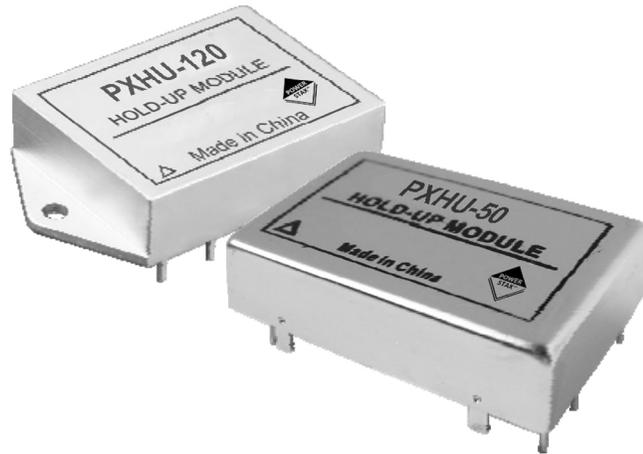




- UNIQUE PRODUCTS FOR HOLD-UP SOLUTION
- HIGH EFFICIENCY
- COMPATIBLE WITH 16-40V DC/DC CONVERTERS
- HERMETICALLY SEALED CASE
- WIDE OPERATING TEMPERATURE RANGE
- UP TO 120 WATTS



POWER SUPPLY DESIGN EXCELLENCE

PXHU Series hold-up modules provide a state-of-the-art solution to the problem of temporarily maintaining electronic systems in operation during input bus drop-out or fail.

These module provide a solution to reduce the amount of capacitance needed by charging the hold up capacitor at a high voltage (typical 38VDC) while limiting the input surge current.

PXHU Series hold-up modules is a high performance module designed for aerospace, high reliability and high-end industrial applications. The modules are potted with a high performance thermal conductive compound and packaged in a metal case to ensure the module's integrity under extreme environmental conditions.

The module is connected between the source and DC/DC converter, and can be used with 16-40VDC input voltage.

PXHU Series modules features 3 modes of operation:

- **Charging mode:** Normal input voltage is 16 to 40V. When the input voltage reaches the start-up charge threshold (set at 1V above fail voltage), the hold-up module begins to charge the external capacitor at 38VDC while powering the DC/DC converter.
- **Normal mode:** In normal mode, with the capacitor charged and the input bus between the output power fail voltage and 40VDC, the module operates continuously until the input voltage drops below the power fail voltage threshold.
- **Power fail mode:** When the input voltage drops below the power fail voltage threshold, the hold-up module disconnects the input from the output and internally connects the hold-up capacitor to the output.

STANDARD MODEL	OUTPUT POWER	HOLD-UP TIME	POWER FAIL VOLTAGE	DIMENSIONS L x W x H (mm)	CASE OPERATING TEMPERATURE
PXHU-50	15W	10 μ S/ μ F @ Full Load 50 μ S/ μ F @ 10W	16.0V	40 x 26 x 10	-55° to +105°C
PXHU-120	120W	5 μ S/ μ F @ Full Load	16.5V	68.58 x 33.18 x 10.2	-55° to +125°C



PXHU-50

PXHU-120

INPUT SPECIFICATIONS		
Voltage Range	16-40VDC	
Maximum Voltage	50V up to 100ms	50V up to 50ms
Inrush Current	-	1.5A max. (10kμF storage capacitor and no load)
Power Fail Threshold	Turn-ON - 16.5 to 17.2VDC Turn-OFF - 16.2 to 16.5VDC	

OUTPUT SPECIFICATIONS		
Voltage, input drop-out	0V min. 38V typ. 40V max.	37V min. 38V typ. 39V max. (10kμF storage capacitor and full load)
Voltage, continuous input	Vin-0.3V (18-40V input)	Vin-0.2V typ. Vin-0.8V max. (17.2-40V input)
Power, 16-40V input	4W min. 50W max.	120W max.
Hold-up Time, charged	50μs/μF @ 10W load 50μs/μF @ full load	5μs/μF min. @ full load
Efficiency	97% min.	

