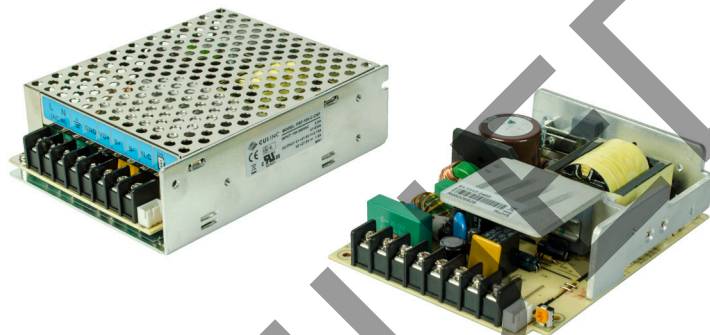


**SERIES:** PSF-100 | **DESCRIPTION:** AC-DC POWER SUPPLY

**FEATURES**

- up to 100 W continuous power
- universal input (90~264 Vac)
- built-in constant current limit circuitry
- alarm signal for AC OK and battery low
- short circuit, over load, over voltage, brown-out, battery low, and battery polarity protections
- withstand 2G vibration test
- efficiency up to 87%



MODEL		output voltage	output current <sup>1</sup>	output power <sup>2</sup>	ripple and noise <sup>3</sup>	efficiency
		(Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
PSF-100-A	Vo1	13.8	7.3	100	100	86
	Vo2	13.8	2.875		150	
PSF-100-B	Vo1	13.8	6.2	100	100	85
	Vo2	13.8	2.875		150	
	Vo3	5	3		100	
PSF-100-C	Vo1	27.6	3.65	100	100	87
	Vo2	27.6	1.725		150	
PSF-100-D	Vo1	27.6	3.1	100	100	85
	Vo2	27.6	1.725		150	
	Vo3	5	3		100	

Notes: 1. Vo2 battery discharge current must not exceed 50% of the rated power.  
 2. Maximum total combined power (rated power).  
 3. At 20 MHz bandwidth using a 12" twisted pair-wire, each output terminated with a 47 µF and 0.1 µF parallel capacitors.

**PART NUMBER KEY**

**PSF-100 - X - XXX**

Base Number

Output Voltage  
 A = 13.8 Vdc, 13.8 Vdc  
 B = 13.8 Vdc, 13.8 Vdc, 5 Vdc  
 C = 27.6 Vdc, 27.6 Vdc  
 D = 27.6 Vdc, 27.6 Vdc, 5 Vdc

Chassis  
 "blank" = open frame  
 CNF = enclosed

**INPUT**

parameter	conditions/description	min	typ	max	units
voltage		90		264	Vac
		127		373	Vdc
surge voltage	for maximum of 5 seconds			300	Vac
frequency		47		63	Hz
current	at 115 Vac		2.0		A
	at 230 Vac		1.2		A
inrush current	at 115 Vac, cold start		35		A
	at 230 Vac, cold start		70		A
leakage current	at 264 Vac			1	mA

**OUTPUT**

parameter	conditions/description	min	typ	max	units
line regulation	low line to high line, at rated load Vo1, Vo3		±0.5		%
load regulation	10% to 100% rated load Vo1		±0.5		%
	Vo3		±1.5		%
voltage accuracy	Vo1		±2		%
	Vo3		±3		%
hold-up time	at 115 Vac, full load		8		ms
	at 230 Vac, full load		50		ms
setup time	at 115/230 Vac, full load, cold start	800			ms
rise time	at 115/230 Vac, full load		50		ms
adjustability	Vo1		±10		%
temperature coefficient	Vo1, 0°C~50°C		±0.03		%/°C
AC OK	PSF-100-A, PSF-100-C PSF-100-B, PSF-100-D		TTL open collector output relay contact output		
battery low	PSF-100-A, PSF-100-C		<12 V ±3%		
	PSF-100-B, PSF-100-D		<22 V ±3%		

