

# P R B X

## POWERBOX Industrial Line PQB50U-72S Series 30-50W 12:1 Single Output DC/DC Converter

### Features

30-50W isolated output

Efficiency to 89%

Fixed switching frequency

12:1 input range

Regulated outputs

Remote On/Off

Low no load power consumption

Over temperature protection

Over voltage/current protection

Continuous short circuit protection

Quarter brick size meet industrial standard

UL60950-1 2nd (basic insulation) approval

CB test certificate IEC60950-1

Meet EN50155 with external circuits

Shock & vibration meets EN50155 (EN61373)

Fire & smoke meet EN45545-2

5000m operating altitude

### Input

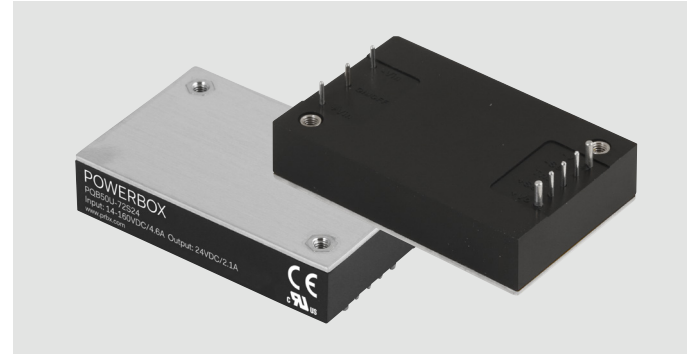
Input voltage range	72V	14-160V
Input surge voltage	(100ms max)	200VDC max
Under voltage lockout	Power up	14.6V
	Power down	12.0V
Positive logic remote On/Off 4, 5)		
Input filter	PI Type.	

### Output

Voltage accuracy	±1.0% max.	
Transient response	<250µs (25% step load change).	
External trim adj. range	-20%,+10%.	
Ripple & noise <sup>3)</sup>	40mV RMS, 100mV pk-pk max, 20MHz BW.	
Temperature coefficient	±0.02%/°C.	
Short circuit protection	Continuous.	
Line regulation <sup>1)</sup>	±0.2% max.	
Load Regulation <sup>2)</sup>	±0.2% max.	
Over voltage protection	115-140%, trip range, % Vo nom.	
Current limit	110% -220% nominal output.	
Start up time	30ms typ.	

### Environmental

Operating case temp.	-40°C to +100°C.
Storage temperature	-55°C to +125°C.
Thermal shutdown	Case temp. 110°C typ.
Humidity	95% RH max. Non condensing.
Operating altitude	5000m.



### General

Efficiency	See table	
Isolation voltage	Input/Output	3000VDC min.
	Input/Case	2500VDC min.
	Output/Case	500VAC min.
Isolation resistance	2x10 <sup>8</sup> ohm min.	
Isolation capacitance	1000pF typ.	
Switching frequency	240KHz typ.	
MTBF	780Khrs typ, MIL-HDBK-217F, GB, 25 °C, full load.	
Dimensions	57.9x36.8x12.7 mm.	
Case material	Aluminum baseplate with plastic case.	
Weight	61.5 g.	

### Standards

Safety standards	UL60950-1 2nd (basic insulation).	
EMC <sup>8)</sup>	EN50155 (EN50121-3-2) with external filter.	
Shock/Vibration	EN50155 (EN61373).	
Environmental	EN50155 (EN60068-2-1).	
Fire & Smoke	EN45545-2.	

