

## Features

- Wide Input 2:1
- DIP Package
- Working Temperature:  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Isolation 1500VDC 0.5mA 1Minute
- Internal SMD Design
- Highly Flame-retardant Plastic Shell Packaging
- Cooling Nature
- Good shielding and anti-interference performance, electromagnetic compatibility, output overcurrent, short circuit protection, overheating protection, self recovery and other functions

## Product Picture

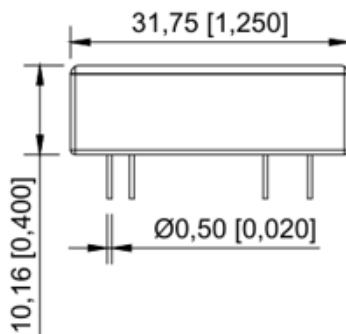


EMC-EN55032  
EN55035  
LVD-EN62368

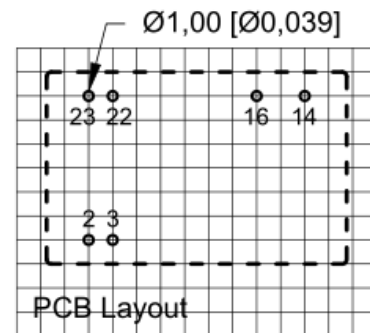
## Dimensions

### WRTD\_S\_-2W/3W Series Dimension

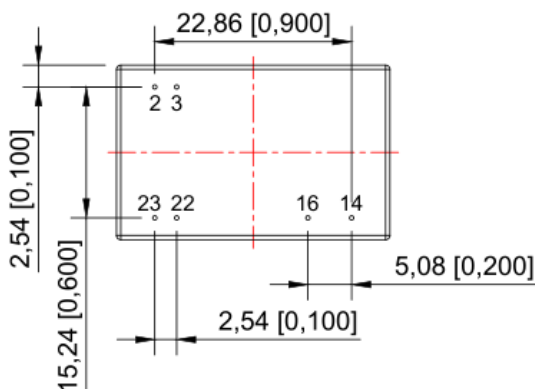
Front View



Top View



Note: The grid distance : 2.54\*2.54mm



Bottom View

Note:

Unit: mm[inch]

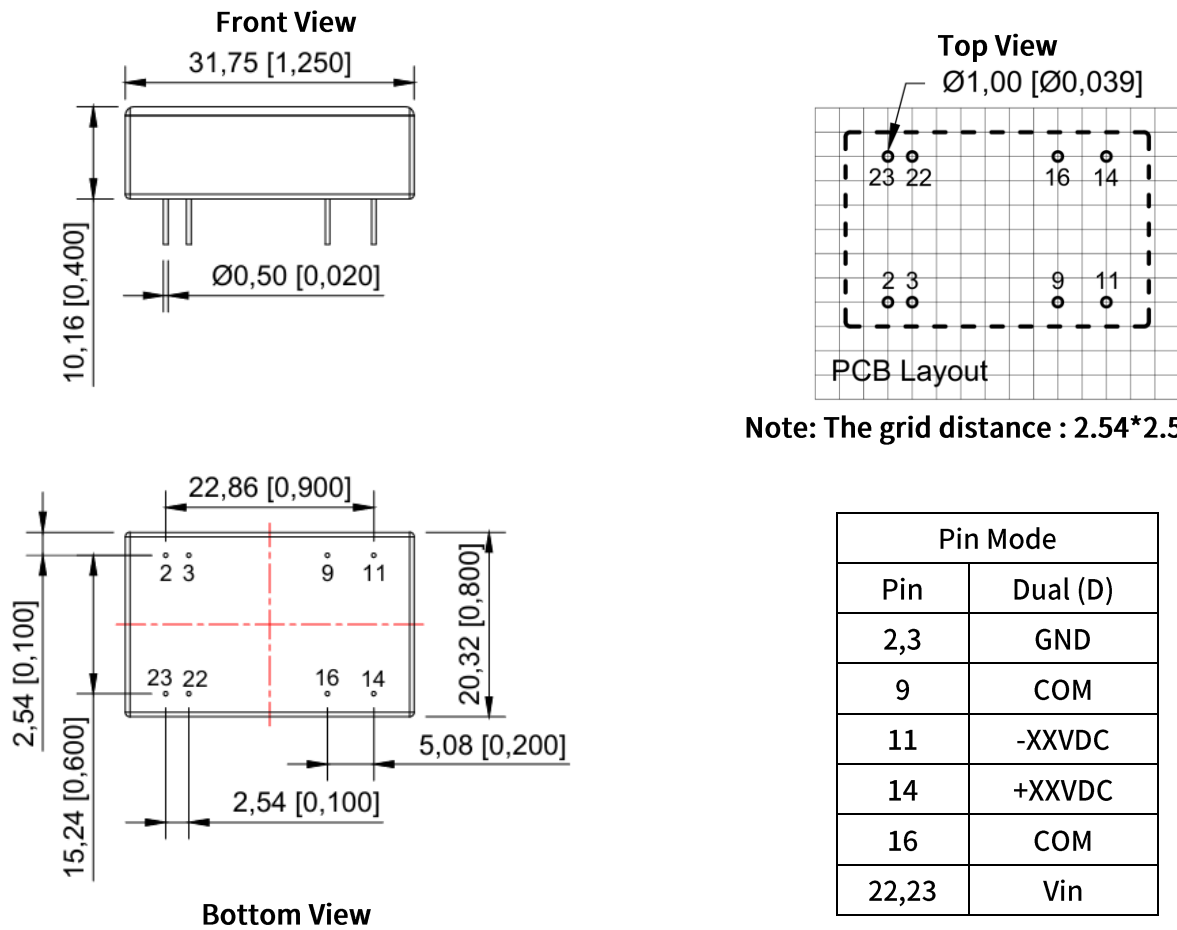
Pin Section Tolerance :  $\pm 0.1 [\pm 0.004]$

