

FHP15 Series High-temperature DC-DC Modules

Features:

- : High operating temperature (ambient temperature: $-55^{\circ}\text{C} \sim +175^{\circ}\text{C}$ and max. shell temperature: $+204^{\circ}\text{C}$)
- : Small size (L: 53.8×W: 28.4×H: 11.0MM.)
- : High conversion efficiency (typically 80% ~ 87%)
- : Sealed metal casting (impact and moist resistance and electromagnetic radiation protection)
- : Wide input range (16V ~ 48V, 24V~72V, 36~72V, 70~210V, 120~350V)
- : Multi-output approach (up to triple-route: 3.3V, 5V, $\pm 5\text{V}$, $\pm 9\text{V}$, $\pm 12\text{V}$ and ± 15 etc.)
- : High operating frequency (300KHZ)
- : Integrated LC EMI filter
- : Providing rated power without deduction at 175°C (shell); providing 80% of rated power at 185°C (shell)
- : Over-heat protection at 210°C
- : Over-voltage and over-current failure switch-off delay restart
- : Input under-voltage and over-voltage turnoff protection
- : 100MS soft-start function



Description:

The FHP15 series 15W high-temperature DC-DC power module is designed for the electronic equipments working in the harsh environment and can work for 1000 hours at 150°C shell temperature, for 400 hours at 175°C shell temperature and for 48 hours at 204°C shell temperature. 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: 16V ~ 48V, 24V ~ 72V, 36 ~ 72V, 70~210V, 120 ~ 350V and can provide fixed-voltage output in the mode of single-way, double-way, or 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. However, the output precision of 3.3V voltage is even less than 0.15V. The operating frequency of the FHP15 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. Within the entire temperature range, the temperature stability of frequency should be $\pm 8\%$.

FHP15 Series contains an in-built LC network, which can effectively reduce the fluctuations of the input current and the output voltage.

FHP15 Series contains a 100MS soft-start circuit, which can slowly increase the input current when the module is activated and after the failure is removed so as to facilitate external connection of a large-capacity output filtering capacitor and reduce the impact from starting.

FHP15 series has over-voltage and under-voltage shutdown functions, which can enable the module to stop working beyond the range of the input voltage to protect the module. The under-voltage and over-voltage turn-off voltage is within 5V of extension of VAC. If the input range is rated at 36-72V, its under-voltage turn-off voltage will be 19-23.9V and over-voltage turn-off voltage will be 72.1-77V.

FHP15 series includes the output short circuit and overload automatic turn-off circuit. When the output lasts 0.1s and exceeds 120% of the rated output power, the module cuts off all outputs. After the over-current fault is eliminated, it automatically enters into soft-start mode and restores the output voltage. If the overload duration of output is less than 0.1s, the module will not take action.

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 current after turnoff is 2MA and the operating frequency at +25°C is 300 ± 20 KHZ while it is 310 ± 20 KHZ at +175°C.

Outline diagram:



