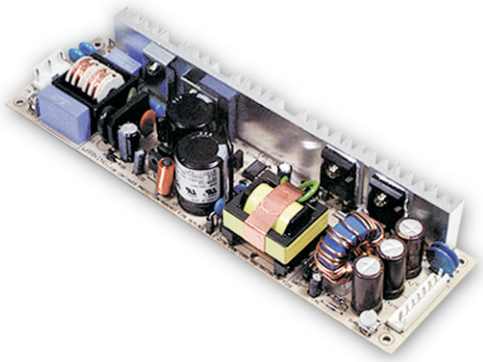
JAMECO ELECTRONICS

Jameco SKU Number: 2101323

MEAN WELL

100W Single Output without PFC Function

LPS-100 series



■ Features :

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- 100% full load burn-in test
- Fix switching frequency at 134KHz
- 3 years warranty

SPECIFICATION

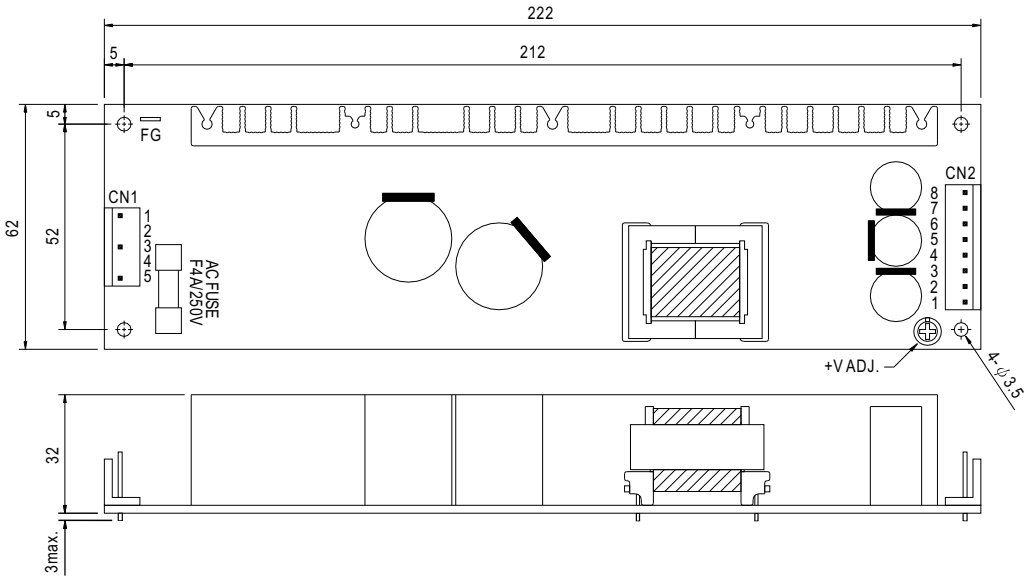
MODEL		LPS-100-3.3	LPS-100-5	LPS-100-7.5	LPS-100-12	LPS-100-13.5	LPS-100-15	LPS-100-24	LPS-100-27	LPS-100-48
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	13.5V	15V	24V	27V	48V
	RATED CURRENT	20A	20A	13.3A	8.4A	7.5A	6.7A	4.2A	3.8A	2.1A
	CURRENT RANGE	0 ~ 20A	0 ~ 20A	0 ~ 13.3A	0 ~ 8.4A	0 ~ 7.5A	0 ~ 6.7A	0 ~ 4.2A(6A 10s)	0 ~ 3.8A	0 ~ 2.1A
	RATED POWER	66W	100W	99.75W	100.8W	101.25W	100.5W	100.8W(144W 10s)	102.6W	100.8W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	3 ~ 3.6V	4.5 ~ 5.7V	6 ~ 9V	10 ~ 13.2V	12 ~ 15V	13.5 ~ 18V	20 ~ 26.4V	26 ~ 32V	41 ~ 56V
	VOLTAGE TOLERANCE Note.3	±3.0%	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±2.0%	±1.5%	±1.5%	±1.5%	±1.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	800ms, 50ms/230VAC 1200ms, 50ms/115VAC at full load								
	HOLD UP TIME (Typ.)	20ms/230VAC 20ms/115VAC at full load								
INPUT	VOLTAGE RANGE	88 ~ 132VAC / 176 ~ 264VAC auto switch 248 ~ 370VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	EFFICIENCY(Typ.)	69%	77%	77%	79%	79%	80%	80%	81%	81%
	AC CURRENT (Typ.)	2.3A/115VAC 1.5A/230VAC								
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 60A/230VAC								
	LEAKAGE CURRENT	<1mA / 240VAC								
PROTECTION	OVERLOAD	105 ~ 140% (+24V: above 6.5A) rated output power								
		Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	3.8 ~ 4.45V	5.75 ~ 6.75V	9.4 ~ 10.9V	13.8 ~ 16.2V	15.5 ~ 18.2V	18 ~ 21V	27.6 ~ 32.4V	33.7 ~ 39.2V	57.6 ~ 67.2V
		Protection type : Hiccup mode, recovers automatically after fault condition is removed								
ENVIRONMENT	WORKING TEMP.	-10 ~ +60℃ (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-20 ~ +85℃, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 50℃)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved								
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3								
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,11, light industry level, criteria A								
OTHERS	MTBF	203.6Khrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	222*62*32mm (L*W*H)								
	PACKING	0.45Kg; 24pcs/12.5Kg/1.39CUFT								

