

Features

- Wide Input 2:1
- DIP Package/Din-Rail Series
- Working Temperature: -40°C~+85°C
- Isolation 1500VDC 0.5mA 1Minute
- Internal SMD Design
- Metal shell, highly flame-retardant plastic shell
- 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

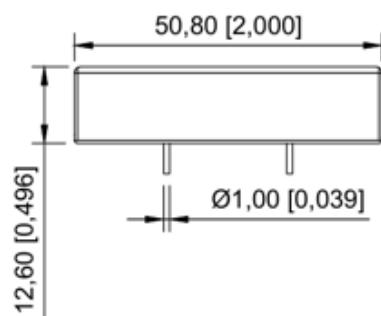
EN55035

LVD-EN62368

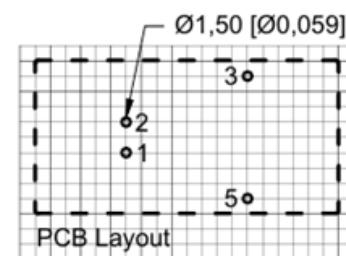
Dimensions

Dimensions of WRD_S_-15WH2 Series

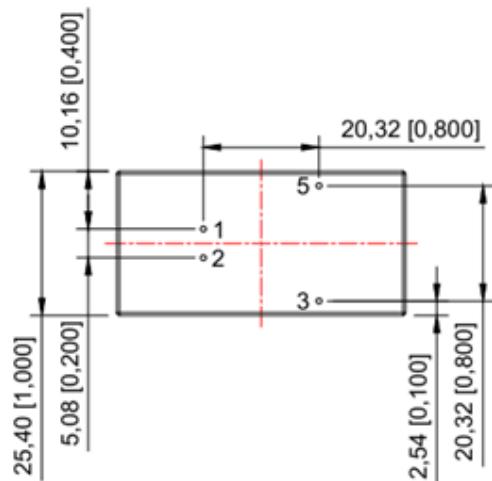
Front View



Top View



Note: The grid distance : 2.54*2.54mm



| Pin Mode | |
|----------|-----------|
| Pin | Single(S) |
| 1 | Vin |
| 2 | GND |
| 3 | 0V |
| 5 | +XXVDC |

Bottom View

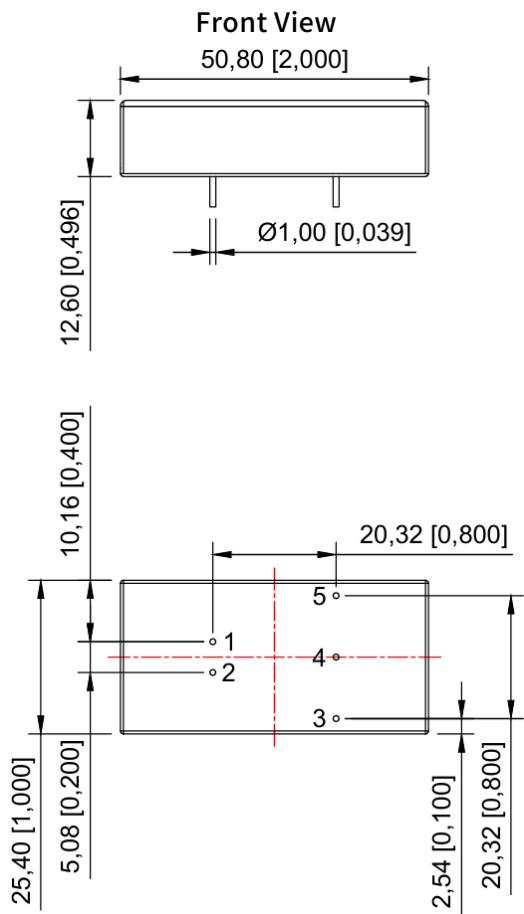
Note: Unit: mm[inch]

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

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

The device layout is for reference only.

Dimensions of WRD_D_-15WH2 Series



Note: The grid distance : 2.54*2.54mm

| Pin Mode | |
|----------|---------|
| Pin | Dual(D) |
| 1 | Vin |
| 2 | GND |
| 3 | -XXVDC |
| 4 | COM |
| 5 | +XXVDC |

Bottom View

Note: Unit: mm[inch]

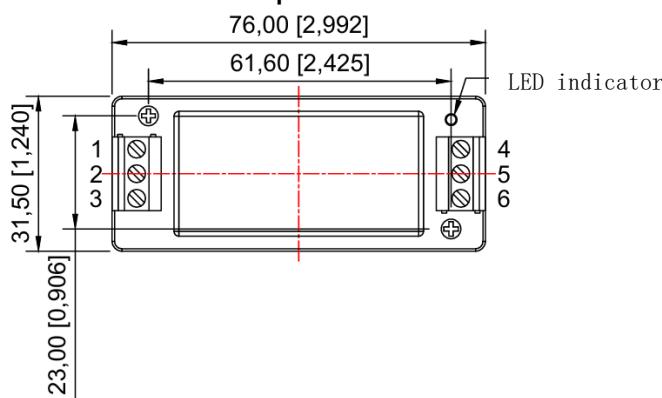
Pin Section Tolerance : $\pm 0.1 [\pm 0.004]$

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

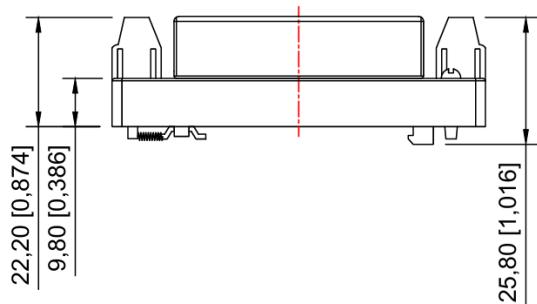
The device layout is for reference only.

Dimensions of WRD_S(D)_ZDK-15WH2 Series

Top View



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



Front View

Note:

Unit: mm[inch]

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

Wire strength: 24-12 AWG

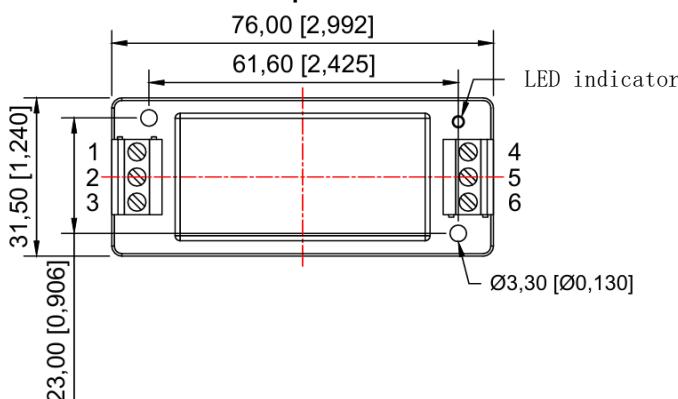
Tightening torque: Max 0.4 N·m

Guide type: TS35

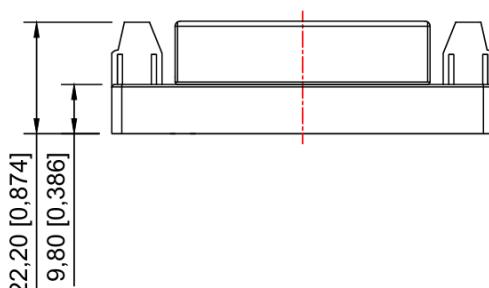
The device layout is for reference only.

Dimensions of WRD_S(D)_ZD-15WH2 Series

Top View



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



Front View

Note:

Unit: mm[inch]

