

FEATURES:

- Wide input range
- Continuous short-circuit protection, self recover
- I/O isolation voltage 3KV
- Working temperature: -40°C~+105°C
- No additional components required
- Stable performance and high reliability (MTBF≥3500K hours)
- Industry standard pin-out
- Flame-retardant case to meet UL94-V0 requirements
- SIP package

Selection Guide

| Part No. | INPUT | | OUTPUT | | | Full Load Efficiency (%/Typ) | Capacitive Load(μF) |
|---------------|--------------|-------------|---------------|------------------|------------------|------------------------------|---------------------|
| | Normal (Vdc) | Range (Vdc) | Voltage (Vdc) | Min current (mA) | Max current (mA) | | |
| WRE0505S-3WR2 | 5 | 4.5-9 | ±5 | ±13 | ±250 | 74 | 1000 |
| WRE0512S-3WR2 | | | ±12 | ±5 | ±104 | 77 | 470 |
| WRE0515S-3WR2 | | | ±15 | ±4 | ±83 | 77 | 330 |
| WRF0505S-3WR2 | | | 5 | 25 | 500 | 73 | 2200 |
| WRF0509S-3WR2 | | | 9 | 14 | 278 | 74 | 1000 |
| WRF0512S-3WR2 | | | 12 | 10 | 208 | 77 | 680 |
| WRF0515S-3WR2 | | | 15 | 8 | 167 | 74 | 470 |
| WRE1205S-3WR2 | | | 12 | 9-18 | ±5 | ±15 | ±300 |
| WRE1212S-3WR2 | ±12 | ±6 | | | ±125 | 79 | 470 |
| WRE1215S-3WR2 | ±15 | ±5 | | | ±100 | 80 | 330 |
| WRF1203S-3WR2 | 3.3 | 38 | | | 758 | 75 | 2700 |
| WRF1205S-3WR2 | 5 | 30 | | | 600 | 76 | 2200 |
| WRF1209S-3WR2 | 9 | 17 | | | 333 | 79 | 1000 |
| WRF1212S-3WR2 | 12 | 13 | | | 250 | 82 | 680 |
| WRF1215S-3WR2 | 15 | 10 | | | 200 | 83 | 470 |
| WRF1224S-3WR2 | 24 | 18-36 | 24 | 6 | 125 | 81 | 330 |
| WRE2405S-3WR2 | | | ±5 | ±15 | ±300 | 79 | 1000 |
| WRE2409S-3WR2 | | | ±9 | ±8 | ±167 | 81 | 680 |
| WRE2412S-3WR2 | | | ±12 | ±6 | ±125 | 83 | 470 |
| WRE2415S-3WR2 | | | ±15 | ±5 | ±100 | 83 | 330 |
| WRF2403S-3WR2 | | | 3.3 | 38 | 758 | 74 | 2700 |
| WRF2405S-3WR2 | | | 5 | 30 | 600 | 81 | 2200 |
| WRF2409S-3WR2 | | | 9 | 17 | 333 | 83 | 1000 |
| WRF2412S-3WR2 | 12 | 13 | 250 | 83 | 680 | | |
| WRF2415S-3WR2 | 15 | 10 | 200 | 83 | 470 | | |
| WRF2424S-3WR2 | 24 | 6 | 125 | 83 | 330 | | |
| WRE4805S-3WR2 | | | ±5 | ±15 | ±300 | 79 | 1000 |

| | | | | | | | |
|---------------|----|-------|-----|----|------|----|------|
| WRE4812S-3WR2 | 48 | 36-72 | ±12 | ±6 | ±125 | 82 | 470 |
| WRE4815S-3WR2 | | | ±15 | ±5 | ±100 | 82 | 330 |
| WRF4805S-3WR2 | | | 5 | 30 | 600 | 76 | 2200 |
| WRF4812S-3WR2 | | | 12 | 13 | 250 | 80 | 680 |
| WRF4815S-3WR2 | | | 15 | 10 | 200 | 84 | 470 |

customized accepted ,pls contact sales for details

Input Specifications

| Item | Min | Typ | Max | Test Conditions | |
|-------------------------------------|-------------|----------|----------|---|-------------|
| Input Current (full load / no-load) | - | 489/12mA | 502/18mA | 12VDC nominal input series, nominal input voltage | 3.3V output |
| | - | 625/12mA | 641/18mA | | Others |
| | - | 238/5mA | 245/12mA | 24VDC nominal voltage input series, nominal input | 3.3V output |
| | - | 305/5mA | 313/12mA | | 5V output |
| | - | 298/10mA | 305/16mA | | Others |
| Reflected Ripple Current | - | 50mA | - | | |
| Surge Voltage (1sec. max.) | -0.7VDC | - | 25VDC | 12VDC nominal input voltage | |
| | -0.7VDC | - | 50VDC | 24VDC nominal input voltage | |
| Start-up Voltage | - | - | 9VDC | 12VDC nominal input voltage | |
| | - | - | 18VDC | 24VDC nominal input voltage | |
| Input Under-voltage Protection | 5.5VDC | 6.5VDC | - | 12VDC nominal input voltage | |
| | 12VDC | 15.5VDC | - | 24VDC nominal input voltage | |
| Ctrl | NONE- | | | | |
| | NONE | | | | |
| Hot Plug | Unavailable | | | | |

Output Specifications

| Item | Typ | Max | Test Conditions |
|------------------|---------|----------|---|
| Voltage Accuracy | ±1% | ±2% | 5%-100% load |
| Line Regulation | ±0.1% | ±1% | Input voltage variation from low to high at full load |
| Load Regulation | ±0.5% | ±1.5% | 5%-100% load |
| Ripple&Noise | 50mVp-p | 100mVp-p | 20MHz bandwidth, 5%-100% load |

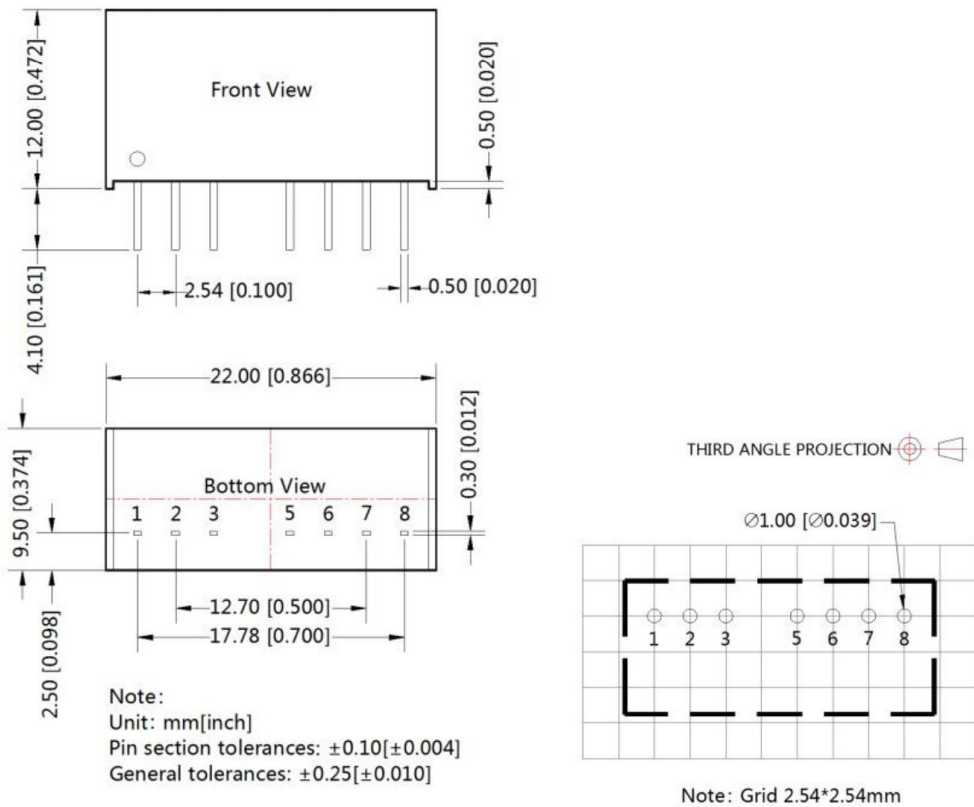
General Specifications

| | | |
|--------------------------------------|---------------------------|--|
| Switching Frequency | 300KHz(Typ) | 100% full load, nominal input voltage |
| Short-Circuit Protection | Continuous, self-recovery | |
| Case Temperature Rise | 15°C (Typ) | |
| Temperature Coefficient | 0.03%/°C | 100% full load |
| Pin Soldering Resistance Temperature | 300°C | Soldering spot is 1.5mm away from case for 10 seconds |
| Isolation (Input-Output) | 1.6KVDC | Input-output Electric Strength test for 1 minute with a leakage current of |

| | | |
|--------------------------------------|--|--------------------------------|
| Insulation Resistance (Input-Output) | 1000MΩ | 1mA max. |
| Operating Temperature | -40~+105°C | Input-output resistance 500Vdc |
| Storage Temperature | -55~+125°C | |
| Storage Humidity | <95% | Non-condensing |
| Cooling Method | Free air convection | |
| Case Material | Black plastic; flame-retardant and heat-resistant (UL94 V-0) | |
| Weight | 4.6g (Typ) | |

**Unless specified, otherwise all other parameters are tested under the following conditions: nominal input voltage, pure resistive load, 25°C room temperature environment.

Dimensions and Recommended Layout

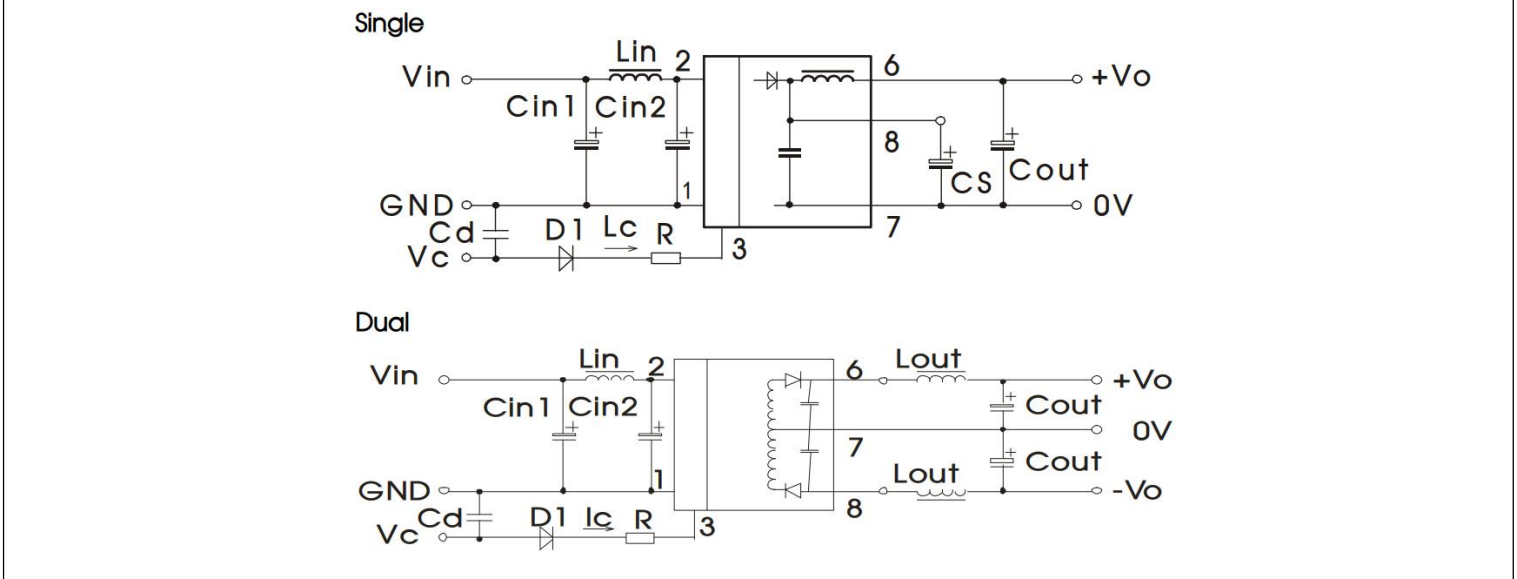


Pins

| Pin | Single | Dual | |
|-----|--------|------|--|
| 1 | GND | GND | |
| 2 | Vin | Vin | |
| 3 | CTRL | CTRL | |
| 5 | NC | NC | |
| 6 | +Vo | +Vo | |
| 7 | 0V | 0V | |

| | | | |
|---|----|-----|--|
| 8 | CS | -Vo | |
|---|----|-----|--|

Recommended Circuit



Recommended input and output capacitor values

| Component | 5VDC&12VDC | 24VDC&48VDC | | |
|-----------|--|-------------|--|--|
| V_{in} | 5VDC&12VDC | 24VDC&48VDC | | |
| C_{in1} | 100uF/25V | 100uF/100V | | |
| C_{in2} | 47uF/25V | 1uF/100V | | |
| L_{in} | 4.7uH-12uH | | | |
| C_s | 10uF-22uF/50V | | | |
| C_{out} | $V_o(3/\pm 3/5/\pm 5/9/\pm 9)$: 100uF/16V | | | |
| | $V_o(12/\pm 12/15/\pm 15)$: 100uF/25V | | | |
| | $V_o(12/\pm 12/15/\pm 15)$: 100uF/25V | | | |
| L_{out} | 2.2uH-10uH | | | |
| C_d | 4.7nF/100V | | | |

Noted

1. Input current: Ensure that the output current of the power supply meets the instantaneous starting current of the power module (that is, twice the average input current of the power module).
2. Output load requirements: Avoid no-load use. When the actual power consumption of the load is less than 10% of the rated output power of the module or no load occurs, connect an external resistance to the output end (the sum of the external resistance and the load power is greater than or equal to 10% of the rated load) or select a module with a smaller rated power.
3. The external capacitance of the output end should not be too large; otherwise, the module may be overcurrent or poorly started. For details, see the external capacitance recommendation table.
4. External LC filter circuit can be connected for occasions with high ripple noise requirements.