JAMECO ELECTRONICS **Jameco SKU Number: 1537483**

MEAN WELL

50W Single Output DC-DC Converter

SD-50 series

■ Features :

- 2:1 wide input range
- Protections: Short circuit / Overload / Over voltage
- 1500VDC I/O isolation
- Built-in EMI filter, low ripple noise
- 100% full load burn-in test
- Fixed switching frequency at 83KHz
- Low cost
- High reliability
- 2 years warranty

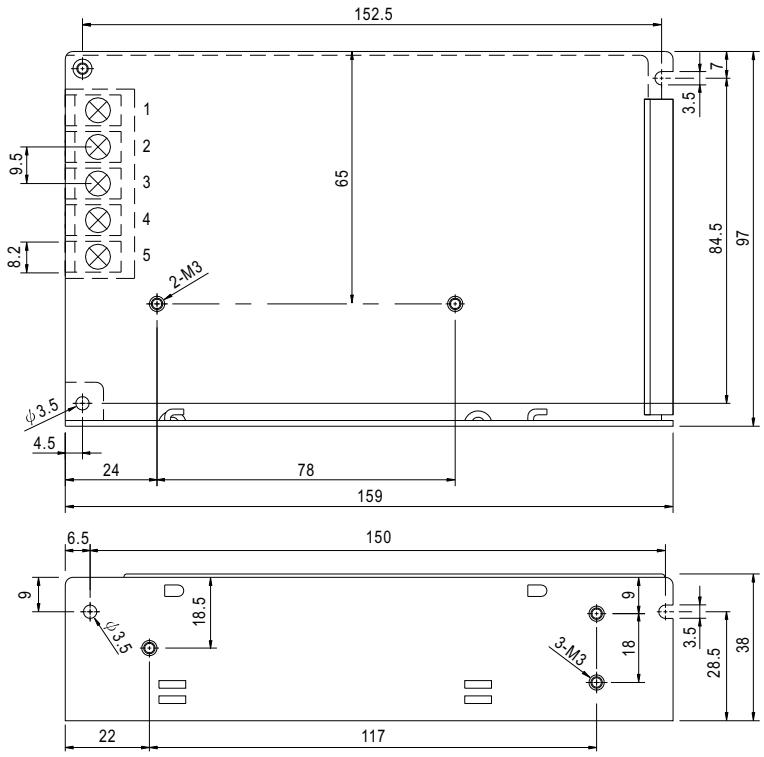
CE

SPECIFICATION

MODEL		SD-50A-5	SD-50B-5	SD-50C-5	SD-50A-12	SD-50B-12	SD-50C-12	SD-50A-24	SD-50B-24	SD-50C-24
OUTPUT	DC VOLTAGE	5V			12V			24V		
	RATED CURRENT	10A			4.2A			2.1A		
	CURRENT RANGE	0 ~ 10A			0 ~ 4.2A			0 ~ 2.1A		
	RATED POWER	50W			50.4W			50.4W		
	RIPPLE & NOISE (max.) Note.2	100mVp-p			120mVp-p			150mVp-p		
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5VDC			11 ~ 16VDC			23 ~ 30VDC		
	VOLTAGE TOLERANCE Note.3	±2.0%			±1.0%			±1.0%		
	LINE REGULATION	±0.5%			±0.3%			±0.2%		
	LOAD REGULATION	±0.5%			±0.3%			±0.2%		
	SETUP, RISE, HOLD UP TIME	2.5s, 50ms, ------ at full load								
INPUT	VOLTAGE RANGE	A:9.2 ~ 18VDC		B:19 ~ 36VDC			C:36 ~ 72VDC			
	EFFICIENCY (Typ.)	70%	73%	76%	72%	75%	78%	74%	80%	83%
	DC CURRENT	7A/12V			3A/24V			1.5A/48V		
PROTECTION	OVERLOAD	105 ~ 150% rated output power								
		Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	5.75 ~ 6.75V/10% load			16.8 ~ 20V/10% load			31.5 ~ 37.5V/10% load		
		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	±0.03%/℃ (0 ~ 50℃)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	Design refer to LVD								
	WITHSTAND VOLTAGE	I/P-O/P:1.5KVAC 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 / 25℃/ 70% RH								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,6,8; ENV50204, EN55024, heavy industry level, criteria A								
OTHERS	MTBF	365.6K hrs min.(SD-50A) 357.5K hrs min.(SD-50B) 368.5K Hrs min.(SD-50C) MIL-HDBK-217F (25℃)								
	DIMENSION	159*97*38mm (L*W*H)								
	PACKING	0.48Kg; 24pcs/12.7Kg/0.75CUFT								
NOTE	1. All parameters NOT specially mentioned are measured at 12,24,48VDC 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.									