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. 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.
5. If the input range 85V-89V, the output load is changed from 0A-rated load, There will be reduced 20V for 1second (LPS-100-24).
6. Mounting holes M1 and M2 should be grounded for EMI purposes.

■ Mechanical Specification

Unit:mm



AC Input Connector (CN1) : JST B5P-VH or equivalent

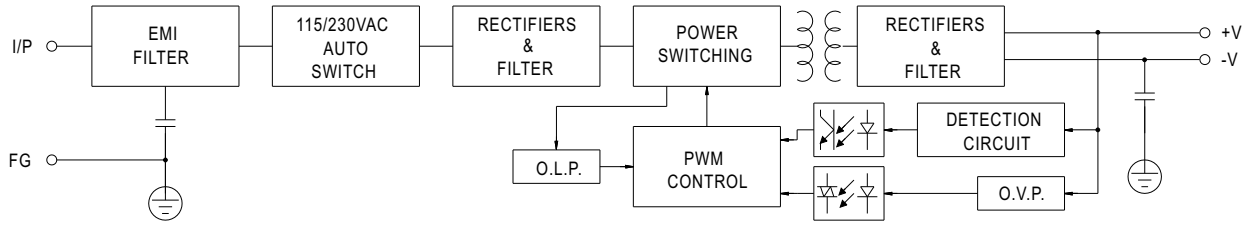
Pin No.	Assignment	Mating Housing	Terminal
1	FG ⏚	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2,4	No pin		
3	AC/N		
5	AC/L		

DC Output Connector (CN2) : JST B8P-VH or equivalent

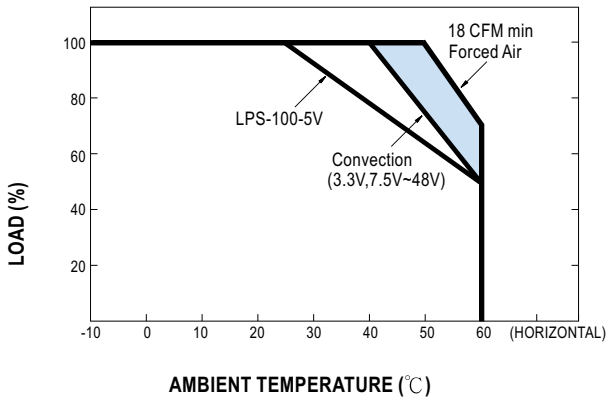
Pin No.	Assignment	Mating Housing	Terminal
1,2,3,4	+V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5,6,7,8	-V		

■ Block Diagram

fosc : 135KHz

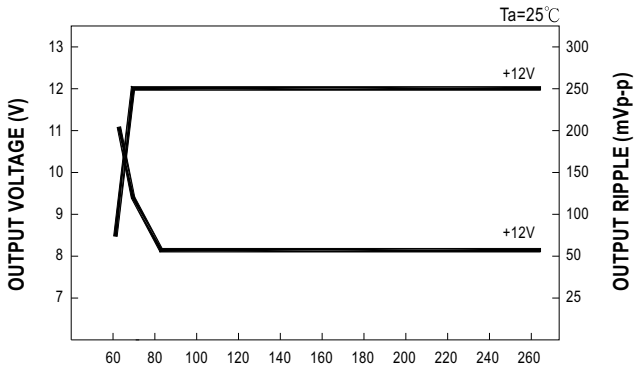


■ Derating Curve



AMBIENT TEMPERATURE (℃)

■ Static Characteristics (12V)