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

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

| Model | Vin (VDC) | Vout (V \pm 2%) | Current (mA) | Efficiency (%) | Isolation (VDC) |
|--------------------|---|-------------------|--------------|----------------|-----------------|
| WRD_S05-15WH2 | 5(4.5~9) | 5 | 3000 | ≥ 81 | 1500 |
| WRD_S12-15WH2 | | 12 | 1250 | ≥ 81 | 1500 |
| WRD_S15-15WH2 | | 15 | 1000 | ≥ 81 | 1500 |
| WRD_D05-15WH2 | | ± 5 | ± 1500 | ≥ 81 | 1500 |
| WRD_D12-15WH2 | | ± 12 | ± 625 | ≥ 81 | 1500 |
| WRD_D15-15WH2 | | ± 15 | ± 500 | ≥ 81 | 1500 |
| WRD_S05ZD(K)-15WH2 | | 5 | 3000 | ≥ 81 | 1500 |
| WRD_S12ZD(K)-15WH2 | | 12 | 1250 | ≥ 81 | 1500 |
| WRD_S15ZD(K)-15WH2 | | 15 | 1000 | ≥ 81 | 1500 |
| WRD_D05ZD(K)-15WH2 | | ± 5 | ± 1500 | ≥ 81 | 1500 |
| WRD_D12ZD(K)-15WH2 | | ± 12 | ± 625 | ≥ 81 | 1500 |
| WRD_D15ZD(K)-15WH2 | | ± 15 | ± 500 | ≥ 81 | 1500 |
| WRD_S05-15WH2 | 12(9-18) 24(18-36) 48(36-75) 110(70-150) | 5 | 3000 | ≥ 81 | 1500 |
| WRD_S12-15WH2 | | 12 | 1250 | ≥ 81 | 1500 |
| WRD_S15-15WH2 | | 15 | 1000 | ≥ 81 | 1500 |
| WRD_S24-15WH2 | | 24 | 625 | ≥ 82 | 1500 |
| WRD_D05-15WH2 | | ± 5 | ± 1500 | ≥ 81 | 1500 |
| WRD_D12-15WH2 | | ± 12 | ± 625 | ≥ 81 | 1500 |
| WRD_D15-15WH2 | | ± 15 | ± 500 | ≥ 81 | 1500 |
| WRD_S05ZD(K)-15WH2 | | 5 | 3000 | ≥ 81 | 1500 |
| WRD_S12ZD(K)-15WH2 | | 12 | 1250 | ≥ 81 | 1500 |
| WRD_S15ZD(K)-15WH2 | | 15 | 1000 | ≥ 81 | 1500 |
| WRD_S24ZD(K)-15WH2 | | 24 | 625 | ≥ 82 | 1500 |
| WRD_D05ZD(K)-15WH2 | | ± 5 | ± 1500 | ≥ 81 | 1500 |
| WRD_D12ZD(K)-15WH2 | | ± 12 | ± 625 | ≥ 81 | 1500 |
| WRD_D15ZD(K)-15WH2 | | ± 15 | ± 500 | ≥ 81 | 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 \leq Tc \leq 85°C).

Mechanical Specifications

| | |
|------|--|
| Size | 50.80 x 25.40 x 12.60 mm, ZD(K): 76.00 x 31.5 mm |
|------|--|

Electrical Characteristics

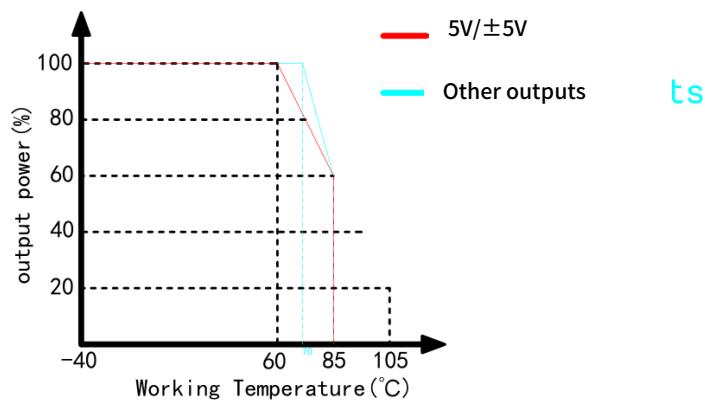
| Characteristics | Symbol | Condition V_i , $-40^{\circ}\text{C} \leq T_c \leq 85^{\circ}\text{C}$ (Unless Otherwise Specified) | Min | Max | Unit |
|-----------------------|-------------------|--|-----------|--|------|
| Output Voltage | V_o | Full Load | $V_o-2\%$ | $V_o+2\%$ | V |
| Output Current | $I_{o\text{max}}$ | — | — | $P(\text{Power})/U(\text{Output Voltage})$ | A |
| Output Ripple Voltage | V_{p-p} | Full Load, V_i , $BW=20\text{MHz}$, Normal Temperature | — | 240 | mV |
| Output Noise Voltage | V_{p-p} | Full Load, V_i , $BW=20\text{MHz}$, Normal Temperature | — | 480 | mV |
| Voltage Regulation | S_v | $V_{i\text{min}}, V_i, V_{i\text{max}}$, Full Load | — | ± 2 | % |
| Load Regulation | S_i | $V_i, I_o=(10\% \sim 100\%), 5V, \pm 5V$ | — | ± 3 | % |
| | | $V_i, I_o=(10\% \sim 100\%), \text{Other outputs}$ | — | ± 2 | % |
| Efficiency | η | V_i , Full Load, Normal Temperature | 80 | — | % |
| Insulation Resistance | R_i | Input/Output, Test Voltage: 500VDC | 1000 | — | MΩ |