■ Mechanical Specification

Case No. 901 Unit:mm

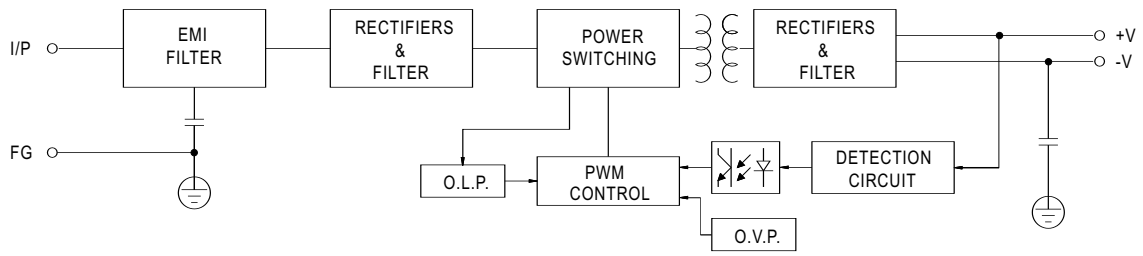


Terminal Pin No. Assignment

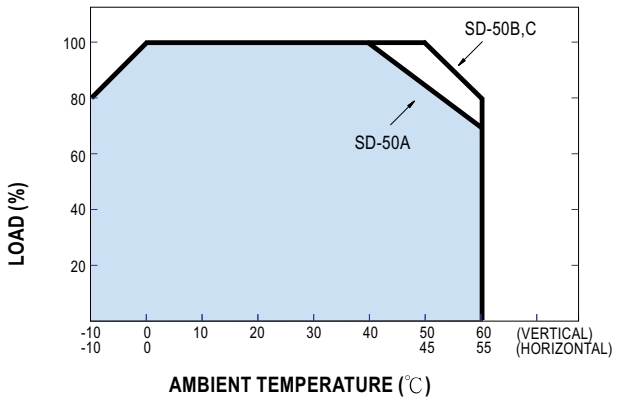
Pin No.	Assignment	Pin No.	Assignment
1	DC INPUT V+	4	DC OUTPUT -V
2	DC INPUT V-	5	DC OUTPUT +V
3	FG ⏚		

■ Block Diagram

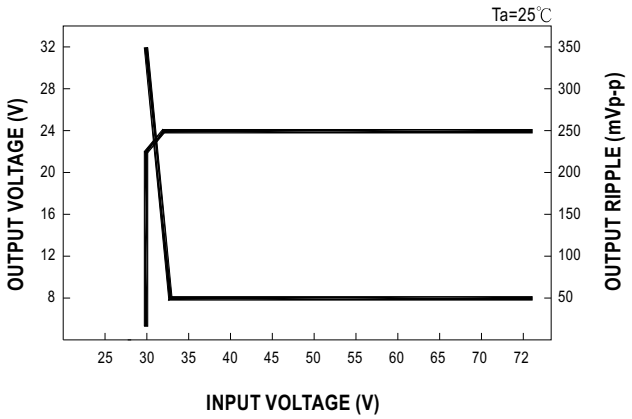
fosc : 83KHz



■ Derating Curve



■ Static Characteristics(SD-50C-24V)



