Features

- Wide Input2:1
- DIP Package/Din-Rail Series
- Working Temperature：-40°C～+85°C
- Isolation 1500VDC 0.5mA 1Minute
- Internal SMD Design
- Metal shell packaging
- Cooling Nature
- Good shielding and anti-interference performance, electromagnetic compatibility, lightning protection, output overcurrent, short circuit protection, overheating protection, self recovery and other functions

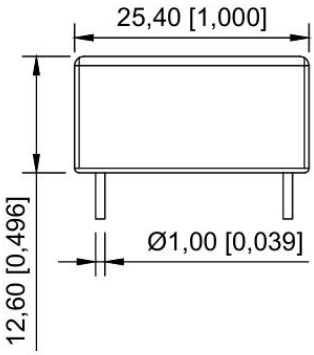
Product Picture

EMC-EN55032
EN55035
LVD-EN62368

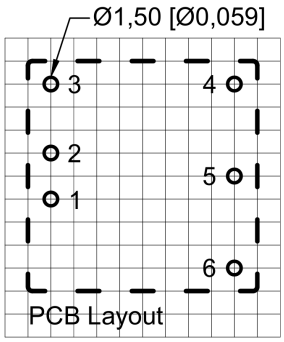
Dimensions

Dimensions of WRFD_S(D)_-20WH2 Series

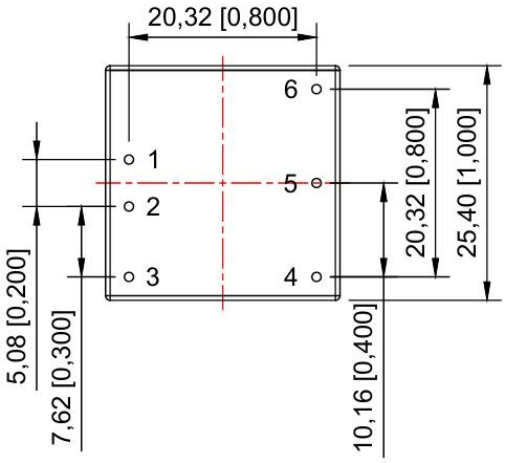
Front View



Top View



Note: The grid distance：2.54*2.54mm



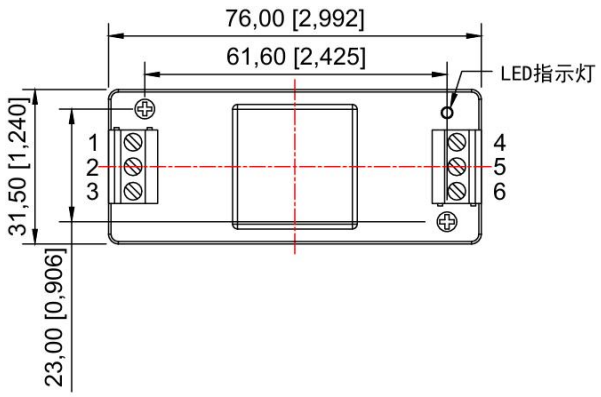
Bottom View

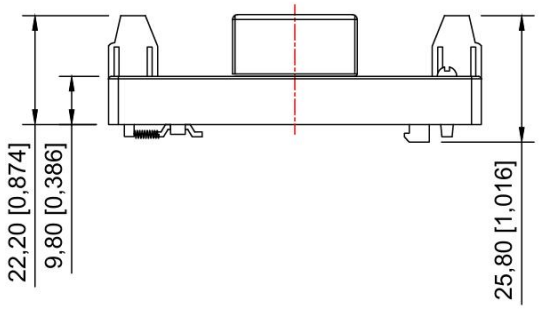
Pin Mode		
Pin	Single (S)	Dual (D)
1	Vin	Vin
2	GND	GND
3	CNT	CNT
4	0V	-XXVDC
5	TRM	COM
6	+XXVDC	+XXVDC

Note:
Unit：mm[inch]
Pin Section Tolerance：±0.1[±0.004]
General Tolerance：±0.25[±0.01]
The device layout is for reference only.

Dimensions of WRFD_S(D)_ZDK-20WH2 Series

Top View





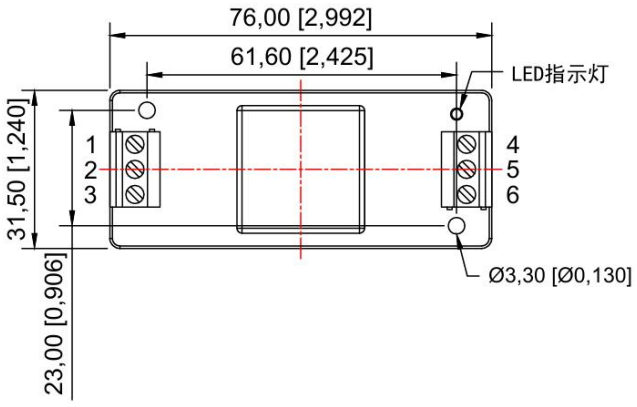
Front View

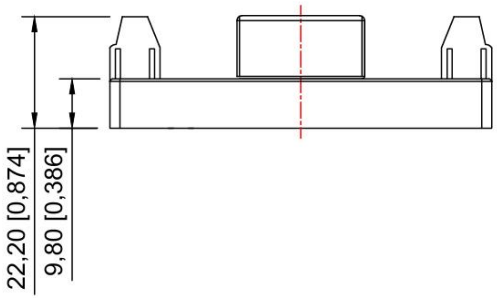
Pin Mode		
Pin	Single (S)	Dual (D)
1	CNT	CNT
2	GND	GND
3	Vin	Vin
4	0V	-XXVDC
5	TRM	COM
6	+XXVDC	+XXVDC

