DC-DC Converter

WRFD_S(D)_(ZD)(K)-30WH2 Series

HenLv

Features

- Wide voltage input 2:1
- DIP、 Din-rail series
- Operating temperature range：-40℃～+85℃
- Isolation voltage 1500VDC 0.5mA 1Minute
- Internal SMD design
- Metal shell
- Heat dissipation mode: natural air cooling
- It has good shielding anti-interference performance and electromagnetic compatibility, lightning protection, output over current, short circuit protection, overheat protection, self-recovery and other functions

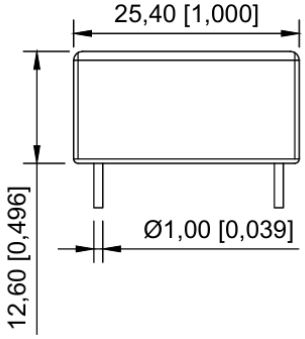
Product Picture

EMC-EN55032
EN55035
LVD-EN62368

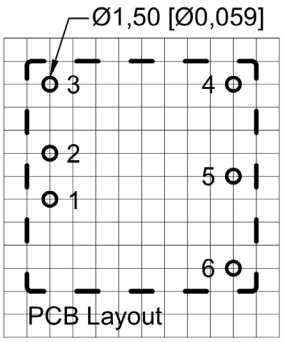
Dimensions

WRFD_S(D)_-30WH2 Series Dimensions

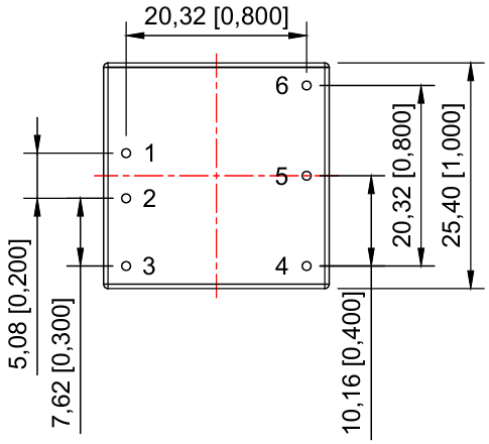
Front view



Top view



Note: The grid distance:2.54*2.54mm

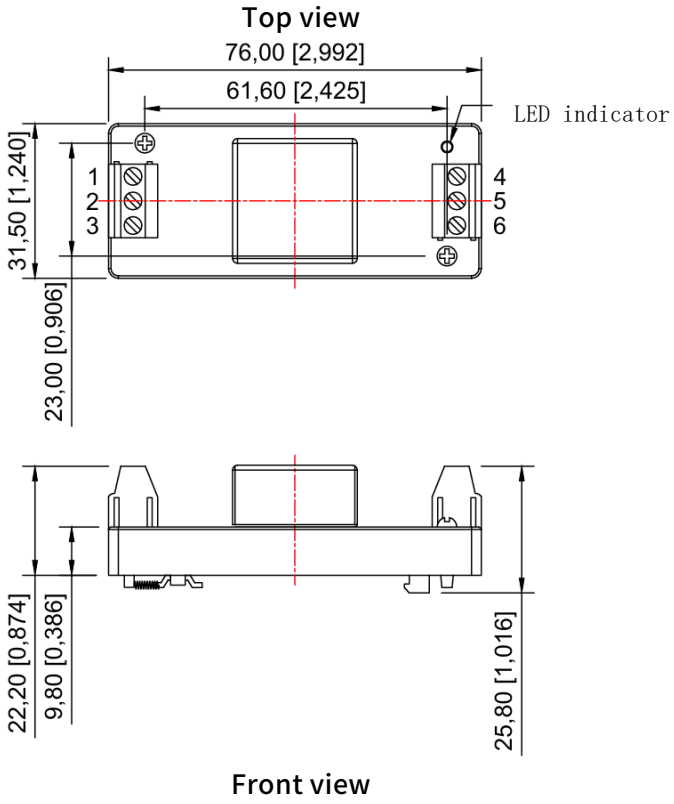


Bottom view

Pin mode		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
3	CNT	CNT
4	0V	-XXVDC
5	TRM	COM
6	+XXVDC	+XXVDC

Note:
Size unit: mm[inch]
Pin section tolerance: ±0.1[±0.004]
Unmarked tolerance: ±0.25[±0.01]
The device layout is for reference only.

