power-one™
Changing the Shape of Power

Features

- 20W standard package
- 100°C case operation
- 3.3V output available
- Integrated heat sink
- Enable and trim pins
- Wide range input voltage
- 1500V isolation
- Short circuit protection

Description

MWS dc-dc converters provide up to 20 watts of output power in an industry-standard package and footprint. The MWS is available in either 24V or 48V input versions. With a maximum case temperature of 100°C, the MWS is well suited for the most demanding telecom, networking, and industrial applications. The MWS features 1500 VDC isolation, short circuit, and overtemperature protection.
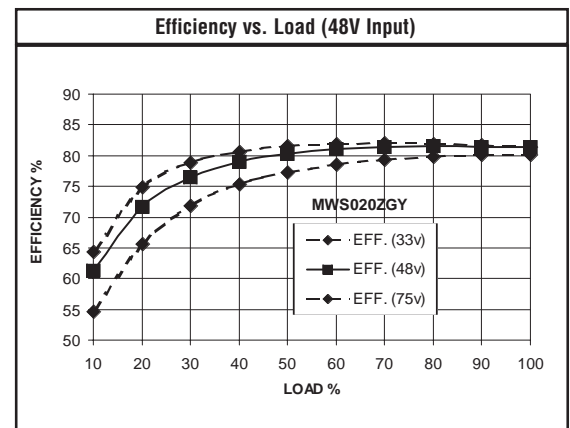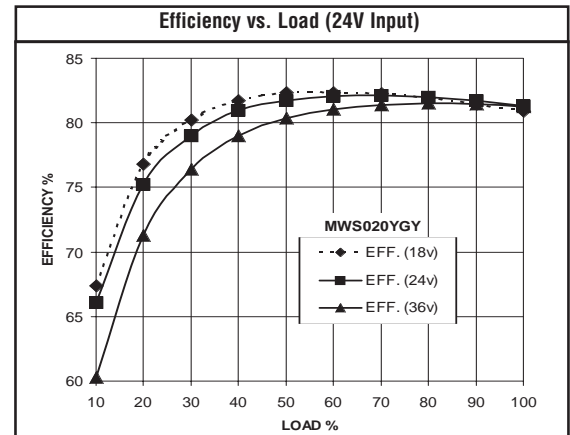
Technical Specifications

Input	
Voltage Range	
24 VDC Nominal	18 - 36 VDC
48 VDC Nominal	33 - 75 VDC
Input Undervoltage Lockout	<33V or <18V
UVLO Hysteresis	1V Nominal
Reflected Ripple	50 mA
Input Reverse Voltage Protection	Shunt Diode

Output	
Setpoint Accuracy	±1.0%
Line regulation V_{in} Min. - V_{in} Max., I_{out} Rated	0.2% V_{out}
Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom.	0.5% V_{out}
Minimum Output Current	5 %
Dynamic Regulation, Loadstep	25% I_{out}
Pk Deviation	4% V_{out}
Settling Time	500 µs
Voltage Trim Range	±10%
Short Circuit / Overcurrent Protection	Shutdown / Hiccup
Current Limit Threshold Range, % of I_{out} Rated	110 - 140%

General	
Turn-On Time, Max.	175 ms Max.
Remote Shutdown	Positive Logic
Switching Frequency	450 kHz
Isolation	
Input - Output	1500 VDC
Temperature Coefficient	0.015%/°C
Case Temperature	
Operating Range	-40 To +100°C
Storage Range	-40 To +105°C
Humidity Max., Non-Condensing	95%
Vibration, 3 Axes, 5 Min Each	5 g, 10 - 55 Hz
MTBF[†] (Bellcore TR-NWT-000332)	1.9×10^6 hrs
Safety	UL, cUL, TUV
Weight (approx.)	1.2 oz

Efficiency vs. Load (24V Input)

MWS020YGY
- EFF. (18v)
- EFF. (24v)
- EFF. (36v)

Efficiency vs. Load (48V Input)

MWS020ZGY
- EFF. (33v)
- EFF. (48v)
- EFF. (75v)

| Notes |
|---|
| † MTBF predictions may vary slightly from model to model. |
| Specifications typically at 25°C, normal line, and full load, unless otherwise stated. |
| Soldering Conditions: I/O pins, 260°C, ten seconds; fully compatible with commercial wave-soldering equipment. |

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Model Selection

MODEL	INPUT VOLTAGE (VOLTS)	INPUT VOLTAGE RANGE (VOLTS)	MAXIMUM INPUT CURRENT (AMPS)*	OUTPUT VOLTAGE (VOLTS)	RATED OUTPUT CURRENT (AMPS)	RIPPLE & NOISE pk-pk (mV)	TYPICAL EFFICIENCY**
MWS020ZGY	48	33 - 75	0.77	5	4	75	81%
MWS020ZHY	48	33 - 75	0.73	12	1.66	120	85%
MWS020YJY	24	18 - 36	1.34	15	1.33	150	85%

NOTES: *   Maximum input current at minimum input voltage, maximum rated output power.
　　　　　 ** At nominal V_{in}, rated output.

　　　　Model numbers highlighted in yellow or shaded are not recommended for new designs.

Mechanical Drawing
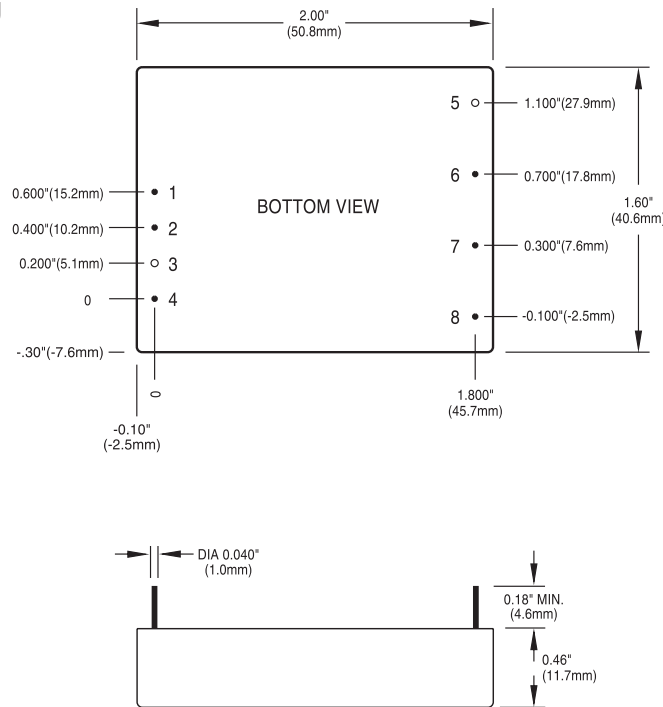
Thermal Impedance	
Natural Convection	11.5 °C/W
100 LFM	10.2 °C/W
200 LFM	8.5 °C/W
300 LFM	6.5 °C/W
400 LFM	5.4 °C/W

Note:
Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

Pin	Function
1	+ V_{in}
2	- V_{in}
3	No Pin
4	Shutdown
5	No Pin
6	+ V_{out}
7	- V_{out}
8	Trim

Tolerances	
Inches:	(Millimeters)
.XX ± 0.020	.X ± 0.5
.XXX ± 0.010	.XX ± 0.25
Pin:	
± 0.002	± 0.05
Case:	
+ 0.04, - 0.00	+ 1.0, - 0.00
(Dimensions as listed unless otherwise specified.)	

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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