General Tolerance:  $\pm 0.25 [\pm 0.01]$

The device layout is for reference only

Pin Mode	
Pin	Single (S)
2,3	GND
14	+XXVDC
16	0V
22,23	Vin

WRTD\_D\_{-2W/3W Series Dimension



Note:  
Unit: mm[inch]  
Pin Section Tolerance :  $\pm 0.1[\pm 0.004]$   
General Tolerance:  $\pm 0.25[\pm 0.01]$   
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

Model	Vin (V)	Vout (V $\pm$ 2%)	Full Load Output Current (mA)	Efficiency (%)	Isolation (VDC)
WRTD_S3.3-2W/3WH2	5(4.5-9)	3.3	606/909	$\geq 72$	1500
WRTD_S05-2W/3WH2		5	400/600	$\geq 79$	1500
WRTD_S12-2W/3WH2		12	167/250	$\geq 80$	1500
WRTD_S15-2W/3WH2		15	133/200	$\geq 80$	1500
WRTD_D05-2W/3WH2		$\pm 5$	$\pm 200/\pm 300$	$\geq 79$	1500
WRTD_D12-2W/3WH2		$\pm 12$	$\pm 84/\pm 125$	$\geq 80$	1500
WRTD_D15-2W/3WH2		$\pm 15$	$\pm 67/\pm 100$	$\geq 80$	1500

WRTD_S3.3-2W/3WH2	12(9-18) 24(18-36) 48(36-75)	3.3	606/909	$\geq 72$	1500
WRTD_S05-2W/3WH2		5	400/600	$\geq 79$	1500
WRTD_S12-2W/3WH2		12	167/250	$\geq 80$	1500
WRTD_S15-2W/3WH2		15	133/200	$\geq 80$	1500
WRTD_S24-2W/3WH2		24	83/125	$\geq 80$	1500
WRTD_D05-2W/3WH2		$\pm 5$	$\pm 200/\pm 300$	$\geq 79$	1500
WRTD_D12-2W/3WH2		$\pm 12$	$\pm 84/\pm 125$	$\geq 80$	1500
WRTD_D15-2W/3WH2		$\pm 15$	$\pm 67/\pm 100$	$\geq 80$	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°C≤Tc≤85°C).