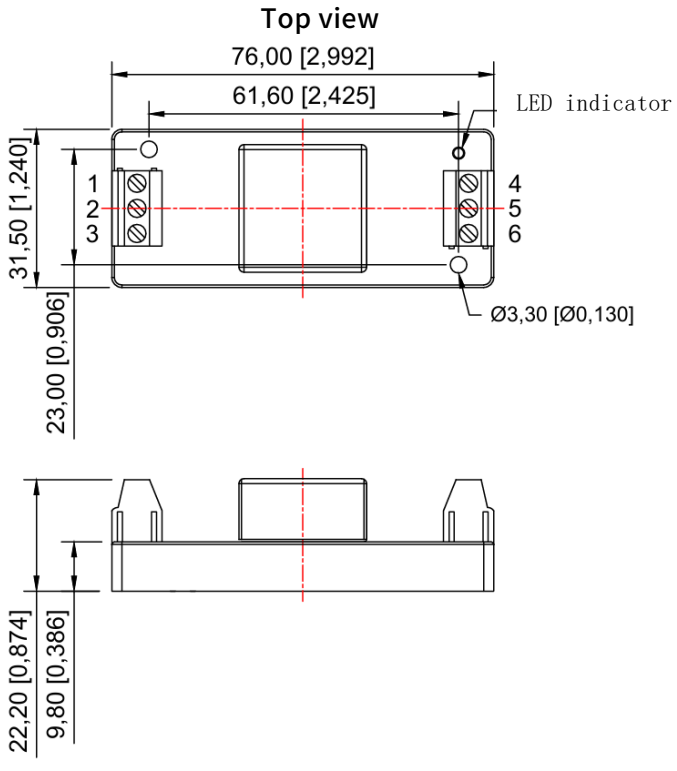
WRFD_S(D)_ZDK-30WH2 Series Dimensions



Pin mode		
Pin	Single	Dual
1	CNT	CNT
2	GND	GND
3	Vin	Vin
4	0V	-XXVDC
5	TRM	COM
6	+XXVDC	+XXVDC

Note:
Size unit: mm[inch]
Unmarked tolerance: ±0.25[±0.01]
Wiring strength: 24-12 AWG
Tightening torque: Max 0.4N-m
Din-rail type: TS35
The device layout is for reference only.

WRFD_S(D)_ZD-30WH2 Series Dimensions



Pin mode		
Pin	Single	Dual
1	CNT	CNT
2	GND	GND
3	Vin	Vin
4	0V	-XXVDC
5	TRM	COM
6	+XXVDC	+XXVDC

Note:
Size unit: mm[inch]
Unmarked tolerance: ±0.25[±0.01]
Wiring strength: 24-12 AWG
Tightening torque: Max 0.4N-m
The device layout is for reference only.。

Application

Railway communication, display, monitoring equipment, petrochemical, industrial control, remote DC power supply system, switching system and other communication equipment.

Selection Guide

Model	Vin (VDC)	Vout (Vo±2%)	Current (mA)	Efficiency (%)	Isolation (VDC)
WRFD_S05-30WH2	12(9-18) 24(18-36) 48(36-75) 100(70-150)	5	6000	⩾85	1500
WRFD_S12-30WH2		12	2500	⩾85	1500
WRFD_S15-30WH2		15	2000	⩾85	1500
WRFD_S24-30WH2		24	1250	⩾86	1500
WRFD_D05-30WH2		±5	±3000	⩾85	1500
WRFD_D12-30WH2		±12	±1250	⩾85	1500
WRFD_D15-30WH2		±15	±1000	⩾85	1500
WRFD_S05ZD(K)-30WH2		5	6000	⩾85	1500
WRFD_S12ZD(K)-30WH2		12	2500	⩾85	1500
WRFD_S15ZD(K)-30WH2		15	2000	⩾85	1500
WRFD_S24ZD(K)-30WH2		24	1250	⩾86	1500
WRFD_D05ZD(K)-30WH2		±5	±3000	⩾85	1500
WRFD_D12ZD(K)-30WH2		±12	±1250	⩾85	1500
WRFD_D15ZD(K)-30WH2		±15	±1000	⩾85	1500

Note: Our company customizes module power supplies with any input or output for customers. If you have other output voltage requirements, please contact our company. Unless otherwise specified, the input =Vi. The characteristics of the module power supply should comply with the provisions of Table 1 and be applicable to the full temperature range (-40℃⩽Tc⩽85℃).