**PROTECTIONS**

parameter	conditions/description	min	typ	max	units
over voltage protection	Vo1, latch off mode	115		150	%
over current protection	auto recovery, hiccup mode Vo1, Vo3	110			%
	Vo2	100			%
battery cut off	PSF-100-A, PSF-100-B	9.5	10	10.5	Vdc
	PSF-100-C, PSF-100-D	19	20	21	Vdc

**SAFETY & COMPLIANCE**

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output	3,000			Vac
	input to ground	1,500			Vac
	output to ground	500			Vac
isolation resistance	input to output at 500 Vdc	100			MΩ
safety approvals	UL 60950-1, EN 60950-1				
EMI/EMC <sup>1</sup>	EN 55022, EN 61000-6-(1,3), EN 61000-3-(2,3), EN 55024, EN 50204, EN 61204-3, EN 61000-4-(2, 3, 4, 5, 6, 8, 11)				
MTBF	PSF-100-A, PSF-100-B as per MIL-HDBK-217F	103,400			hrs
	PSF-100-C, PSF-100-D as per MIL-HDBK-217F	92,100			hrs
RoHS	2011/65/EU				

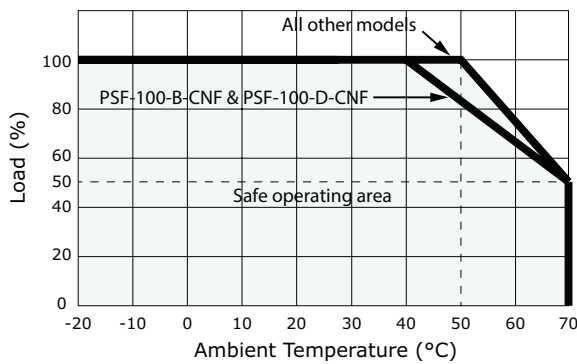
Note: 1. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

## ENVIRONMENTAL

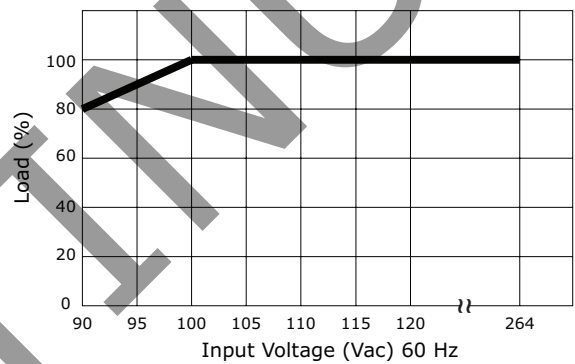
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-20		70	°C
storage temperature		-40		85	°C
operating humidity	non-condensing	20		90	%
storage humidity	non-condensing	10		90	%
vibration	at 10~500 Hz, 10 min per cycle for 60 minutes each test along the X, Y, and Z axis		2		G

## DERATING CURVES

Load vs. Temperature



Load vs. Input Voltage (at 25°C)



## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	open frame: 123 x 95 x 31 enclosed: 129.5 x 97.5 x 37.5				mm mm
weight	open frame enclosed		0.34 0.47		kg kg

