

Product Specification

Universal Input 50 Watt
Switchers

Key Product Features

- 75% efficiency
- FCC class B EMI filter
- Up to 4 outputs
- 5" x 3" x 1.2" size
- CSA and CE approved
- Optional chassis and cover
- Available with 24VDC OR 48VDC inputs



US50 Series

50 Watt



Description

The US50 series are economical, open frame switchers that deliver up to 50W of continuous or 60W peak power from one to four outputs. The 90-264VAC universal input allows them to be used worldwide.

The US50 is one of the *flexibility* series. In addition to the popular models listed on this sheet, thousands of potential other modified standard models are available that include full safety agency approval and do not require any non-recurring engineering (NRE) charge. Prototype delivery is typically just a few weeks.

Flexibility options include chassis and cover, power good signal, and an isolated V4 output. Output voltage options are given in the table below. Fully custom models are also available. Please contact the factory for details.

All US50 models are also available with 24VDC OR 48VDC input. Please see the DP50 data sheet for details.

Model Options

Model Number	Output	Output Voltage	Min ¹	Output Current Ratings		
				Max ²	Max ³	Peak ⁴
US50-105	V1	+5V	0.1A	6.0A	10.0A	10.0A
US50-112	V1	+12V	0.1A	3.3A	4.2A	4.2A
US50-124	V1	+24V	0.1A	1.6A	2.0A	2.0A
US50-201	V1	+5V	0.1A	3.0A	5.0A	7.0A
	V2	+12V	0A	2.0A	2.0A	3.0A
US50-301	V1	+5V	0.1A	4.0A	5.0A	7.0A
	V2	+12V	0A	1.5A	2.0A	5.0A
	V3	-12V	0A	1.0A	1.0A	2.0A
US50-303	V1	+5V	0.1A	4.0A	5.0A	7.0A
	V2	+15V	0A	1.5A	3.0A	5.0A
	V3	-15V	0A	1.0A	2.0A	2.0A
US50-401	V1	+5V	0.1A	2.0A	4.0A	5.0A
	V2	+12V	0A	2.0A	2.0A	3.0A
	V3	-12V	0A	0.5A	1.0A	1.0A
	V4	-5V	0A	0.5A	0.5A	1.0A
Modified standard	V1	±3.3V to ±48V ⁶	0.1A		10.0A	
<i>flexibility</i> output options ⁵	V2	±2.0V to ±48V ⁶	0A		3.0A	
	V3	±2.0V to ±48V ⁷	0A		2.0A	
	V4	±2.0V to ±48V ⁷	0A		0.5A	

¹ At least 20% of max output current is required to maintain stated regulation

² Convection cooling

³ Forced air cooling

⁴ Peak output, 30 sec max

⁵ The US50 series allows very fast flexible modified standard designs within these parameters without non-recurring engineering charge and while retaining safety agency approval.