Note:
Unit: mm[inch]
General Tolerance: ±0.25[±0.01]
Wire strength: 24-12 AWG
Tightening torque: Max 0.4 N·m
Guide type: TS35
The device layout is for reference only.

Dimensions of WRFD_S(D)_ZD-20WH2 Series

Top View





Front View

Pin Mode		
Pin	Single (S)	Dual (D)
1	CNT	CNT
2	GND	GND
3	Vin	Vin
4	0V	-XXVDC
5	TRM	COM
6	+XXVDC	+XXVDC

Note:
Unit: mm[inch]
General Tolerance: ±0.25[±0.01]
Wire strength: 24-12 AWG
Tightening torque: Max 0.4 N·m
The device layout is for reference only.

Applications

Railway communications, display screens, monitoring equipment, petrochemicals, industrial control, long-distance DC power supply systems, switching systems and other communication equipment, etc.

Selection Guide

Items	Vin(VDC)	Vout (V±2%)	Current (mA)	Efficiency (%)	Isolation (VDC)	Weight (g±0.5)	Certificate
WRFD_S3.3-20WH2	5(4.5~9) 12(9-18) 24(18-36) 48(36-72) 110(70-150)	3.3	6060	⩾82	1500		
WRFD_S05-20WH2		5	4000	⩾83	1500		
WRFD_S12-20WH2		12	1667	⩾83	1500		
WRFD_S15-20WH2		15	1333	⩾83	1500		
WRFD_S18-20WH2		18	1111	⩾83	1500		
WRFD_S24-20WH2		24	833	⩾84	1500		
WRFD_S28-20WH2		28	714	⩾84	1500		
WRFD_D05-20WH2		±5	±2000	⩾83	1500		
WRFD_D12-20WH2		±12	±834	⩾83	1500		
WRFD_D15-20WH2		±15	±667	⩾83	1500		
WRFD_D18-20WH2		±18	±556	⩾83	1500		
WRFD_S3.3ZD(K)-20WH2		3.3	6060	⩾82	1500		
WRFD_S05ZD(K)-20WH2		5	4000	⩾83	1500		
WRFD_S12ZD(K)-20WH2		12	1667	⩾83	1500		
WRFD_S15ZD(K)-20WH2		15	1333	⩾83	1500		
WRFD_S18ZD(K)-20WH2		18	1111	⩾83	1500		
WRFD_S24ZD(K)-20WH2		24	833	⩾84	1500		
WRFD_S28ZD(K)-20WH2		28	714	⩾84	1500		
WRFD_D05ZD(K)-20WH2		±5	±2000	⩾83	1500		
WRFD_D12ZD(K)-20WH2		±12	±834	⩾83	1500		
WRFD_D15ZD(K)-20WH2		±15	±667	⩾83	1500		
WRFD_D18ZD(K)-20WH2		±18	±556	⩾83	1500		

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

Mechanical Specifications

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

Electrical Characteristics

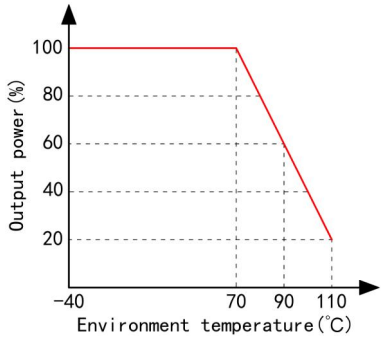
Characteristics	Symbol	Condition Vi ,-40°C≤Tc≤85 (Unless Otherwise Specified)	Min	Max	Unit
Output Voltage	Vo	Full Load	Vo-2%	Vo+2%	V
Output Current	Iomax	—	—	P(Power)/U(Output Voltage)	A
Output Ripple Voltage	Vp-p	Full Load，Vi，BW=20MHz，Normal Temperature	100	240	mV
Output Noise Voltage	Vp-p	Full Load，Vi，BW=20MHz，Normal Temperature	120	480	mV
Voltage Regulation	Sv	Vimin、Vi、Vimax，Full Load	—	＜2%	%
Load Regulation	Si	Vi，Io=(10%~100%)Iomax	—	＜1%	%
Efficiency	η	Vi，Full Load，Normal Temperature	82	—	%
Insulation Resistance	Rl	Input/Output ，Test Voltage：500VDC	1000	—	MΩ