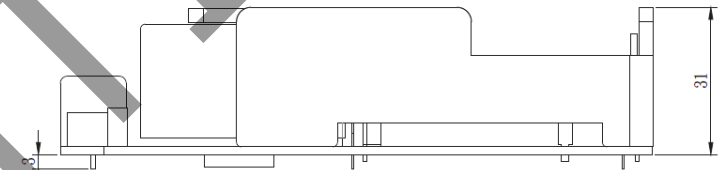
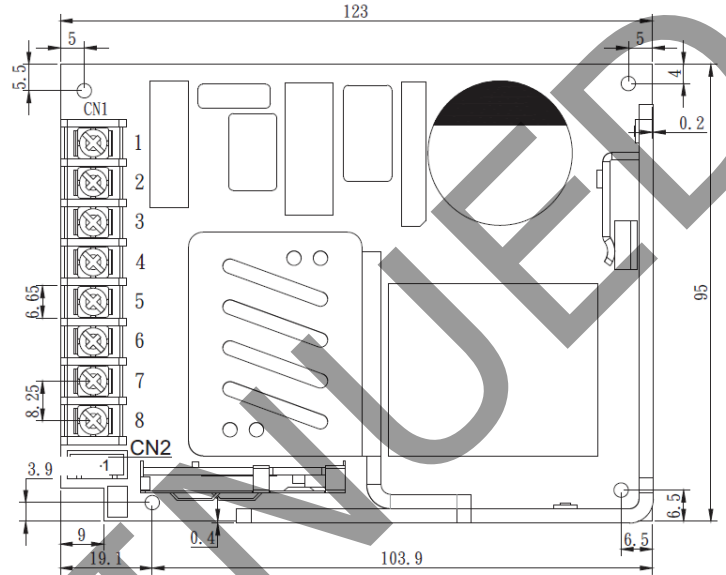
## MECHANICAL DRAWING

### OPEN FRAME

units: mm

CN1 Pin Connections	
PIN	Function
1	AC/L
2	AC/N
3	FG $\perp$
4	-Vo1
5	+Vo1
6	+Vo2 (+ BAT)
7 <sup>1</sup>	-Vo2 (- BAT)
8 <sup>2</sup>	+Vo3 (+5 V)

CN2 Pin Connections	
PIN	Function
PSF-100-A, PSF-100-C <sup>3</sup>	
1	AC OK
2	BAT LOW
3	PSF-100-A: (13.8 V/20 mA) PSF-100-C: (27.6 V/20 mA)
PSF-100-B, PSF-100-D <sup>4</sup>	
1 2	AC OK
3 4	BAT LOW

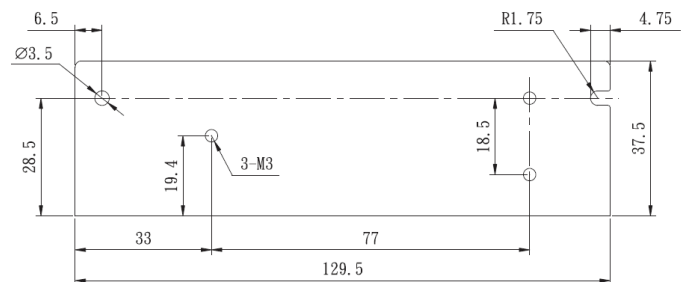
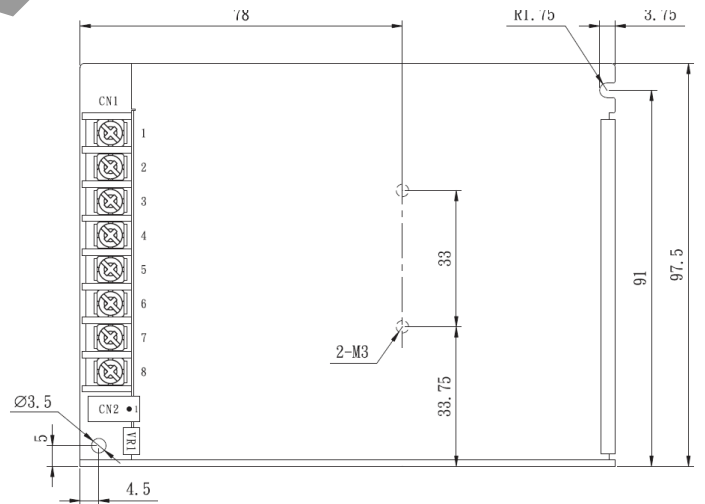


### CNF

units: mm

CN1 Pin Connections	
PIN	Function
1	AC/L
2	AC/N
3	FG $\perp$
4	-Vo1
5	+Vo1
6	+Vo2 (+ BAT)
7 <sup>1</sup>	-Vo2 (- BAT)
8 <sup>2</sup>	+Vo3 (+5 V)

