



25W Single Output DC-DC Converter

SD-25 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

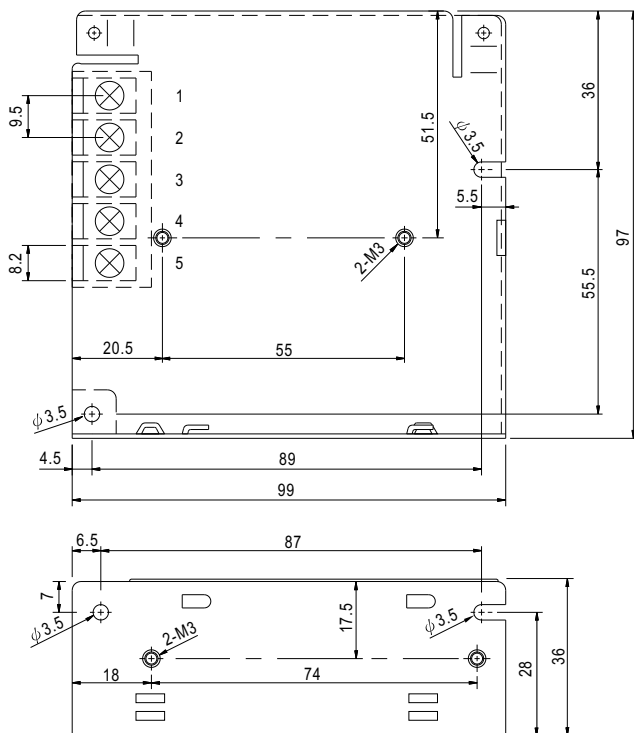


SPECIFICATION

MODEL		SD-25A-5	SD-25B-5	SD-25C-5	SD-25A-12	SD-25B-12	SD-25C-12	SD-25A-24	SD-25B-24	SD-25C-24
OUTPUT	DC VOLTAGE	5V			12V			24V		
	RATED CURRENT	5A			2.1A			1.1A		
	CURRENT RANGE	0 ~ 5A			0 ~ 2.1A			0 ~ 1.1A		
	RATED POWER	25W			25.2W			26.4W		
	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.)	71%	72%	74%	72%	75%	78%	75%	78%	81%
	DC CURRENT	3.2A/12V			1.6A/24V			0.8A/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	374.3K hrs min.(SD-25A)		365.9K hrs min.(SD-25B)		377.5K Hrs min.(SD-25C)		MIL-HDBK-217F (25℃)		
	DIMENSION	99*97*36mm (L*W*H)								
	PACKING	0.38Kg; 45pcs/17.8Kg/0.9CUFT								
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

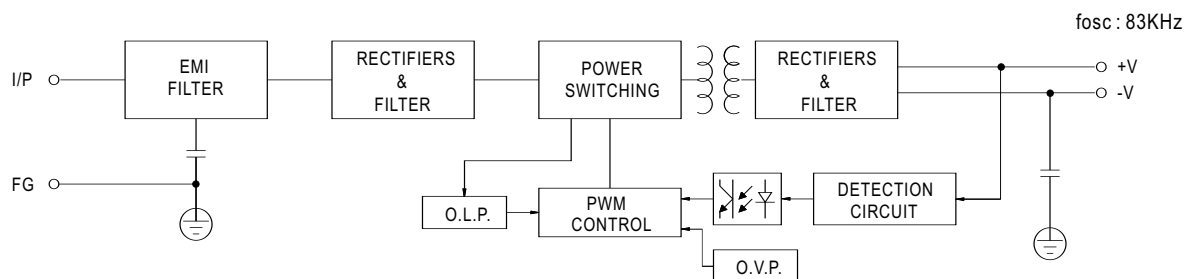
Case No. 905 Unit:mm



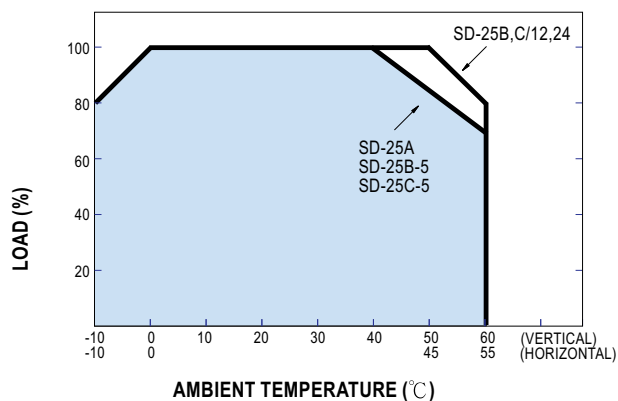
Terminal Pin No. Assignment

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

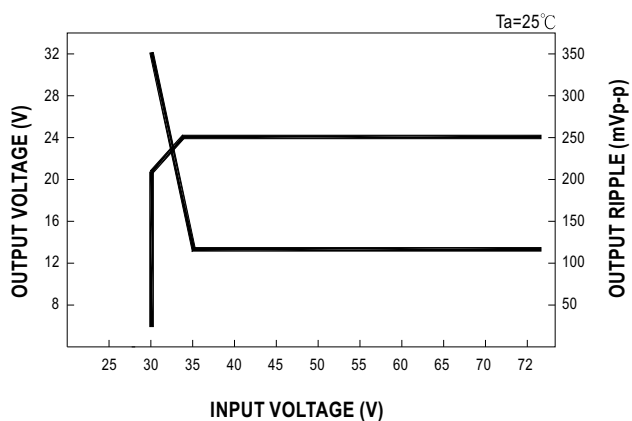
Block Diagram



Derating Curve



Static Characteristics(SD-25C-24V)



