

Product Features

- ✧ Packaging form: DIP plastic plug-in
- ✧ Temperature range: -40°C to +85°C
- ✧ Conversion efficiency: up to 88%
- ✧ Isolation withstand voltage: 1500VDC
- ✧ Input range: 2:1 wide input voltage
- ✧ Output protection: output over-current, output short-circuit protection
- ✧ Application fields: industry, electric power, instrumentation, communications, rail transit

wide voltage 20W isolated regulated output series



Selection table

Product number	Input voltage (VDC)	output		Full load efficiency (%) Min./Typ.	Maximum capacitive load (μF)
		The output voltage (VDC)	Output current (mA) Max./Min		
HWR30-24S05	24 (18-36)	5	6000/0	88	10000

#Each output

Input properties

item	working conditions	Min.	Typ.	Max.	unit
Input surge voltage	24VDC input	-0.7	--	25	VDC
Starting voltage	24VDC input	--	--	9	
Input undervoltage protection	24VDC input	5.5	6.5	--	
Start Time	Nominal input and constant resistance load	--	10	--	ms
Ctrl foot function	module on	Float or 3.5V- 12V conductive			
	Module shutdown	0V-1.2V shutdown			
Input filter type		PI type			
hot plug		not support			

Output characteristics

item	working conditions	Min.	Typ.	Max.	unit
Output voltage accuracy	0%-100% load	--	±1.0	±3.0	%
Linear regulation rate	Full load, input voltage from low voltage to high voltage	--	--	±0.5	

Load regulation	0% to 100% load	--	--	±1.0	
ripple noise	20MHz bandwidth , 5%-100% load	--	40	100	mVp-p
transient recovery time	25% load step change, nominal input voltage	--	300	500	μs
Transient response deviation		--	±3	±5	%
Temperature drift coefficient		--	--	±0.03	%/ °C
Overcurrent protection		110	1 4 0	190	% Io
Short circuit protection		Sustainable, self-healing			

General features

item	working conditions	Min.	Typ.	Max.	unit
Insulation voltage	Input-output, test time 1 minute, leakage current less than 1mA	1500	--	--	VDC
Insulation resistance	Input-output, insulation voltage 500VDC/1 minute, normal temperature, 75%RH	1000	--	--	MΩ
isolation capacitor	Input-output, 100KHz, 0.1V	--	1000	--	pF
Operating temperature		-40	--	+85	C°
Storage temperature		-50	--	+125	
Storage humidity		5	--	95	%RH
Pin resistance to soldering temperature	Soldering point is 1.5mm away from the shell, 10 seconds	--	--	+300	°C
On-off level		--	300	--	kHz
mean time between failures		1000	--	--	K Hours

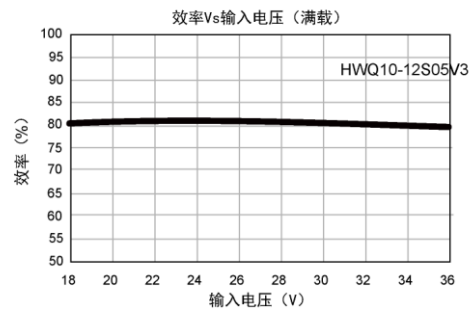
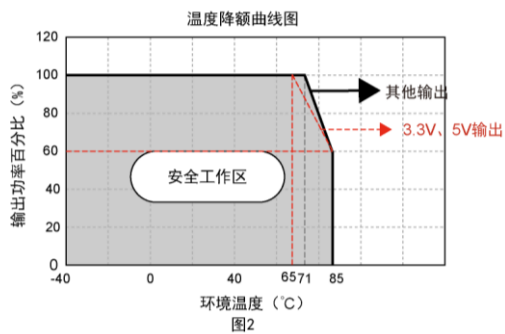
physical properties

Shell material	Aluminum alloy, black anodized coating
Package size	25.50×25.50× 12.00mm
weight	15g
cooling method	Natural air cooling

