DC-DC Converter

WRD_S(D)_-20J Series

HenLv

Features

- Fixed input voltage 2:1
- DIP
- Working Temperature：-40℃～+85℃
- Isolation 1500VDC 0.5mA 1Minute
- Internal SMT Design
- Metal Enclosure Packaging
- Cooling Method: Natural Air Cooling
- Features excellent shielding & anti-interference performance, EMC compliance, lightning protection, output overcurrent/short-circuit protection, overheat protection, and self-recovery capability.

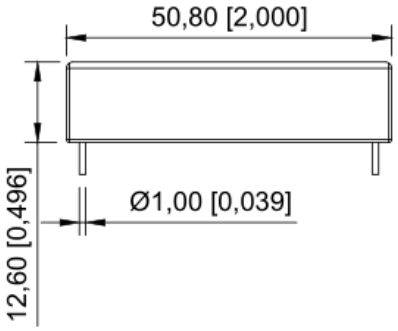
Product Picture

EMC-EN55032
EN55035
LVD-EN62368

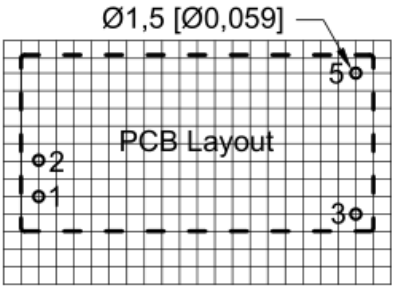
Dimensions

Dimension of WRD_S(D)_-20J Series

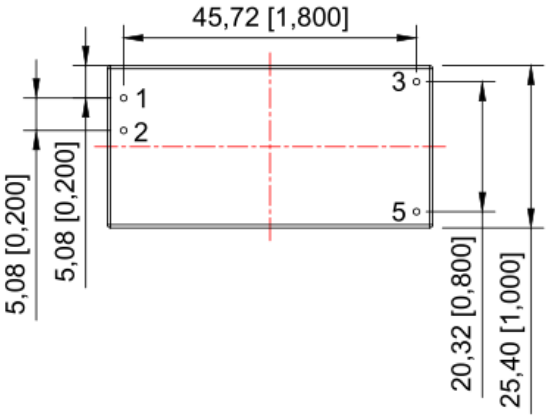
Front View



Top View



Note: The grid distance :2.54*2.54mm



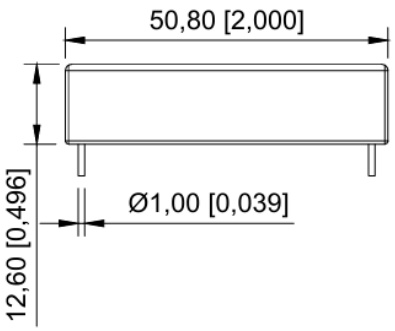
Pin Mode	
Pin	(S)
1	+Vin
2	-Vin
3	+Vout
5	-Vout

Bottom view

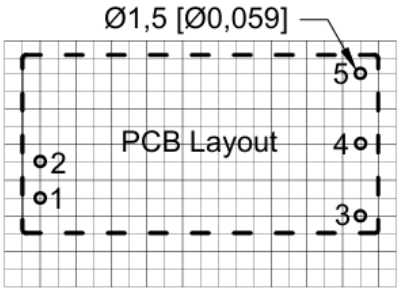
Note:
Size unit: mm[inch]
Pin section tolerance: ±0.1[±0.004]
Unmarked tolerance: ±0.25[±0.01]
The device layout is for reference only.

Dimension of WRD_S(D)_-20J Series

Front View



Top View



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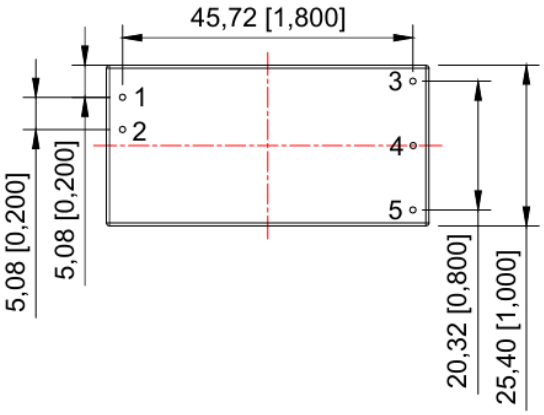


Bottom view

Pin Mode	
Pin	(D)
1	+Vin
2	-Vin
3	+Vout
4	Common
5	-Vout

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.

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)	Output (Vo±2%)	Current (mA)	Efficiency (%)	Isolation (VDC)
WRD_S05-20J	5(4.5~9)	5	4000	⩾83	1500
WRD_S12-20J		12	1667	⩾83	1500
WRD_S15-20J		15	1333	⩾83	1500
WRD_D05-20J		±5	±2000	⩾83	1500
WRD_D12-20J		±12	±834	⩾83	1500
WRD_D15-20J		±15	±667	⩾83	1500
WRD_S05-20J	12(9-18) 24(18-36) 48(36-75) 110(70-150)	5	4000	⩾83	1500
WRD_S12-20J		12	1667	⩾83	1500
WRD_S15-20J		15	1333	⩾83	1500
WRD_S24-20J		24	833	⩾84	1500
WRD_D05-20J		±5	±2000	⩾83	1500
WRD_D12-20J		±12	±834	⩾83	1500
WRD_D15-20J		±15	±667	⩾83	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℃).