⁶ Can be specified in 0.1V increments

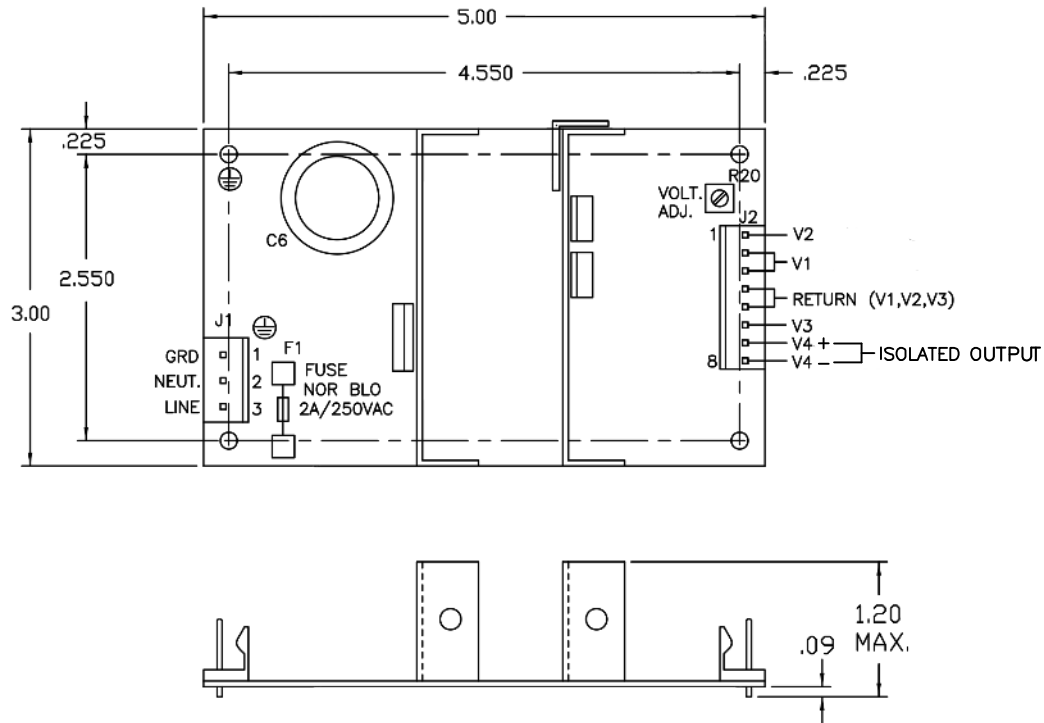
⁷ Can be specified in 0.75V increments

Note: Specifications are typical at 25°C unless otherwise stated

Specifications	
Input	
Input Voltage Range	90-264VAC
Input Frequency	47 to 440Hz
Input Surge Current	25A max, cold start
Efficiency	75% typ at nominal line, full power
Output	
Output Power	40W, natural convection cooling ; 50W, 28 CFM forced air ; 60W peak
Line Regulation	±0.2%, V_{in} (min) to V_{in} (max)
Load Regulation	±3% (V_1 , 20% to 100% I_0) ; ±5% (V_2 - V_4 , 20% to 100% I_0)
Cross Regulation	±0.5% (V_1 , 20% to 100% I_0 on V_2 - V_4) ; ±5% (V_2 - V_4 , 50% to 100% I_0 on V_1)
Noise and Ripple	25mV max RMS, 50mV max P-P on V_1 with full load (5V only) ; 0.5% max RMS, 1% max P-P on V_2 - V_4 with full load
Overshoot	5% max, all outputs
Transient Response	for 25% to 75% I_0 change, 5% max deviation, with recovery to 1% within 250µS
Hold-Up Time	16mS, 115VAC input, full output power
Overvoltage Protection Threshold	130% V_0 , all outputs
Power Foldback Point	120% of rated power

Environment	
Operating Temperature Range (full power)	0°C to 50°C
Operating Temperature Range (extended range)	0°C to 70°C Derate linearly from full power at 50°C to half power at 70°C
Storage Temperature Range	-25°C to +85°C
Relative Humidity	5% to 95%, non-condensing
Vibration	0.75G peak, 5Hz to 500 Hz. Test three orthogonal axes at 1 octave/min, 5 min dwell at four major resonances
MBTF	170,000 hours calculated per MIL-Std 217E, 25°C ambient

Mechanical Drawing



MATING CONNECTORS DIGITAL POWER #
 J1 CONNECTOR=MOLEX INC.41671 SERIES
 P/N:26-48-1055
 (MATING CONNECTOR=MOLEX INC.6442 SERIES (OR 41695 SERIES)
 J2 CONNECTOR=MOLEX INC. 41671 SERIES
 P/N:26-48-1085
 (MATING CONNECTOR=MOLEX INC.6442 SERIES (OR 41695 SERIES)
 P/N:26-03-4081 (OR 09-50-8081)
 (MATING CRIMP TERMINALS=MOLEX INC.6838 SERIES, P/
 N:08-52-0113 OR 08-52-0112)