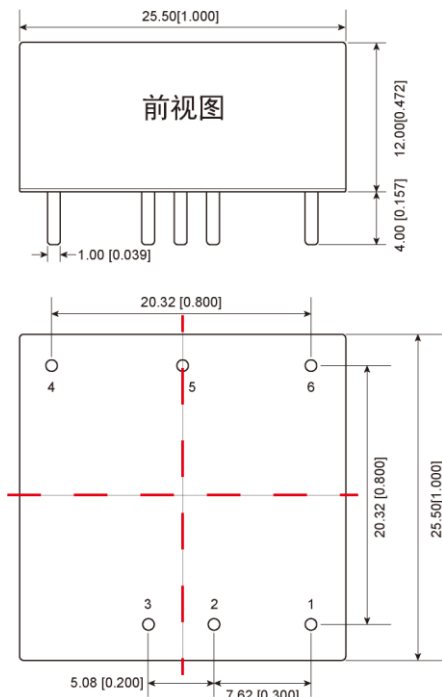
EMC characteristics

EMI	conducted disturbance	CISPR32/EN55032 CLASS A (bare board)/CLASS B (recommended circuit shown in Figure 5-②)	
	radiation	CISPR32/EN55032 CLASS A (bare board)/CLASS B (recommended circuit shown in Figure 5-②)	
EMS	electrostatic discharge	IEC/EN61000-4-2 Contact±4KV	Perf.Criteria B
	Radiated immunity	IEC/EN61000-4-3 10V/m	Perf.Criteria A
	Burst Immunity	IEC/EN61000-4-4 ±2KV (recommended circuit shown in Figure 5-①)	Perf.Criteria B
	Surge Immunity	IEC/EN61000-4-5 line to line±2KV (recommended circuit shown in Figure 5-①)	Perf.Criteria B
	Conducted disturbance immunity	IEC/EN61000-4-6 3Vr.ms	Perf.Criteria A

Product Characteristics Curve



Appearance dimensions/recommended printing layout



Size unit : mm [inch]

Terminal diameter tolerance : ±0.10 [±0.004]

Unmarked tolerances: ±0.50 [±0.020]

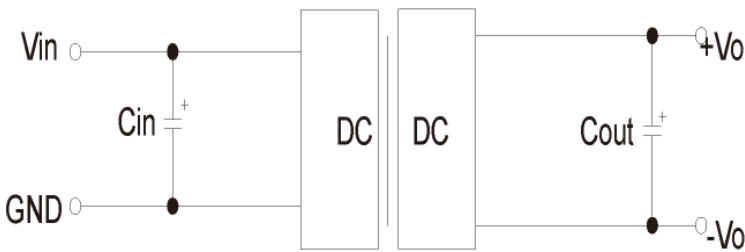
Pin no.	Function (single channel)
1	CTRL
2	GND
3	Vin
4	+Vo
5	No Pin
6	-Vo

circuit design

1. Typical application circuit

All DC/DC converters of this series are tested according to the recommended test circuit (Figure 3) before leaving the factory.

If it is required to further reduce the input and output ripple, the input and output external capacitors C_{in} and C_{out} can be increased or a capacitor with a small series equivalent impedance value can be selected. but the capacitance cannot be greater than the maximum capacitive load of the product.



V_{in}	12V
C_{in}	100uF
C_{out}	10uF

图3

2. EMC solution----recommended circuit

12VDC Nominal input series

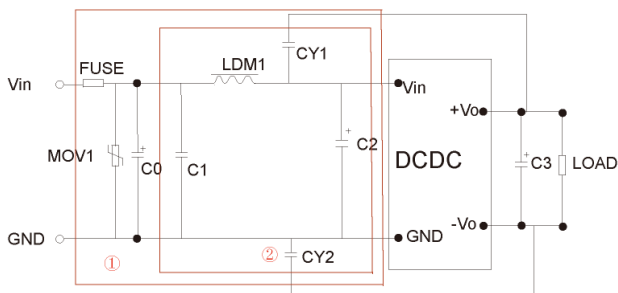


图5

Model	V_{in} : 12V
FUSE	Select according to customer's actual input current
MOV	20D470K
C0、C2	330uF/50V
C1	1uF/50V
C3	Refer to the C_{out} parameter in Figure 3
LDM1	4.7uH
CY1、CY2	1nF/2KV

Note:

In Figure5, the first part is used for EMC testing;

The second part is used for EMI filtering and can be selected according to needs.

Note:

1. If the product operates below the minimum required load, there is no guarantee that the product performance will comply with all performance indicators in this manual;
2. The maximum capacitive load is tested under input voltage range and full load conditions;
3. Unless otherwise specified, all indicators in this manual are measured at Ta=25°C, temperature <75%RH, nominal input voltage and output rated load;
4. All index testing methods in this manual are based on the company's corporate standards;
5. Our company can provide product customization, please contact our sales engineer directly for specific needs;

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