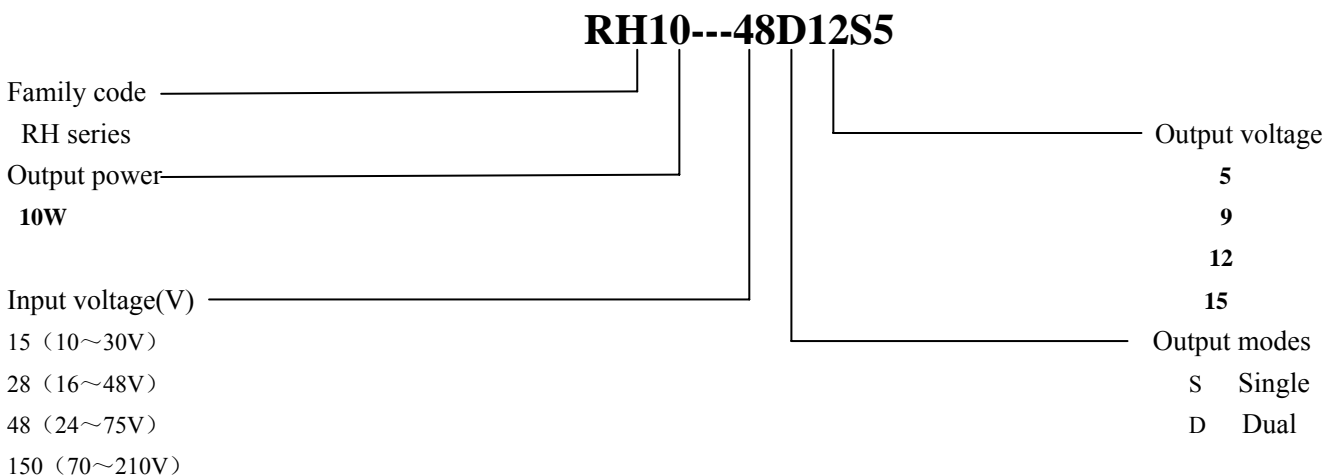
- : High operating temperature (ambient temperature: -55°C ~ +175°C and shell temperature: +185°C)
- : Small size (Φ16.0*80.0MM.)
- : High conversion efficiency (typically 80% ~ 87%)
- : Sealed metal casting (impact and moist resistance and electromagnetic radiation protection)
- : Input overvoltage turnoff
- : Wide input range (10~30V, 16~48V, 24~75V, 70~210V)
- : Multi-output approach (up to triple-route 3.3V, 5V, ±5V, ±9V, ±12V, ±15 etc.)
- : High operating frequency (300KHZ)
- : Integrated LC EMI filter
- : Providing rated power without deduction at 150°C (shell); providing 50% rated power at 185°C (shell)
- : Over-heat protection at 210°C
- : Output circuit and overload protection



Description:

The RH10 series 10W high-temperature DC-DC power module is designed for the electronic equipments working in the harsh environment. With features of being resistant to high temperature, impact and humidity, it is a power supply system especially applicable to petroleum survey logging tool, petroleum drilling instrument, geophysical detecting instrument, vehicles, telecommunication, network infrastructures, enterprise and high-performance calculation. It has five optional input ranges: 10~30V, 16~48V, 24~75V, 70V~210V and can provide fixed-voltage output as many as three-way, and within the entire operating temperature range and under the condition change of full-load and no-load, the output voltage fluctuation is less than 0.3V. The operating frequency of the FH15 series is up to 300KHZ, which provides good wave filtration. Its output voltage ripple is less than 100MV in the conditions of no wave filtering conditions.

RH10 components completely pass the in-factory test in strict accordance with the enterprise standards and GJB, which includes 24 ~ 72-hour live aging and screening at +175°C. All finished products have experienced 8-hour full-load operation at +175 °C before delivery so as to fully expose the damage to the components during the production process and hence ensure the reliability of products.



Main technical parameters:

- (1) Operating temperature: $-55^{\circ}\text{C} \sim +175^{\circ}\text{C}$ Maximum shell temperature: $+185^{\circ}\text{C}$.
- (2) Input voltage: 10~30V, 16~48V, 24~75V, 70~210V
- (3) Output voltage: (up to triple-route, 3.3V, 5V, $\pm 5\text{V}$, $\pm 9\text{V}$, $\pm 12\text{V}$, ± 15 , etc.)
- (4) Output ripple: 100mVp-p (typical 30mVp-p)
- (5) Output power: 10W
- (6) Output accuracy: less than 5%
- (7) Load regulation: less than 5%.
- (8) Temperature stability: less than $\pm 2.5\%$ (typical $\pm 1\%$)
- (9) Line regulation: $\pm 0.1\%$ (10% linear change).
- (10) Earthquake resistance: 25G, 0 ~ 300Hz
- (11) Conversion efficiency: 780% ~ 87%
- (12) Static power consumption: maximum 0.5W
- (13) Mechanical dimensions: $\Phi 16.0 \times 80.0\text{MM}$.
- (14) Isolation voltage between input and output or between the outputs: 1000V
- (15) Definition of pinouts: red pin: positive input black pin: negative input blue pin: output to FG
white pin: 9V/+12 V/+15V/ gray pin: -9V/-12V/-15V。 green pin: +3.3V/+5V

Service Requirements:

As the modules have nearly 1W power consumption under the condition of full-load operation and their sizes are small, good medium need to be added between the shell of the power supply and the radiator so as to ensure the temperature of the module case to be less than 204°C . The input voltage is automatically monitored in its interior. When it exceeds the maximum input voltage, the module will automatically turn off. The shell of the module is isolated from the input and output. The shell is directly connected with the shortest outgoing line terminal between the input and output to FG or connected through a 1000V/1000PF capacitor, which ensures the contact resistance between the inner part of the module and the shell is minimum one so as to effectively reduce the switching spikes.

The no-load current of the module is 12MA. The automatic turnoff voltage is 5V higher than rated voltage. The current after turnoff is 2MA and the operating frequency at $+25^{\circ}\text{C}$ is $300 \pm 20 \text{ KHZ}$ while it is $280 \pm 20\text{KHZ}$ at $+175^{\circ}\text{C}$.

Outline diagram:

