

Size: 1.10in x 0.94in x 0.34in (27.9mm x 23.9mm x 8.5mm)

OPTIONS

- SMT Type
- Without Trim Pin
- Without ON/OFF Pin
- Negative Logic Remote ON/OFF

FEATURES

- 15 Watts Maximum Output Power
- Single Output up to 4A
- Cost Efficient Open Frame Design
- Small Size and Low Profile
- High Efficiency up to 87%
- 4:1 Ultra Wide Input Voltage Range
- Fixed Switching Frequency
- Input to Output Isolation: 2250VDC
- CE Marked
- RoHS II & REACH
- No Minimum Load Requirement
- Output Voltage Adjustability
- Industry Standard Pin-Out
- Negative or Positive Remote ON/OFF Control
- Short Circuit, Over Current, Over Voltage, and Input Under Voltage Protection
- Surface Mount and Through Hole Types Available
- SMT Package Qualified for Lead-free Reflow Solder Process According to IPC J-STD-020D
- UL60950-1, EN60950-1, & IEC60950-1 Safety Approvals

APPLICATIONS

- Wireless Network
- Telecom/Datacom
- Industry Control System
- Measurement Equipment
- Semiconductor Equipment

DESCRIPTION

The JFW series of DC/DC power converters provides up to 15 Watts of output power in a low profile industry standard package and footprint. These converters have single outputs and operate over 4:1 input voltage ranges of 9-36VDC and 18-75VDC. These units are also protected against short circuit, over current, over voltage, and input under voltage conditions. Some features include high efficiency up to 87%, adjustable output voltage, and positive or negative remote ON/OFF control. These converters are RoHS compliant and have UL60950-1, EN60950-1, and IEC60950-1 safety approvals. Both surface mount ("S" suffix) and DIP (standard) packages are available.

MODEL SELECTION TABLE

| Model Number | Input Voltage Range | Output Voltage | Output Current | | Ripple & Noise ⁽¹⁾ | Input Current | | Output Power | Maximum Capacitive Load ⁽¹⁾ | Efficiency ⁽⁴⁾ |
|----------------|---------------------|----------------|----------------|----------|-------------------------------|------------------------|--------------------------|--------------|--|---------------------------|
| | | | Min Load | Max Load | | No Load ⁽²⁾ | Full Load ⁽³⁾ | | | |
| JFW24S3.3-4000 | 24VDC (9-36VDC) | 3.3VDC | 0mA | 4000mA | 100mVp-p | 60mA | 680mA | 13W | 12000µF | 85% |
| JFW24S5-3000 | | 5VDC | 0mA | 3000mA | 100mVp-p | 70mA | 754mA | 15W | 6000µF | 87% |
| JFW24S12-1300 | | 12VDC | 0mA | 1300mA | 100mVp-p | 10mA | 793mA | 15W | 1000µF | 86% |
| JFW24S15-1000 | | 15VDC | 0mA | 1000mA | 100mVp-p | 10mA | 763mA | 15W | 660µF | 86% |
| JFW48S3.3-4000 | 48VDC (18-75VDC) | 3.3VDC | 0mA | 4000mA | 100mVp-p | 40mA | 340mA | 13W | 12000µF | 85% |
| JFW48S5-3000 | | 5VDC | 0mA | 3000mA | 100mVp-p | 40mA | 377mA | 15W | 6000µF | 87% |
| JFW48S12-1300 | | 12VDC | 0mA | 1300mA | 100mVp-p | 10mA | 392mA | 15W | 1000µF | 86% |
| JFW48S15-1000 | | 15VDC | 0mA | 1000mA | 100mVp-p | 10mA | 382mA | 15W | 660µF | 86% |

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATION | | | TEST CONDITIONS | | Min | Typ | Max | Unit |
|--------------------------------------|--|---------------|---|-----|-------|-------|-----|------|
| INPUT SPECIFICATIONS | | | | | | | | |
| Input Voltage Range | 24VDC nominal input models | | 9 | 24 | 36 | VDC | | |
| | 48VDC nominal input models | | 18 | 48 | 75 | | | |
| Input Reflected Ripple Current | Nominal input and Full Load | | | 30 | | mAp-p | | |
| Start-Up Voltage | 24VDC nominal input models | | | | 9 | VDC | | |
| | 48VDC nominal input models | | | | 18 | | | |
| Shutdown Voltage | 24VDC nominal input models | | | 8 | | VDC | | |
| | 48VDC nominal input models | | | 16 | | | | |
| Input Surge Voltage (100ms) | 24VDC nominal input models | | | | 50 | VDC | | |
| | 48VDC nominal input models | | | | 100 | | | |
| OUTPUT SPECIFICATIONS | | | | | | | | |
| Output Voltage | | | See Table | | | | | |
| Voltage Accuracy | | | -1.0 | | +1.0 | % | | |
| Line Regulation | Low Line to High Line at Full Load | | -0.2 | | +0.2 | % | | |
| Load Regulation | No Load to Full Load | | -0.2 | | +0.2 | % | | |
| Voltage Adjustability ⁽⁵⁾ | | | -10 | | +10 | % | | |
| Output Power | | | See Table | | | | | |
| Output Current | | | See Table | | | | | |
| Maximum Capacitive Load | | | See Table | | | | | |
| Ripple & Noise (20MHz bandwidth) | Measured by 20MHz bandwidth, with a 1μF M/C X7R and a 10μF T/C | | | 100 | | mVp-p | | |
| Transient Response Recovery Time | 25% load step change | | | 250 | | μs | | |
| Start-Up Time | Constant Resistive Load | Power Up | | | 30 | ms | | |
| | | Remote ON/OFF | | | 30 | | | |
| Temperature Coefficient | | | -0.02 | | +0.02 | %/°C | | |
| REMOTE ON/OFF CONTROL ⁽⁶⁾ | | | | | | | | |
| Positive Logic (Standard) | DC-DC ON | | Open or 3~15VDC | | | | | |
| | DC-DC OFF | | Short or 0~1.2VDC | | | | | |
| Negative Logic (Option) | DC-DC ON | | Short or 0~1.2VDC | | | | | |
| | DC-DC OFF | | Open or 3~15VDC | | | | | |
| Input Current of CTRL Pin | | | -0.5 | | 1.0 | mA | | |
| Remote OFF Input Current | | | | 2.5 | | mA | | |
| PROTECTION | | | | | | | | |
| Short Circuit Protection | | | Continuous, automatics recovery | | | | | |
| Over Load Protection | % of Iout rated; Hiccup mode | | | 150 | | % | | |
| Over Voltage Protection | 3.3VDC Models | | 3.7 | | 5.4 | VDC | | |
| | 5VDC Models | | 5.6 | | 7.0 | | | |
| | 12VDC Models | | 13.8 | | 17.5 | | | |
| | 15VDC Models | | 16.8 | | 20.5 | | | |
| ENVIRONMENTAL SPECIFICATIONS | | | | | | | | |
| Operating Ambient Temperature | With derating | | -40 | | +120 | °C | | |
| Storage Temperature | | | -55 | | +125 | °C | | |
| Relative Humidity | | | 5 | | 95 | % RH | | |
| Thermal Shock | | | MIL-STD-810F | | | | | |
| Vibration | | | MIL-STD-810F | | | | | |
| Lead-free reflow solder process | | | IPC J-STD-020D | | | | | |
| Moisture Sensitivity Level (MSL) | | | IPC J-STD-033B Level 2a | | | | | |
| MTBF | MIL-HDBK-217F, Full Load | | 2,444,000 hours | | | | | |
| GENERAL SPECIFICATIONS | | | | | | | | |
| Efficiency | | | See Table | | | | | |
| Switching Frequency | 3.3VDC and 5VDC output models | | 315 | 350 | 385 | kHz | | |
| | 12VDC and 15VDC output models | | 360 | 400 | 440 | | | |
| Isolation Voltage (Input to Output) | For 1 minute | | 2250 | | | VDC | | |
| Isolation Resistance | 500VDC | | 1 | | | GΩ | | |
| Isolation Capacitance | | | | | 1500 | pF | | |
| PHYSICAL SPECIFICATIONS | | | | | | | | |
| Weight | | | 0.36oz (10.5g) | | | | | |
| Dimensions (L x W x H) | | | 1.10in x 0.94in x 0.34in (27.9mm x 23.9mm x 8.5mm) | | | | | |

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATION | TEST CONDITIONS | | Min | Typ | Max | Unit |
|-------------------------------|---|----------|-----|-----|-----|--------------------|
| SAFETY & EMC CHARACTERISTICS | | | | | | |
| Safety Approvals | UL60950-1 ⁽⁹⁾ EN60950-1 IEC60950-1 | | | | | |
| EMI ⁽⁷⁾ | EN55022 | | | | | Class A Class B |
| Radiated Immunity | EN61000-4-3 | 10 V/m | | | | Perf. Criteria A |
| Fast Transient ⁽⁸⁾ | EN61000-4-4 | ±2kV | | | | Perf. Criteria A |
| Surge ⁽⁸⁾ | EN61000-4-5 | ±1kV | | | | Perf. Criteria A |
| Conducted Immunity | EN61000-4-6 | 3 Vr.m.s | | | | Perf. Criteria A |

NOTES

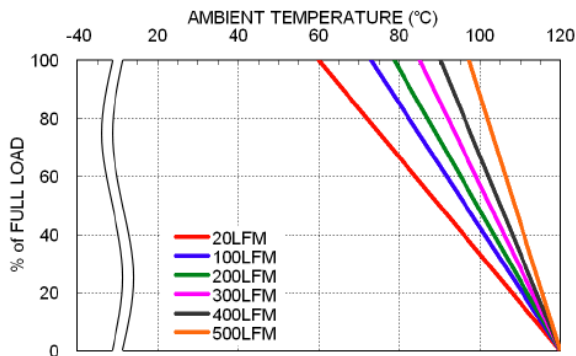
- (1) Typical Value at Nominal Input Voltage and Full Load
- (2) Typical Value at Nominal Input Voltage and No Load
- (3) Maximum Value at Nominal Input Voltage and Full Load
- (4) Test by Minimum Input and Constant Resistive Load
- (5) Trimming allows the user to increase or decrease the output voltage set point of the module. This is accomplished by connecting an external resistor between the TRIM pin and either the +OUTPUT pin or the -OUTPUT pin.
- (6) The CTRL pin voltage is referenced to -INPUT. (See "Product Options" table for suffix options)
- (7) The JFW Series meets EN55022 Class A and Class B only with external components connected to the input pins of the converter.
- (8) An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5.
The filter capacitor suggested is Nippon chemi-con KY series, 220µF/100V, ESR 48mΩ.
- (9) This product is Listed to applicable standards and requirements by UL.

CAUTION: This power module is not internally fused. An input line fuse must always be used.

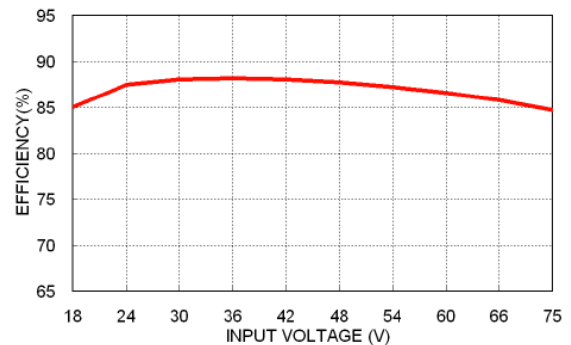
**Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

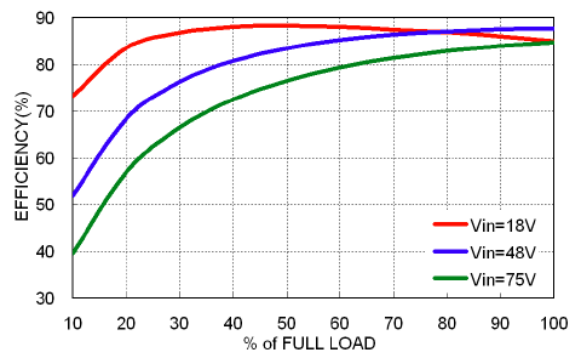
JFW48S5-3000 Derating Curve



JFW48S5-3000 Efficiency vs Input Voltage

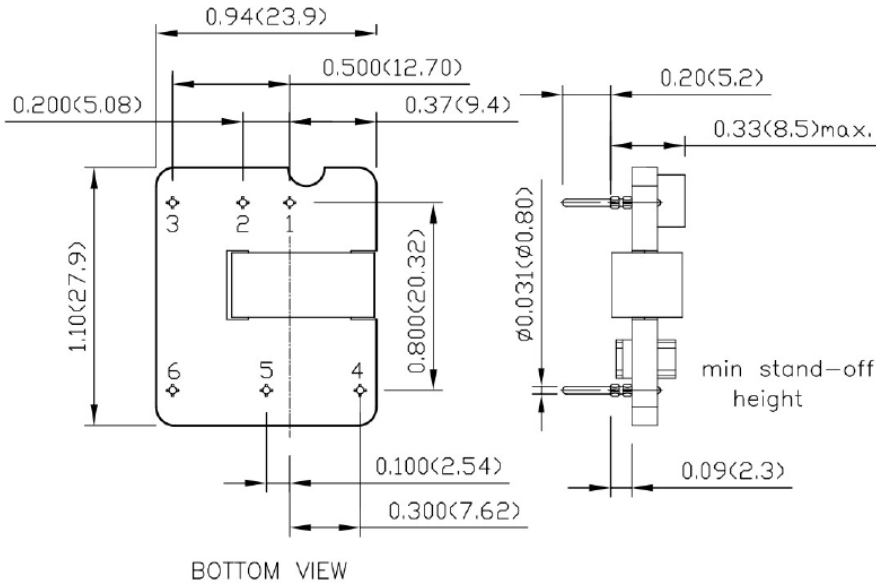


JFW48S5-3000 Efficiency vs Output Current



MECHANICAL DRAWINGS

DIP TYPE



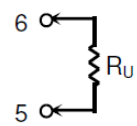
PIN CONNECTION

| PIN | DEFINE |
|-----|--------|
| 1 | +Vin |
| 2 | -Vin |
| 3 | Ctrl |
| 4 | +Vout |
| 5 | Trim |
| 6 | -Vout |

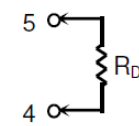
EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.

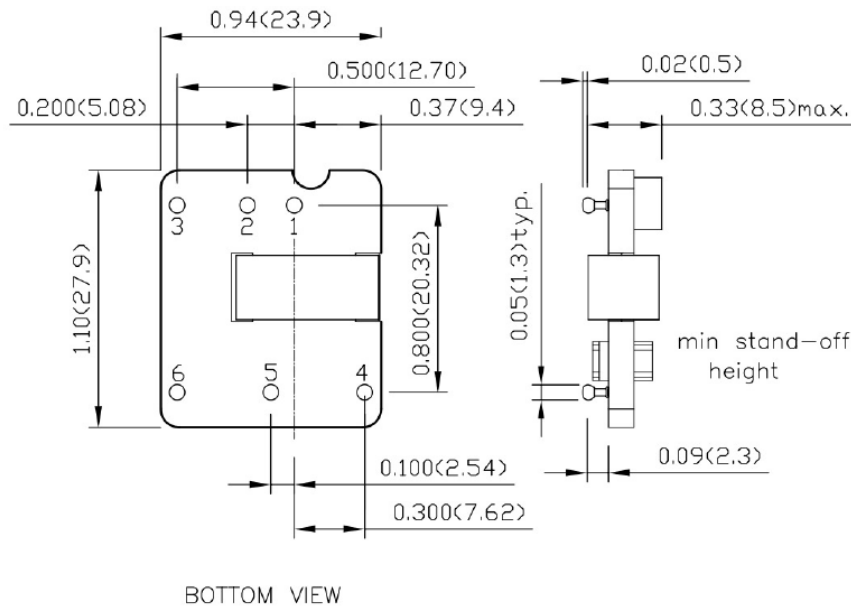
TRIM UP



TRIM DOWN



SMT TYPE



1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$)
 $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. Pin pitch tolerance ± 0.01 (0.25)
4. Pin dimension tolerance ± 0.004 (0.1)

PRODUCT OPTIONS

| Option | Suffix |
|--|-----------|
| Positive Remote ON/OFF with DIP (standard) | No Suffix |
| Positive remote ON/OFF with SMT | S |
| Negative Remote ON/OFF with DIP | R |
| Negative Remote ON/OFF with SMT | SR |
| DIP type without ON/OFF pin | D |
| SMT type without ON/OFF pin | SD |
| DIP type without ON/OFF & TRIM pin | G |
| SMT type without ON/OFF & TRIM pin | SG |
| DIP type, negative remote ON/OFF, without TRIM pin | F |
| SMT type, negative remote ON/OFF, without TRIM pin | SF |
| DIP type, positive remote ON/OFF, without TRIM pin | J |
| SMT type, positive remote ON/OFF, without TRIM pin | SJ |

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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