Electrical Characteristics

Characteristics	Symbol	Condition 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	—	200	mV
Output Noise Voltage	Vp-p	Full Load, Vi, BW=20MHz, Normal Temperature	—	250	mV
Voltage Regulation	Sv	Vimin、Vi、Vimax, Full Load	—	±2	%
Load Regulation	Si	Vi, Io=(10%~100%),3.3V/5V, ±5V	—	±3	%
		Vi, Io=(10%~100%),Other outputs		±2	
Efficiency	η	Vi, Full Load, Normal Temperature	72	—	%
Insulation Resistance	RI	Input/Output , Test Voltage: 500VDC	100	—	MΩ

Mechanical Specifications

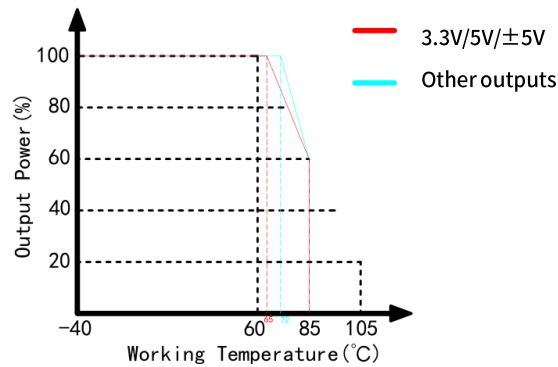
Size	31.75 x 20.32 x 10.16 mm
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General Characteristics

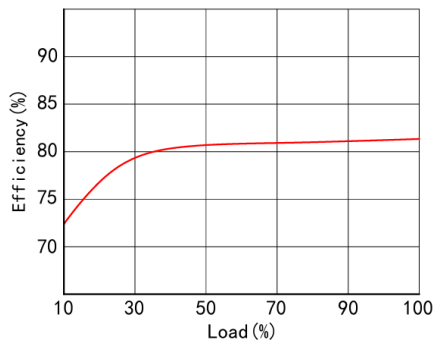
EMC Specifications	Magnetic Field Sensitivity Test	GB6833.2-87
	Electrostatic Discharge Sensitivity Test	GB6833.3-87
	Radiation Sensitivity Test	GB6833.5-87
	Conductivity Sensitivity Test	GB6833.6-87
Temperature Excursion	≤±0.02%/°C	
Storage Temperature	-40°C~125°C	
Switching Frequency	200KHz- 400KHz	
Humidity	10%-90%RH	
MTBF	>500000H	

**Product Characteristic Curves**

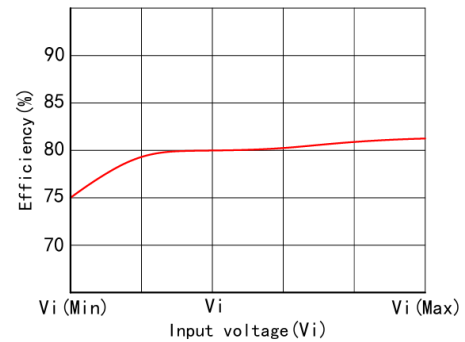
**Temperature chart**



**Efficiency/load graph**

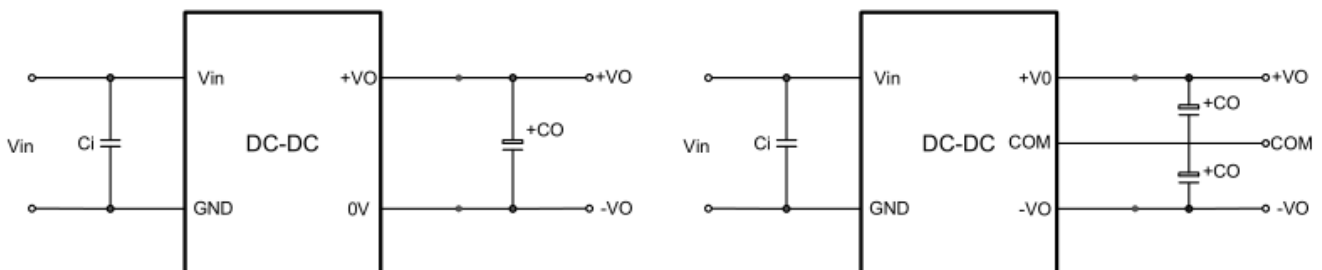


**Efficiency/input voltage graph**



**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 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)	3.3/5	100μF/50V	47μF/16V
	12/15		22μF/25V
	±5/±12		22μF/25V
	±15		22μF/50V
5(4.5-9) 12(9-18) 24(18-36)	3.3/5	100μF/50V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/25V
	±15		22μF/50V
48(36-75)	3.3/5	100μF/100V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/25V
	±15		22μF/50V

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

Notice

Package

This series of modules are packed with tubes.



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  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ , 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.