Quality Engineering Test Report

SERIES: SD-50A 25W DC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A. SD-50A-5 5V / 10A
B. SD-50A-12 12V / 4.2A
C. SD-50A-24 24V / 2.1A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	DC INPUT VOLTAGE RANGE	I/P: TESTING SPEC: 9.2~18VDC O/P:FULL LOAD	A:9.2~18VDC	P
2	LINE REGULATION	I/P: 9.2~18VDC SPEC: A:±0.5% O/P: FULL LOAD B:±0.3% C:±0.2%	A:-0.12%~+0% B: -0%~+0% C: -0%~+0%	P
3	LOAD REGULATION	I/P: 12VDC SPEC: A:±0.5% O/P: MIN. TO FULL LOAD B:±0.3% C:±0.2%	A:-0.24%~+0% B: -0%~+0% C: -0.03%~+0%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P: 9.2~18VDC SPEC: A:±2% O/P: MIN. TO FULL LOAD B:±1% C:±1%	A:-0.24%~+0% B: -0 %~+0% C:-0.03%~+0%	P
5	RIPPLE&NOISE	I/P: 12VDC SPEC: A:100mVp-p O/P: FULL LOAD B:120mVp-p C:150mVp-p	A:8mV B:4mV C:9mV	P
6	DC INPUT CURRENT	I/P: 12VDC SPEC: 7A O/P:FULL LOAD	A:5.88A	P
7	MAX. INRUSH CURRENT	I/P: 12VDC SPEC: NONE O/P:FULL LOAD	A:23.3A	P
8	O/P VOLTAGE ADJ. RANGE	I/P: 12VDC SPEC: A:4.5~5.5V O/P: MIN. LOAD B:11~16V C:23~30V	A:4.43~6.21V B:9.69~16.36V C:19.76~33.41V	P
9	SET UP TIME	I/P: 12VDC SPEC: 2.5S O/P:FULL LOAD	A:430.4mS	P
10	EFFICIENCY	I/P: 12VDC SPEC: A:70% O/P: FULL LOAD B:72% C:74%	A:70% B:74% C:77%	P
11	OVER LOAD PROTECTION	I/P: 12VDC SPEC: 105%~150% O/P: TESTING	A:120% B:126% C:105.2%	P
12	OVER VOLTAGE PROTECTION	I/P: 12VDC SPEC: A:5.75V~6.75V O/P: TESTING B:16.8V~20V C:31.5V~37.5V	A:6.16V B:18.52V C:35.64V	P
13	INSULATION RESISTANCE	SPEC: I/P-O/P 500VDC/100M Ohms MIN. I/P-FG 500VDC/100M Ohms MIN. O/P-FG 500VDC/100M Ohms MIN.	A: I/P-O/P:>100M Ohms I/P-FG :>100M Ohms O/P-FG :>100M Ohms	P
14	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 1500VAC/ 1 min (10mA CUT-OFF) I/P- FG: 1500VAC/ 1 min (10mA CUT-OFF) O/P- FG: 500VAC/ 1 min (10mA CUT-OFF)	A: I/P-O/P:<1.9mA I/P-FG:<2.1mA O/P-FG:<3.92mA	P
15	BURN-IN TEST	I/P : 12VDC O/P:FULL LOAD TA : 25 ºC BURN-IN DURATION : 4 hrs	NON BREAK	P
16	ENVIRONMENT TEST (SAMPLE A:)	HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:12VDC O/P:FULL LOAD AMBIENT TEMPERATURE:37.40ºC	AFTER 3 hrs 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>17</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td>A: I/P : 12VDC AFTER 4 hrs BURN-IN
O/P : FULL LOAD TA : 24.9ºC
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>87.0ºC</td><td>62.1ºC</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER</td><td>82.6ºC</td><td>57.7ºC</td></tr>
<tr><td>D11</td><td>O/P DIODE</td><td>74.3ºC</td><td>49.4ºC</td></tr>
<tr><td>C34</td><td>O/P FILTER CAPACITOR</td><td>61.7ºC</td><td>36.8ºC</td></tr>
<tr><td>L1</td><td>O/P CHOCK</td><td>70.1ºC</td><td>45.2ºC</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>59.8ºC</td><td>34.9ºC</td></tr>
</table></td><td></td><td>P</td></tr>
<tr><td>18</td><td>LIFE CYCLE</td><td>A: SUPPOSE C34 IS THE MOST CRITICAL COMPONENT
I/P : 12VDC O/P : FULL LOAD Ta : 25ºC Tc34 : 61.8ºC Life: 39946 hrs
I/P : 12VDC O/P : FULL LOAD Ta : 37.42ºC Tc34 : 78.5ºC Life: 12553 hrs</td><td></td><td>P</td></tr>
<tr><td>19</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td>A: FUSE : F 15A/250V G PH UL
INPUT DIODE : 1N5401
LINE FILTER : TF-096A EE-25
TRANSFOMER : MT TF-321-R1 EI-28
POWER SWITCHER : 2SK2049 TO-220
OUTPUT DIODE : CTB-34M TO-3P
OUTPUT CAPACITOR : 2200uF/16V(v) 105℃ HL
INPUT CAPACITOR : 220uF/100V(v) 105ºC HL
P.C.B : SD-50 FR-4 2 OZ DS</td><td></td><td></td></tr>
<tr><th>DATE</th><th>SAMPLE</th><th>TEST RESULT</th><th>TEST</th><th>APPROVAL</th></tr>
<tr><td>980422</td><td>SD-50A</td><td>PASS</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
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