Test Conditions:

1. Unless otherwise specified, ambient temperature is +25°C, input voltage is 28V, output full load.
2. Within the window of 15 to 16.5 (PXHU-50) or 16.2 to 16.9V (PXHU-120), the hold-up capacitor will be connected to the output internally.

OTHER SPECIFICATIONS		
Operating Temp. Range	-55°C to +105°C	-55°C to +125°C
Storage Temp. Range	-55°C to 125°C	
Pin Solder Temperature	300°C for 10s max.	
Insulation Resistance	≥100MΩ@500VDC (input-output; input-case; output-case)	≥100MΩ@500VDC (input-case; output-case)

ENVIRONMENTAL SCREENING		
Internal Inspection	MIL-STD-883 Method 2017	
High Temperature Storage	125°C for 48 hours	
Temperature Cycling	MIL-STD-883 Method 1010 Condition B (10 cycles)	MIL-STD-883 Method 1010 Condition C, -65°C to +150°C (10 cycles)
Intermediate Electrical Test	Tc: 25°C	
Burn-in	TCMAX ⁸ -o°C, ≥160H	
Final Electrical Test	Tc: -55°C, +25°C, +105°C	Tc: -55°C, +25°C, +125°C
Seal	MIL-STD-883 Method 1014 Condition A1 MIL-STD-883 Method 1014 Condition C1	
External Inspection	MIL-STD-883 Method 2009	



MECHANICALS - PXHU-50

BOTTOM VIEW

Dimensions in mm [±0.3]

35.56

20.32

0.40

7.62

12.70

25.00

14.00

0.50

10.00

5.00min.

4 x 2.00

4 x 4.00

5 x $\varnothing 0.7 \pm 0.05$

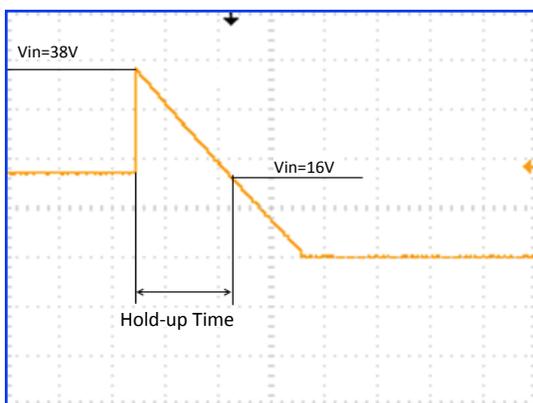
26.00

40.00

Connections		
Pin	Function	
1	VIN+	Input Positive
2	VIN-	Input Negative
3	VOUT-	Output Negative
4	VC+	Capacitor Positive
5	VOUT+	Output Positive