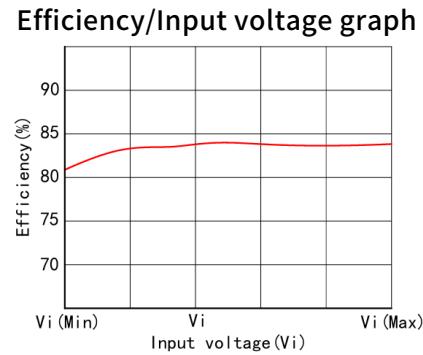
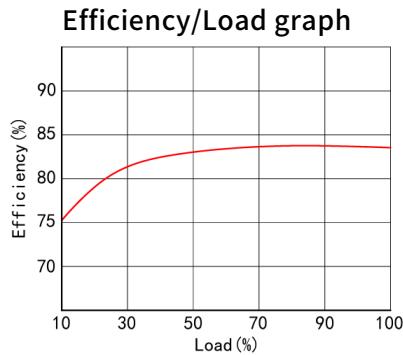
General Characteristics

| | | |
|-----------------------|--|--|
| EMC Specifications | Magnetic Field Sensitivity Test | GB6833.2-87 |
| | Electrostatic Discharge Sensitivity Test | GB6833.3-87 |
| | Radiation Sensitivity Test | GB6833.5-87 |
| | Conductivity Sensitivity Test | GB6833.6-87 |
| Temperature Excursion | | $\leq 0.02\%/\text{^{\circ}C}$ |
| Storage Temperature | | $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$ |
| Switching Frequency | | 200KHz- 400KHz |
| Humidity | | 10%-90%RH |
| MTBF | | $>300000\text{H}$ |

Product Characteristic Curves

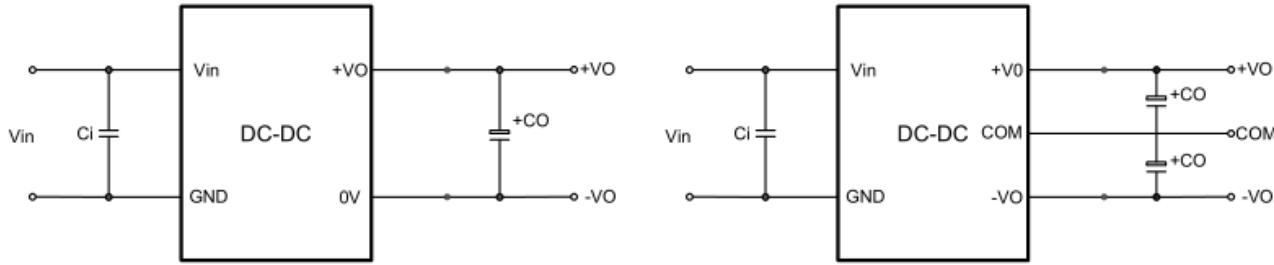
Temperature chart





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) | 5 | 100μF/50V | 47μF/16V |
| | 12/15 | | 22μF/25V |
| | ±5/±12 | | 22μF/16V |
| | ±15 | | 22μF/50V |
| 12 (9~18) | 5 | 100μF/50V | 47μF/16V |
| | 12/15 | | 22μF/25V |

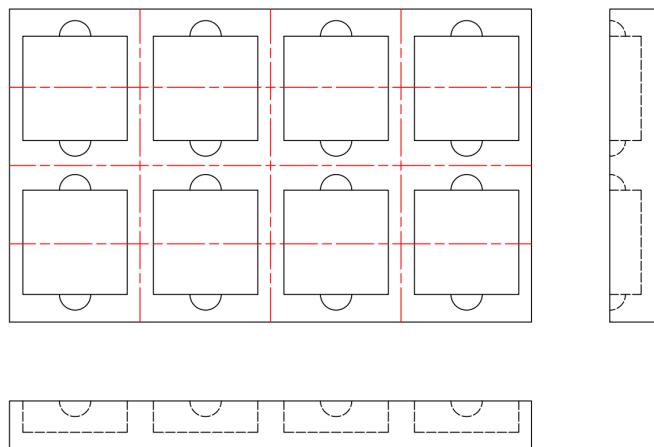
| | | | |
|--------------|--------|---------------|----------|
| 48 (36~75) | 24 | 47~100μF/100V | 22μF/50V |
| | ±5/±12 | | 22μF/16V |
| | ±15 | | 22μF/50V |
| | 5 | | 47μF/16V |
| | 12/15 | | 22μF/25V |
| | 24 | | 22μF/50V |
| | ±5/±12 | | 22μF/16V |
| | ±15 | | 22μF/50V |
| 110 (70~150) | 5 | 22~47μF/200V | 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

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.