Mechanical Specifications

Size	25.40 x 25.40 x 12.60 mm， ZD(K)：76.00 x 31.5 mm

Electrical Specifications

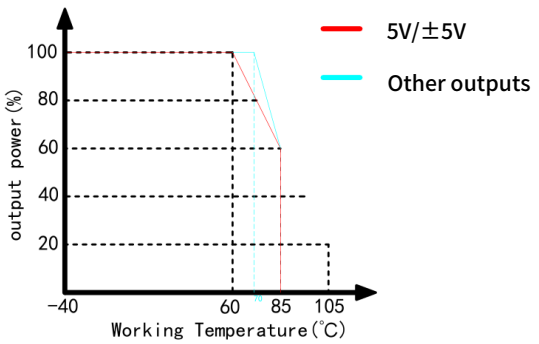
Specifications	Symbol	Conditions Vi ,-40°C≤Tc≤85°C (Unless otherwise specified)	Min	Max	Unit
Output Voltage	Vo	Full Load	Vo-2%	Vo+2%	V
Output Current	Iomax	—	—	P(Power)/U(Output voltage)	A
Output Ripple voltage	Vp-p	Full Load，Vi，BW=20MHz，Normal Temperature	—	240	mV
Output Noise Voltage	Vp-p	Full Load，Vi，BW=20MHz，Normal Temperature	—	480	mV
Voltage Regulation	Sv	Vimin、Vi、Vimax，Full Load	—	±2	%
Load Adjustment	Si	Vi，Io=(10%~100%),5V, ±5V	—	±4	%
		Vi，Io=(10%~100%),		±2	
Efficiency	η	Vi，Full Load，Normal Temperature	84	—	%
Insulation Resistance	Rl	Input-output, Insulation Voltage 500VDC	1000	—	MΩ

General Specifications

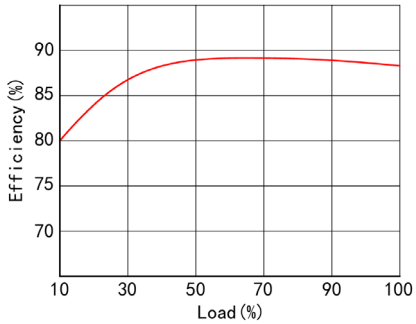
EMC Specifications	Magnetic Field Sensitivity Test	GB6833.2-87
	Electrostatic Discharge Sensitivity Test	GB6833.3-87
	Radiation Sensitivity Test	GB6833.5-87
	Conduction Sensitivity Test	GB6833.6-87
Temperature Drift	≤0.02%/°C	
Storage Temperature	-40°C~125°C	
Input Frequency	200KHz- 400KHz	
Humidity	10%~90%RH	
MTBF	＞300000H	