Electrical Characteristics

Characteristic	Symbol	Conditions Vi ,-40℃⩽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		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 Regulation	Si	Vi，Io=(10%~100%)Iomax	—	±3	%
		Vi，Full Load，Normal Temperature		±2	
Efficiency	η	Input-output, insulation voltage 500VDC	82	—	%
Insulation Resistance	Rl	Full load	1000	—	MΩ

General Characteristics

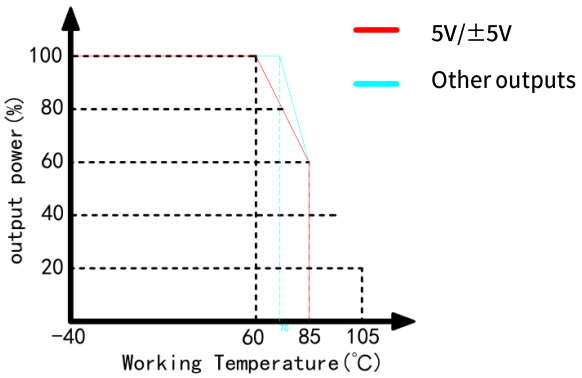
EMC Specifications	Magnetic Field Sensitivity Test	GB6833.2-87
	Electrostatic Discharge Sensitivity Test	GB6833.3-87
	Radiation Sensitivity Test	GB6833.5-87
	Conduction Sensitivity Test	GB6833.6-87
Temperature Drift	≤0.02%/℃	
Storage Temperature	-40℃~125℃	
Input Frequency	200KHz~400KHz	
Humidity	10%~90%RH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

Mechanical Specifications

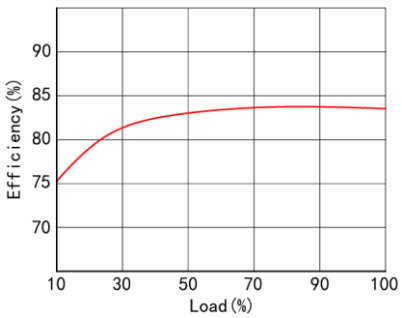
Size	50.80 x 25.40 x 12.60 mm

Typical Characteristic Curves

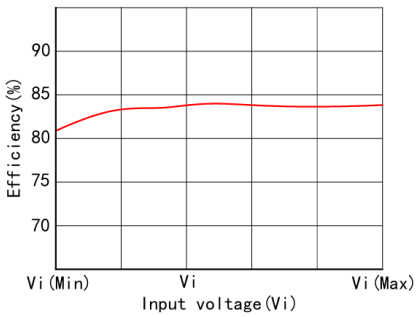
Temperature chart



fficiency/Load graph

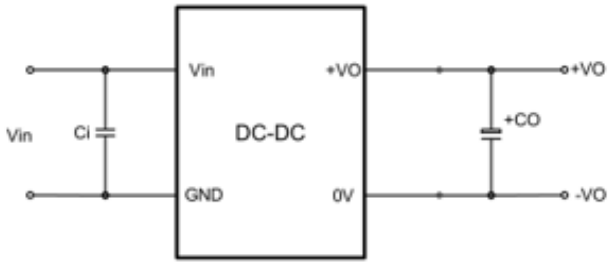


Efficiency/Input voltage graph

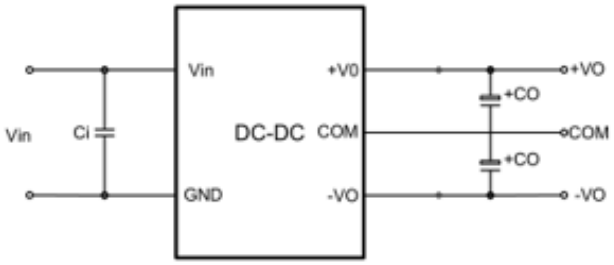


Typical Application

Design Reference



Single Output



Dual Output

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.

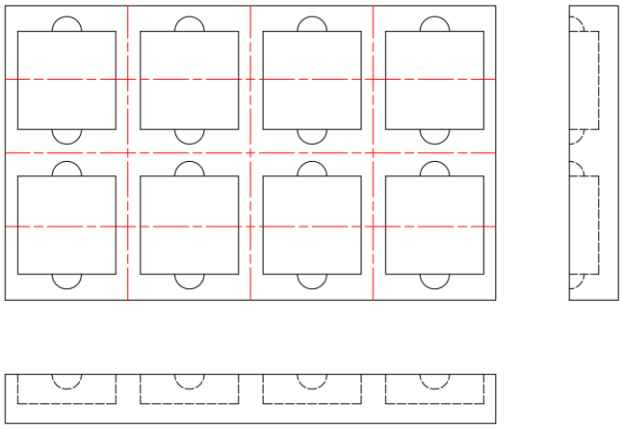
Vin (VDC)	Vout (VDC)	Ci (μF)	Co (μF)
5（4.5~9） 12（9~18） 24（18~36）	5	100μF/50V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/16V
	±15		22μF/50V
48（36~75）	5	47~100μF/100V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/16V
	±15		22μF/50V
110（70~150）	5	22~47μF/200V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/16V
	±15		22μF/50V

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

Notice

Package

Shock-resistant and ESD-proof foam packaging



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 20%~95%, 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.