### Note:

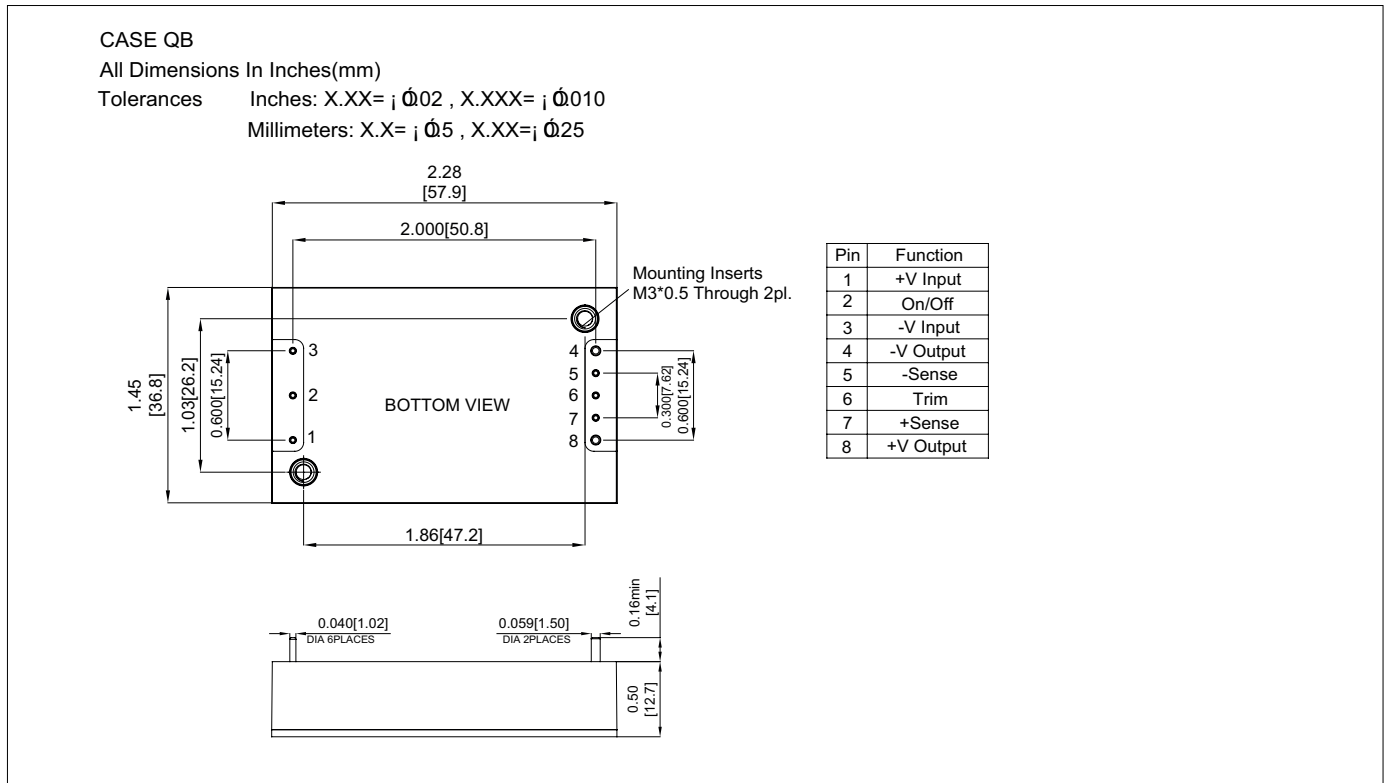
1. Measured from high line to low line
2. Measured from full load to zero load.
3. Output ripple and noise measured with 22µF aluminum solid capacitor and 1µF ceramic capacitor across output.
4. Logic compatibility: open collector ref to -Input. Module on > 3.5VDC to 160VDC or open circuit. Module off 0 to <1.2 VDC.
5. Suffix "N" to the model number with negative logic remote on/off. Module on 0 to <1.2 VDC. Module off >4.0VDC to 160VDC or open circuit.
6. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.).
7. An external input capacitor 68µF for all models are recommended to reduce input ripple voltage.
8. For information about EN50155 and RIA12, refer to application note.

**POWERBOX Industrial Line**  
**PQB50U-72S Series**  
**30-50W 12:1 Single Output**  
**DC/DC Converter**

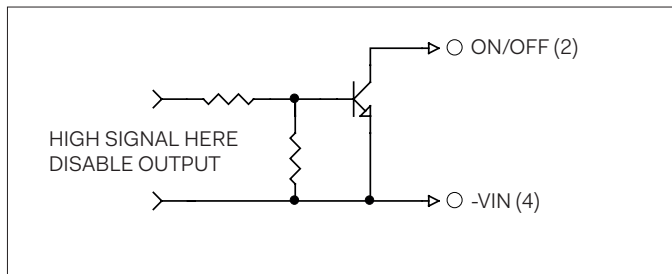
Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Efficiency		Capacitor Load Max
			Min	Max	No Load	Full Load	1)	2)	
PQB50U-72S05	14-160 VDC	5 VDC	0 mA	6.0 A	5 mA	530 mA	83%	81%	10000 $\mu$ F
PQB50U-72S12	14-160 VDC	12 VDC	0 mA	4.2 A	5 mA	810 mA	87%	86%	6800 $\mu$ F
PQB50U-72S24	14-160 VDC	24 VDC	0 mA	2.1 A	5 mA	810 mA	89%	87%	3300 $\mu$ F
PQB50U-72S48	14-160 VDC	48 VDC	0 mA	1.05 A	5 mA	810 mA	88%	85%	680 $\mu$ F

**Note:**  
 1. Nominal input voltage 72VDC  
 2. Measured at 110Vin.

**Mechanical**



**Remote On/Off Control**



**External Output Trim**