Typical SpecificationsCurves

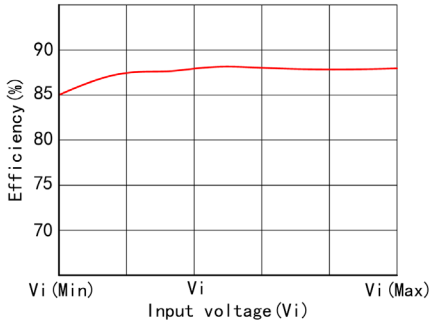
Temperature chart



Efficiency/Load graph

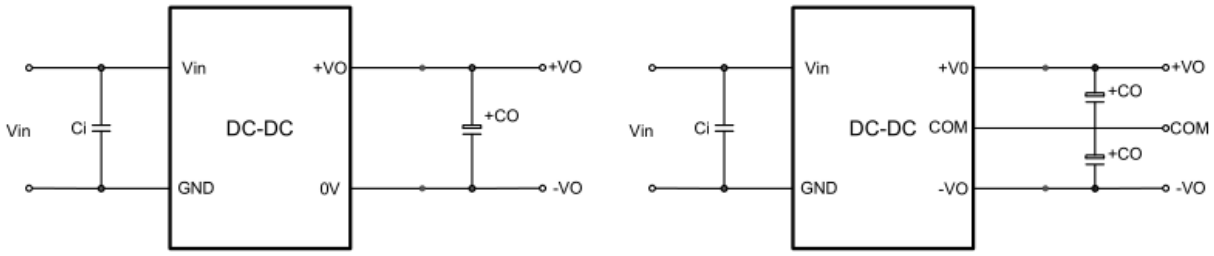


Efficiency/Input voltage graph



Typical Application

Design Reference



Recommendation Test

Filter: In some circuits that are sensitive to noise and ripple, an external filter capacitor can be connected to the DC/DC input and output terminals to reduce the impact of ripple on the system, but the value of the filter capacitor should be appropriate, if the capacitor is too large, it is likely to cause startup problems, for each output, under the condition of ensuring safe and reliable operation, the maximum capacitance of the filter capacitor can be referred to the external capacitance table. In order to obtain very low ripple, an "LC" filter network can be connected to the input and output end of the DC/DC converter, so that the filtering effect will be better, and it should be noted that the size of the inductance value and the frequency of the "LC" filter network should be staggered from the frequency of the DC/DC module power supply to avoid mutual interference. For each output channel, it is advisable to verify the condition of its external capacitor while ensuring safe and reliable operation. For further details, please refer to Table 1.

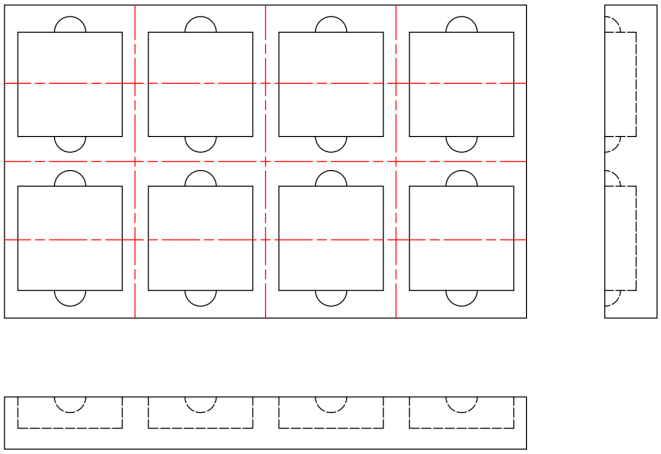
Vin (VDC)	Vout (VDC)	Ci (μF)	Co (μF)
12（9~18） 24（18~36）	5	100μF/50V	2*47μF/16V
	12/15		2*22μF/25V
	24		22μF/50V
	±5/±12		2*22μF/25V
	±15		22μF/50V
48（36~75）	5	47~100μF/100V	2*47μF/16V
	12/15		2*22μF/25V
	24		22μF/50V
	±5/±12		2*22μF/25V
	±15		22μF/50V
100（70~150）	5	22~47μF/200V	2*47μF/16V
	12/15		2*22μF/25V
	24		22μF/50V
	±5/±12		2*22μF/25V
	±15		22μF/50V

The recommended values for the external filter capacitors are specified in Table 1.

Precautions

Package

This series of modules are packed in shockproof and anti-static foam.



Transport

The package containing the module is allowed to be transported by any means of transport, which should avoid direct rain and snow and mechanical damage.

Storage

The module should be stored in a warehouse where the ambient temperature is -40 degrees ~ 125 degrees, the relative humidity is 10%~90%, and the surrounding environment is free from acidic, alkaline and other harmful gases.

Note: The above are the performance indicators of the product series listed in this manual. Some indicators of non-standard products may exceed the above requirements, so if there is any inconsistency between the manual and the product specification documents, please refer to the specification documents. If you have special needs, please contact us directly.