PXHU SERIES

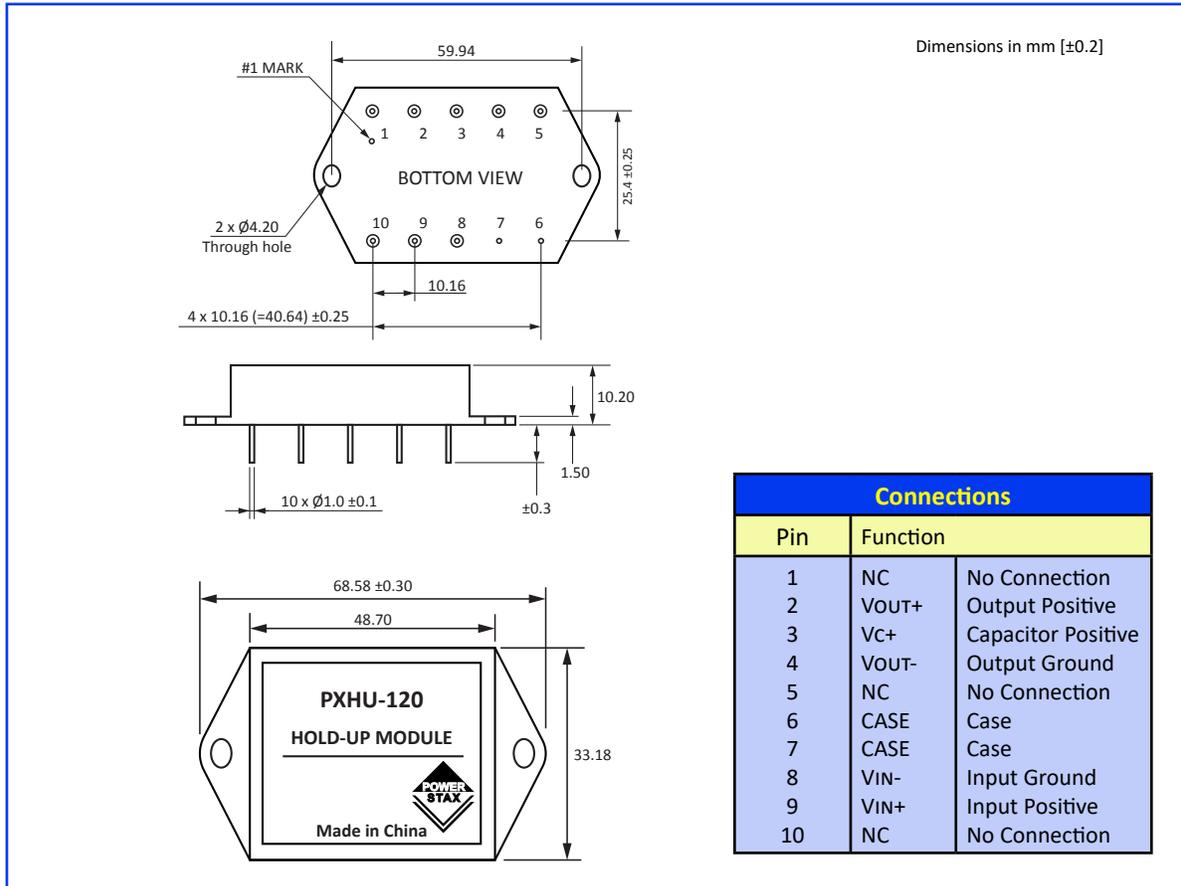
TYPICAL PERFORMANCE CURVE



Test condition: charged, input below set point, full load

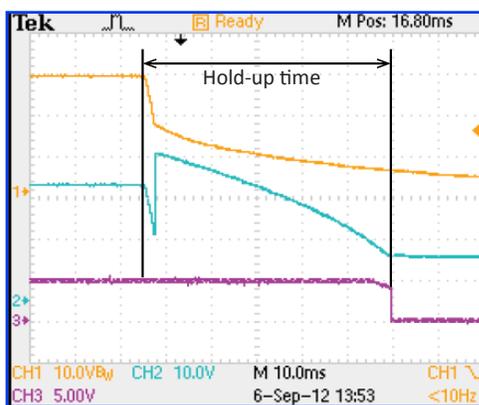


MECHANICALS - PXHU-120

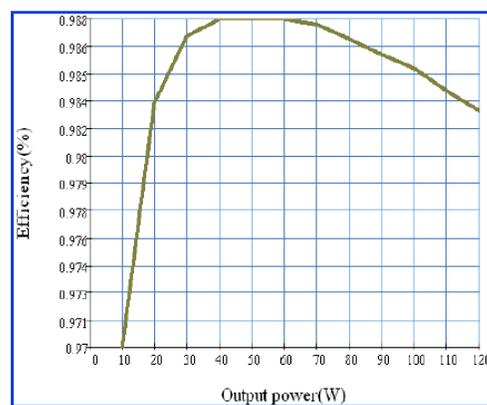


PXHU SERIES

TYPICAL PERFORMANCE CURVES



Test condition: charged, full load
 Ch1 = DC supply
 Ch2 = DC/DC input voltage
 Ch3 = DC/DC output voltage