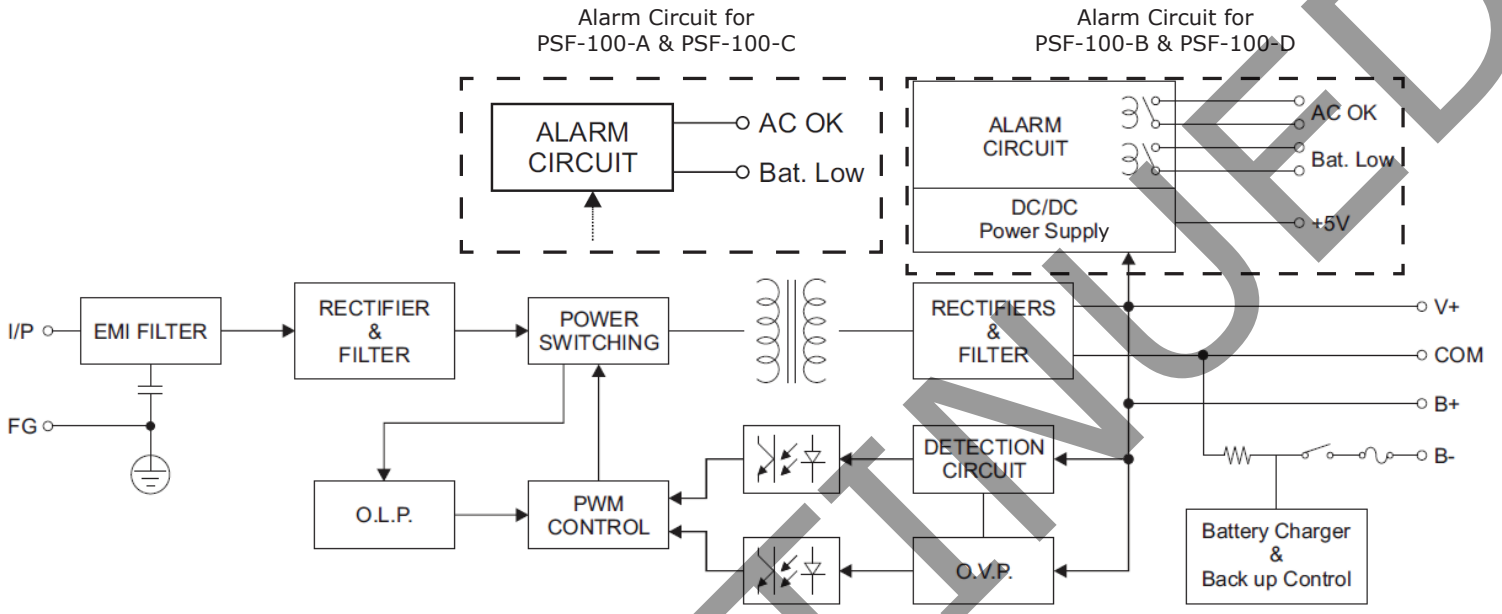
CN2 Pin Connections	
PIN	Function
PSF-100-A, PSF-100-C <sup>3</sup>	
1	AC OK
2	BAT LOW
3	PSF-100-A: (13.8 V/20 mA) PSF-100-C: (27.6 V/20 mA)
PSF-100-B, PSF-100-D <sup>4</sup>	
1 2	AC OK
3 4	BAT LOW



- Notes:
1. To protect product damage do not connect the GND port with -BAT port.
  2. PSF-100-B and PSF-100-D only.
  3. For PSF-100-A & PSF-100-C, CN2 mates with JST XHP-3 or equivalent and JST SXH-001 T-P0.6 or equivalent.
  4. For PSF-100-B & PSF-100-D, CN2 mates with JST XHP-4 or equivalent and JST SXH-001 T-P0.6 or equivalent.

