

50W Isolated DC/DC Converter Single Output

## Features

- 4:1 Wide Input Range
- Single Regulated Output 3.3V to 48V
- 3,000 VAC Input to Output Isolation
- High Efficiency up to 89%
- Low No Load Power Consumption
- Full Protections: OVP, OCP, SCP
- -40 to +105°C Operating Case Temperature
- Industry Standard Quarter Brick Footprint
- **Compliant to EN50155**
- Built to Meet IEC62368-1, CE Mark

## Applications

- Railroad
- Subway
- Light rail
- Cloud rail



## SPECIFICATIONS

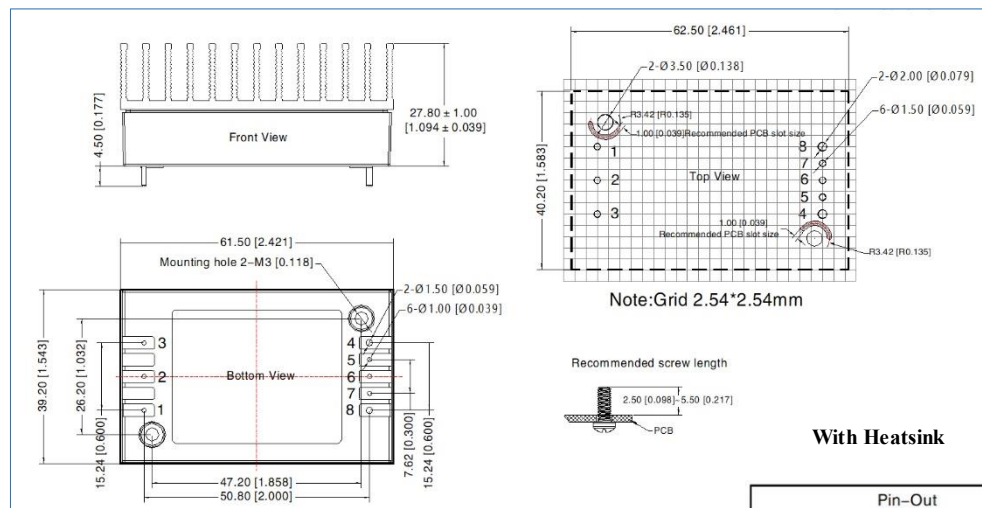
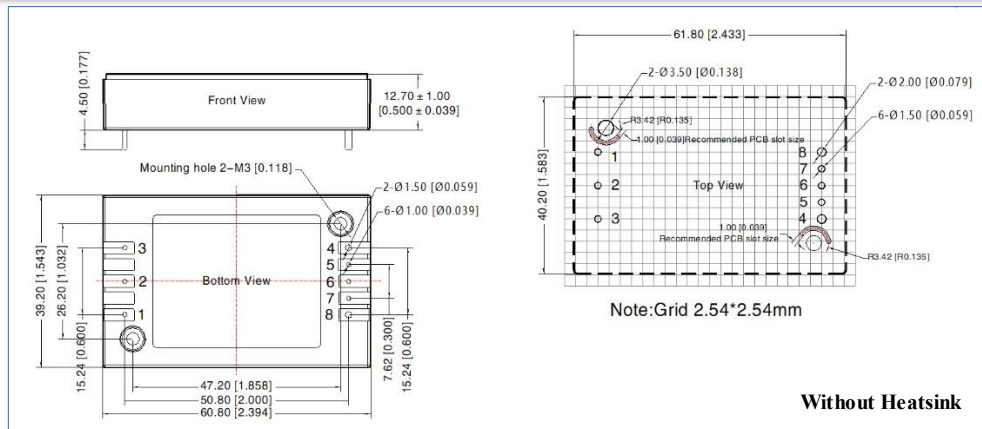
Input Voltage Range	43-160 VDC, nom. 110V
Surge Voltage	180V @1s
Input Current (nominal input)	535mA max. @full load 20mA max. @no load 10mA max. @inhibit OFF
Input Under-voltage Protection (UVP)	40V typ.
Efficiency	86% - 89%
Switching Frequency	170KHz typ.
Output Power	50W
Output Voltage/Current	See Model List
Voltage Trim Range	±10%
Voltage Accuracy	±1% typ.
Line Regulation	≤±0.5%
Load Regulation	≤±1%
Ripple and Noise	See Model List
Transient Response	≤±9% deviation at 25%-50%-75% load change, returning to initial condition within 500μs
Remote Sense	105% of Vout
Short Circuit Current	Continuously protected, auto recovery, hiccup mode.
Output Over-voltage Protection (OVP)	110%-160% @3.3V & 5V 110%-140% @other models
Output Over-current Protection (OCP)	110%-190%
Over-temperature Protection (OTP)	Built in NTC. Typically turn off when the case temperature reaches to 105°C
Operating Case Temperature	-40°C to +105°C. Refer to long form specifications for derating curves
Storage Temperature	-55°C to +125°C
Temperature Coefficient	≤±0.03% /°C
Relative Humidity	5-95%, non-condensing
Altitude	Operating up to 5000m
EMC	CISPR32 / EN55032 Class B, EN50155 compliant
Surge	IEC61000-4-5 / GB17626.5-2008
LED Indication	None
Cooling	Forced Air or Natural Convection
Pin Soldering Resistance Temperature	<300°C
Shock & Vibration	Meet IEC/EN61373 - Category 1, Grade B
ON/OFF Controls	Built in, TTL compliant, HIGH – ON & LOW – OFF
Insulation Resistance	≥1000MΩ @input-output resistance of 500VDC
Dielectric Withstand	Input to Output 3000VAC @1 minute with leakage current less than 5mA Input to Case 2100VAC @1 minute with leakage current less than 5mA Output to Case 1500VDC @1 minute with leakage current less than 1mA
Isolation Capacitance	2,200 pF typ. @input-output capacitance of 100KHz/0.1V
Dimensions	60.8×39.2×12.7 mm (2.39"×1.54"×0.5"), without heatsink 61.5×39.2×27.8 mm (2.42"×1.54"×1.09"), with heatsink
Weight	78g, without heatsink 109g, with heatsink
Case Material	Aluminum alloy top cover; Black plastic bottom, flame-retardant and heat-resistant (UL94 V-0)
Safety Compliance	Built to meet IEC60950-1 / GB4943-2011, CE Mark
MTBF	≥500,000 hrs per MIL-HDBK-217F @25°C

## MODEL LIST

Model Number	Input Range (VDC)	Output Voltage (VDC)	Output Current		Typ. Efficiency (%)	Ripple & Noise (mVp-p) max.	Capacitive Load (μF) max.
			Min. (mA)	Max. (mA)			
FQB50W-110S3V3	43-160	3.3	0	11,364	86	200	20,000
FQB50W-110S05	43-160	5	0	10,000	87	200	10,000
FQB50W-110S12	43-160	12	0	4,167	88	200	3,000
FQB50W-110S15	43-160	15	0	3,333	88	200	2,350
FQB50W-110S24	43-160	24	0	2,083	89	200	1,500
FQB50W-110S48	43-160	48	0	1,041	87	300	240
FQB50W-110S3V3H	43-160	3.3	0	11,364	86	200	20,000
FQB50W-110S05H	43-160	5	0	10,000	87	200	10,000
FQB50W-110S12H	43-160	12	0	4,167	88	200	3,000
FQB50W-110S15H	43-160	15	0	3,333	88	200	2,350
FQB50W-110S24H	43-160	24	0	2,083	89	200	1,500
FQB50W-110S48H	43-160	48	0	1,041	87	300	240

Notes: "H" suffix means heatsink mounted models for enhanced heat dissipation.

## MECHANICAL OUTLINE



Note:  
 Unit:mm[inch]  
 Pin1,2,3,5,6,7's diameter: 1.00[0.039]  
 Pin4,8's diameter: 1.50[0.059]  
 Pin diameter tolerances:  $\pm 0.10[\pm 0.004]$   
 General tolerances:  $\pm 0.50[\pm 0.020]$   
 Mounting hole screwing torque: Max 0.4 N·m

Pin-Out			
Pin	Function	Pin	Function
1	+Vin	5	Sense-
2	Ctrl	6	Trim
3	-Vin	7	Sense+
4	0V	8	+Vo

### -LIMITED WARRANTY POLICY-

All Fitpower standard model power supplies and products are guaranteed to be free of defects in workmanship and materials for a minimum of two (2) years from the date of original shipment, when operated within specification. This warranty applies only to defects that result in a failure to perform to published specifications. Non-standard (custom) power supplies and products may be warranted on an individual basis. The unused portion of this warranty is fully transferable with the original equipment in which the power supply is installed.