INPUT VOLTAGE (V) 60Hz

Quality Engineering Test Report

SERIES: LPS-100 100.8 WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A.LPS-100-3.3 3.3V / 20A D.LPS-100-12 12V /8.4A G.LPS-100-24 24V / 4.2A
B.LPS-100-5 5V / 20A E.LPS-100-13.5 13.5V /7.5 A H.LPS-100-27 27V / 3.8A
C.LPS-100-7.5 7.5V / 13.3A F.LPS-100-15 15V / 6.7A I. LPS-100-48 48V / 2.1A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:88~132V 176~264V O/P:FULL LOAD	A : 129V~267VAC	P
2	LINE REGULATION	I/P:176~264VAC SPEC: O/P:FULL LOAD A: ±0.5% B: ±0.5% C: ±0.5% D: ±0.5% E: ±0.5% F: ±0.5% G: ±0.5% H: ±0.5% I : ±0.5%	A: +0.00% ~ +0.00% B: +0.00% ~ +0.00% C: -0.08% ~ +0.00% D: +0.00% ~ +0.00% E: +0.09% ~ -0.06% F: -0.00% ~ +0.04% G: -0.05% ~ +0.03% H: -0.04% ~ +0.11% I : -0.02% ~ +0.06%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:0% LOAD TO FULL LOAD A: ±2% B: ±2% C: ±1.5% D: ±1.5% E: ±1.5% F: ±1.5% G: ±0.5% H: ±0.5% I : ±0.5%	A: -0.18% ~ +0.18% B: -0.35% ~ +0.25% C: -0.33% ~ +0.41% D: -0.10% ~ +0.10% E: -0.04% ~ +0.04% F: -0.12% ~ +0.21% G: -0.03% ~ +0.15% H: -0.15% ~ +0.15% I : -0.06% ~ +0.11%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:176~264VAC SPEC: O/P: 20% LOAD TO FULL LOAD A: ±3% B: ±3% C: ±2% D: ±2% E: ±2% F: ±2% G: ±1% H: ±1% I : ±1%	A: +0.00% ~ +0.36% B: -0.76% ~ +0.00% C: -0.59% ~ +0.08% D: -0.10% ~ +0.05% E: +0.00% ~ -0.13% F: -0.33% ~ +0.00% G: -0.13% ~ +0.10% H: -0.02% ~ +0.39% I : -0.19% ~ +0.03%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P: FULL LOAD A:150mV B:100mV C:100mV D:100mV E:100mV F:100mV G:150mV H:150mV I :200mV	A: 26mV B: 73mV C: 43mV D: 28mV E: 21mV F: 37mV G: 28mV H: 22mV I : 23mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 1.5A O/P:FULL LOAD	D:1.1A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 60A O/P:FULL LOAD	D:38A	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: -5%~+10% O/P:MIN. LOAD A:3.0V~3.6V B:4.5V~5.7V C:6V~9V D:10V~13.2V E:12V~15V F:13.5V~18V G:20V~26.4V H:26V~32V I:41V~56V	A:2.76V~4.04V B:4.44V~6.25V C:5.92V~9.28V D:9.10V~13.70V E:11.36V~16.12V F:12.81V~17.00V G:20.2V~27.6V H:24.4V~32.6V I :37.5V~59.4V	P
9	SET UP TIME	I/P:230VAC SPEC:800ms O/P:FULL LOAD	D : 580mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	D : 47mS	P
11	EFFICIENCY	I/P:230VAC SPEC: O/P: FULL LOAD A:69% B:77% C:77% D:79% E:79% F:80% G:80% H:81% I :81%	A: 71.91% B: 77.64% C: 78.99% D: 79.40% E: 80.22% F: 81.03% G: 83.37% H: 82.70% I : 81.87%	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC:105%~140% O/P:TESTING	A: 120% B: 120% C: 112.52% D: 128% E: 125% F: 113.96% G: 119.28% H: 128% I : 123.8%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC: 110%~135% O/P: TESTING A:3.8~4.45V B:5.75~6.75V C:9.4V~10.9 D:13.8V~16.2V E:15.5V~18.2V F:18V~21V G:27.6V~32.4V H:33.7V~39.2V I:57.6V~67.2V	A: 4.17V B: 6.30V C: 9.29V D: 15.14V E: 17.31V F: 17.01V G: 28.2V H: 38.0V I : 59.5V	p
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<1mA N-FG--<1mA	D: L-FG:0.75mA N-FG:0.60mA	p
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC / 100M Ohms MIN. I/P-O/P 500VDC / 100M Ohms MIN. I/P-FG 500VDC / 100M Ohms MIN.	D: O/P-FG >100M Ohms I/P-O/P >100M Ohms I/P-FG >100M Ohms	P
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 sec (10mA CUT-OFF) I/P - FG: 1500VAC/ 1 sec (10mA CUT-OFF) O/P - FG : 500VAC/1sec (10mA CUT-OFF)	D: I/P-O/P :4.84mA I/P-FG :3.79mA O/P- FG :8.76mA	P
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:27.2ºC BURN-IN DURATION : 2.0 hrs	D: NON BREAK	P