## BATTERY CHARGING SPECIFICATIONS

### Block Diagram



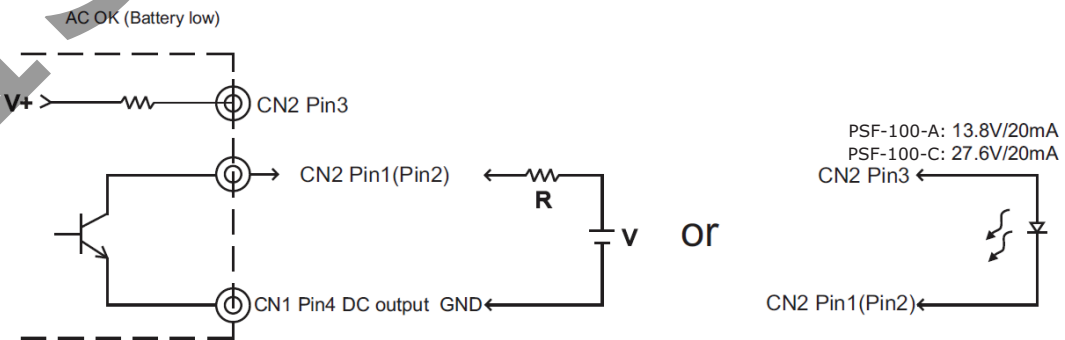
### PSF-100-A & PSF-100-C

#### Alarm Signal for AC OK and Battery Low

Function	Description	Alarm Output
AC OK	The signal is low when the power supply turns on	Low (0.3 V max. at 30 mA)
	The signal is high when the power supply turns off	High/open (external voltage < 50 V)
Battery Low	The signal is low when the voltage of the battery is below: 12 V (PSF-100-A), 22 V (PSF-100-C)	Low (0.3 V max. at 30 mA)
	The signal is high when the voltage of the battery is above: 12 V (PSF-100-A), 22 V (PSF-100-C)	High/open (external voltage < 50 V)

- Notes:
1. Alarm signal is sent out through "AC OK" and "Battery Low" pins.
  2. An external voltage source is required for this function. The maximum applied voltage is 50 V and the maximum sink current is 30 mA.

#### Internal Circuit of AC OK and Battery Low



External voltage and R

## BATTERY CHARGING SPECIFICATIONS (CONTINUED)

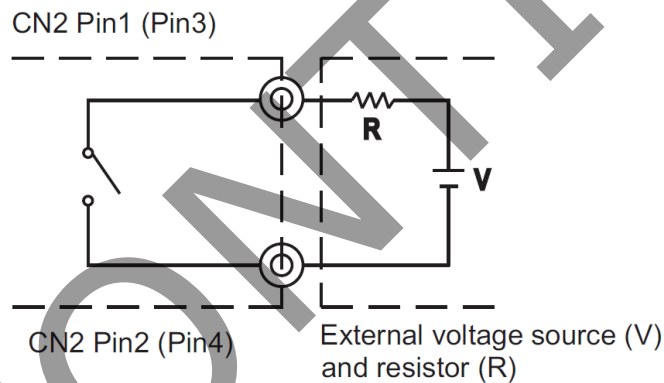
### PSF-100-B & PSF-100-D

Alarm Signal for AC OK and Battery Low

Function	Description	Alarm Output
AC OK	The signal is low when the power supply turns on	Low or short
	The signal is high when the power supply turns off	High/open (external voltage < 30 V)
Battery Low	The signal is low when the voltage of the battery is below: 12 V (PSF-100-B), 22 V (PSF-100-D)	Low or short
	The signal is high when the voltage of the battery is above: 12 V (PSF-100-B), 22 V (PSF-100-D)	High/open (external voltage < 30 V)

- Notes:
1. Alarm signal is sent out through "AC OK" and "Battery Low" pins (relay contact type).
  2. An external voltage source is required for this function. The maximum applied voltage is 30 V and the maximum sink current is 1 A.

Internal Circuit of AC OK and Battery Low



## REVISION HISTORY

rev.	description	date
1.0	initial release	11/25/2013
1.01	updated datasheet	12/12/2014

The revision history provided is for informational purposes only and is believed to be accurate.



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