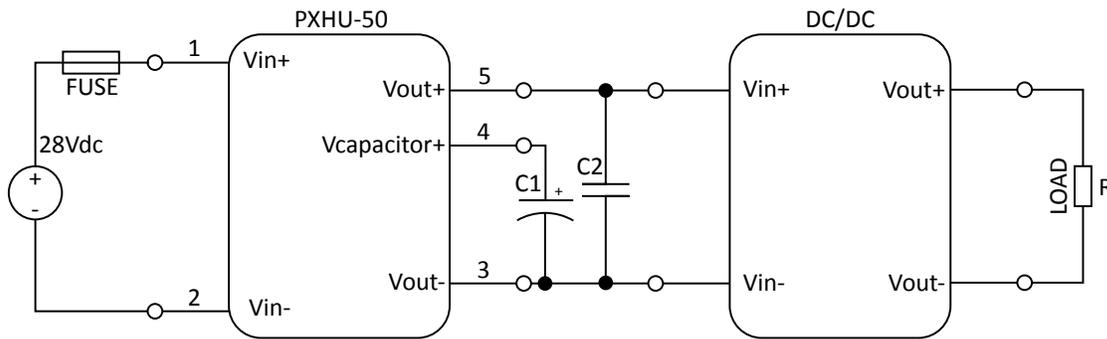
Test condition: Vin = 28V, normal temperature



APPLICATION NOTES

Typical Connections

PXHU-50



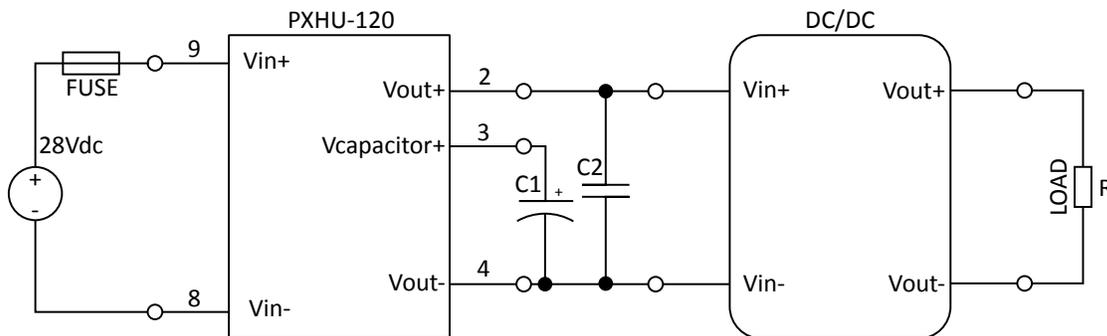
Notes: C1 external hold-up capacitor.

C2 transition capacitor, use 100µF @ output power 50W. Vin- and Vout- are internally connected.

Properly connect pins of hold-up module to PCB following instructions of part's specification.

Please solder four tabs prior to soldering pins.

PXHU-120



Notes: C1 external hold-up capacitor.

C2 transition capacitor, use 470µF @ output power 120W.

Externally short the input ground and output ground. Connect Vin+ to the bus as close as possible to the source in order to reduce the effect of voltage drop to the critical failure point.

Hold-up Capacitor Selection

The external capacitor supplies the energy for the DC/DC converter's operation during fail mode. The amount of capacitance required for a given hold-up time is given by the formula:

$$C = \frac{2 \times P(T + 0.01)}{38^2 - 16^2}$$

C is the required capacitor (in farads)

P is the power consumed by DC/DC converters (in watts)

T is the required hold-up time (by seconds)

pxhu-rev2-0517.indd

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