General Characteristics

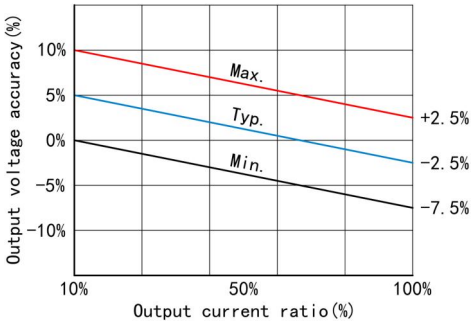
EMC Specifications	Magnetic Field Sensitivity Test	GB-4943
	Electrostatic Discharge Sensitivity Test	GB-4943
	Radiation Sensitivity Test	GB-4943
	Conductivity Sensitivity Test	GB-4943
Temperature Excursion	≤0.02%/°C	
Storage Temperature	-40°C~125°C	
Switching Frequency	270KHz~400KHz	
Humidity	10%-90%RH	
Leak Current	/	
MTBF	＞500000H	

Product Characteristic Curves

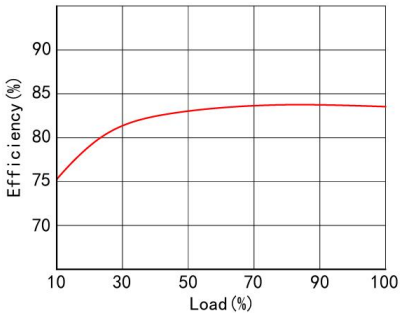
Temperature chart



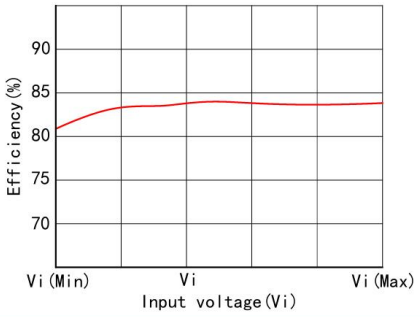
Error envelope graph



Efficiency/Load graph

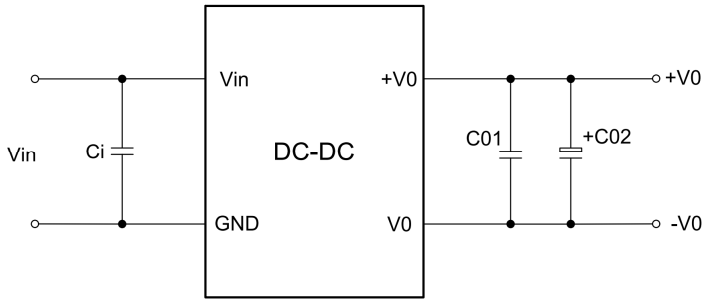


Efficiency/Input voltage graph



Typical Application

Design Reference



Recommendation Test

Filtering: In some circuits sensitive to noise and ripple, filtering capacitors can be externally connected to the input and output terminals of the DC/DC converter to reduce the impact of ripple on the system. However, the value of the filtering capacitor should be appropriate. If the capacitor is too large, it may cause startup problems. For each output, under the condition of ensuring safe and reliable operation, the maximum capacitance value of the filtering capacitor can refer to the external capacitance table. In order to obtain very low ripple, an "LC" filtering network can be connected to the input and output terminals of the DC/DC converter, so that the filtering effect will be better. At the same time, attention should be paid to the size of the inductance value and the frequency of the "LC" filtering network itself, which should be staggered with the frequency of the DC/DC module power supply to avoid mutual interference. For each output, under safe and reliable working conditions, it is recommended that its capacitive load value be detailed in Table 1.

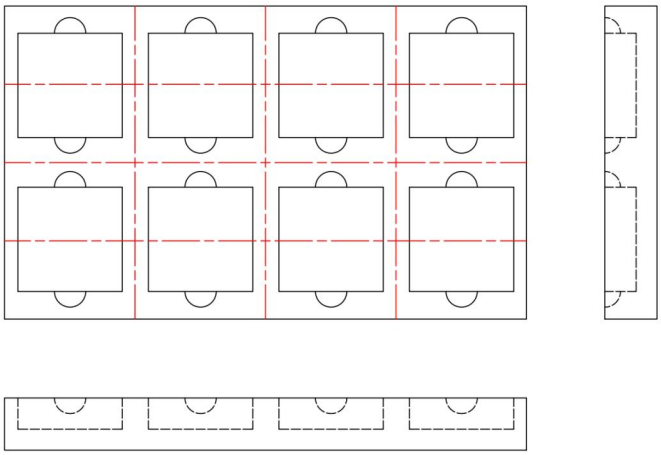
Single Vout	Cout	Dual Vout	Cout
5-12VDC	22-68uF	±5-±12VDC	4.7-22uF
24-48VDC	10-47uF	±24-±48VDC	4.7-10uF

Table of recommended capacitive load values (Table 1)

Notice

Package

This series of modules are packed with shockproof and static-proof foam.



Transport

The package is allowed to be transported by any means of transport, which shall avoid direct rain or snow and mechanical damage.

Storage

The module should be stored in a warehouse with an ambient temperature of -40 ° C to 125 ° C, a relative humidity of 20% to 95%, and no acidic, alkaline, or other harmful gases in the surrounding environment.

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