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td rowspan="3">18</td><td rowspan="3">ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST
I/P:230 VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:-9.9ºC</td><td>D :
AFTER 2 hrs
POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:42.8ºC</td><td>D :
AFTER 18 hrs
NON BREAK</td></tr>
<tr><td>3.ACCELERATED LIFE TEST
I/P:264VAC O/P:FULL LOAD
POWER ON :10 sec POWER OFF :10 sec
AMBIENT TEMPERATURE:25ºC
AMBIENT HUMIDITY:95%</td><td>D :
AFTER 13 hrs
NON BREAK</td></tr>
<tr><td>19</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td colspan="2">D: I/P :230VAC AFTER 2.0 hrs BURN-IN
O/P :FULL LOAD TA:27.2ºC
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>71.3ºC</td><td>44.1ºC</td></tr>
<tr><td></td><td>Q1</td><td>MAIN TRANSISTOR</td><td>88.3ºC</td><td>61.1ºC</td></tr>
<tr><td></td><td>T1CORE</td><td>MAIN TRANSFORMER</td><td>74.1ºC</td><td>46.9ºC</td></tr>
<tr><td></td><td>D11</td><td>O/P DIODE</td><td>86.3ºC</td><td>59.1ºC</td></tr>
<tr><td></td><td>C42</td><td>O/P FILTER CAPACITOR</td><td>59.6ºC</td><td>32.4ºC</td></tr>
<tr><td></td><td>L1</td><td>O/P CHOCK</td><td>71.9ºC</td><td>44.7ºC</td></tr>
<tr><td></td><td>T1COIL</td><td>MAIN TRANSFORMER</td><td>69.4ºC</td><td>42.2ºC</td></tr>
<tr><td></td><td>C6</td><td>I/P FILTER CAPACITOR</td><td>60.8ºC</td><td>33.6ºC</td></tr>
<tr><td></td><td>LF1</td><td>I/P FILTER COIL</td><td>50.7ºC</td><td>23.5ºC</td></tr>
</table></td><td>p</td></tr>
<tr><td>20</td><td>LIFE CYCLE</td><td colspan="2">D : SUPPOSE C42 IS THE MOST CRITICAL COMPONENT
I/P:230VAC O/P:FULL LOAD Ta:25ºC Tc42:57.4ºC Life:199510 hrs
I/P:230VAC O/P:FULL LOAD Ta:45ºC Tc42:69.1ºC Life:89301 hrs</td><td>P</td></tr>
<tr><td>21</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">D :
FUSE :4A/250VAC GFE
BRIDGE DIODE :D3SB60
LINE FILTER :TF-485 ET-28H
TRANSFOMER :TF-454-1 EER-28L
POWER SWITCHER :2SK2850 TO-3P
OUTPUT DIODE :S20LC20
OUTPUT CAPACITOR :RUBYCON 2200uF/16V 105ºC, LXJ
INPUT CAPACITOR :RUBYCON 330uF/250V,CE,85ºC
P.C.B :LPS-100-R1 ,CEM-3 , 2 OZ SS</td></tr>
<tr><th>DATE</th><th>SAMPLE</th><th>TEST RESULT</th><th>TEST</th><th>APPROVAL</th></tr>
<tr><td>19980312</td><td>PRODUCTION SAMPLE</td><td>PASS</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
<tr><td>19981209</td><td>9812A03A (5V,27V)</td><td>PASS</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
<tr><td>19981222</td><td>9812B02B (48V)</td><td>PASS</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
<tr><td>19990111</td><td>9901A17A (3.3V)</td><td>PASS</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
<tr><td>20000930</td><td>A0009C03 (3.3V)</td><td>PASS</td><td>VINCENT</td><td>Max Lin</td></tr>
<tr><td>20001021</td><td>A0010B05 (12V,13.5V,27V)</td><td>PASS</td><td>VINCENT</td><td>Max Lin</td></tr>
</table>