Quality Engineering Test Report

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

SAMPLE: **A. SD-25B-5 5V / 5A**
 B. SD-25B-12 12V / 2.1A
 C. SD-25B-24 24V / 1.1A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	DC INPUT VOLTAGE RANGE	I/P : TESTING SPEC : 19~36VDC O/P : FULL LOAD	C:14.3~36VDC	P
2	LINE REGULATION	I/P : 19~36VDC SPEC : A:±0.5% O/P : FULL LOAD B:±0.3% C:±0.2%	A:-0%~+0% B:-0%~+0% C:-0%~+0%	P
3	LOAD REGULATION	I/P : 24VDC SPEC : A:±0.5% O/P : MIN. TO FULL LOAD B:±0.3% C:±0.2%	A:-0%~+0.12% B:-0%~+0% C:-0%~+0%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P : 19~36VDC SPEC : A:±2% O/P : MIN. TO FULL LOAD B:±1% C:±1%	A:-0%~+0.12% B:-0%~+0.05% C:-0%~+0.03%	P
5	RIPPLE&NOISE	I/P : 24VDC SPEC : A:100mVp-p O/P : FULL LOAD B:120mVp-p C:150mVp-p	A:28mV B:14mV C:15mV	P
6	DC INPUT CURRENT	I/P : 24VDC SPEC : 1.6A O/P : FULL LOAD	C:1.33A	P
7	MAX. INRUSH CURRENT	I/P : 24VDC SPEC : NONE O/P : FULL LOAD	C:39.4A	P
8	O/P VOLTAGE ADJ. RANGE	I/P : 24VDC SPEC : A:4.5~5.5V O/P : MIN. LOAD B:11~16V C:23~30V	A:4.42~6.28V B:9.40~16.26V C:19.93~33.56V	P
9	SET UP TIME	I/P : 24VDC SPEC : 2.5S O/P : FULL LOAD	C:2001.1mS	P
10	EFFICIENCY	I/P : 24VDC SPEC : A:72% O/P : FULL LOAD B:75% C:78%	A:78.6% B:80.2% C:82.3%	P
11	OVER LOAD PROTECTION	I/P : 24VDC SPEC : 105%~150% O/P : TESTING	A:125% B:116.9% C:118.6%	P
12	OVER VOLTAGE PROTECTION	I/P : 24VDC SPEC : A:5.75V~6.75V O/P : 10% LOAD B:16.8V~20V C:31.5V~37.5V	A:6.31V B:18.07V C:32.85V	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.	C: 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)	C: I/P-O/P : <2.39mA I/P-FG : <4.9mA O/P-FG : <1.55mA	P
15	BURN-IN TEST	I/P : 24VDC O/P:FULL LOAD TA : 25.5 °C BURN-IN DURATION : 2 hrs	NON BREAK	P
16	ENVIRONMENT TEST (SAMPLE C:)	1.LOW TEMPERATURE TEST I/P : 18.5 VDC O/P : FULL LOAD AMBIENT TEMPERATURE : -10°C	AFTER 1.5 hrs POWER ON OK	P
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P : 36.5VDC O/P : FULL LOAD AMBIENT TEMPERATURE : 45.4°C	AFTER 2 hrs NON BREAK	

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																			
17	TEMPERATURE RISE TEST T rise OF PARTS	C: I/P : 24VDC AFTER 2 hr BURN-IN O/P : FULL LOAD TA : 25.5°C <table><tr><td></td><td>POSITION</td><td>P/N</td><td>TEMP</td><td>T rise</td></tr><tr><td></td><td>Q1</td><td>MAIN TRANSISTER</td><td>50.1°C</td><td>24.6°C</td></tr><tr><td></td><td>T1</td><td>MAIN TRANSFORMER</td><td>58.3°C</td><td>32.8°C</td></tr><tr><td></td><td>D11</td><td>O/P DIODE</td><td>58.6°C</td><td>33.1°C</td></tr><tr><td></td><td>C33</td><td>O/P FILTER CAPACITOR</td><td>40.3°C</td><td>14.8°C</td></tr><tr><td></td><td>L1</td><td>O/P CHOCK</td><td>54.7°C</td><td>29.2°C</td></tr><tr><td></td><td>C5</td><td>I/P FILTER CAPACITOR</td><td>45.7°C</td><td>20.2°C</td></tr></table>		POSITION	P/N	TEMP	T rise		Q1	MAIN TRANSISTER	50.1°C	24.6°C		T1	MAIN TRANSFORMER	58.3°C	32.8°C		D11	O/P DIODE	58.6°C	33.1°C		C33	O/P FILTER CAPACITOR	40.3°C	14.8°C		L1	O/P CHOCK	54.7°C	29.2°C		C5	I/P FILTER CAPACITOR	45.7°C	20.2°C		P
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18	LIFE CYCLE	C: SUPPOSE C33 IS THE MOST CRITICAL COMPONENT I/P : 24VDC O/P : FULL LOAD Ta : 25°C Tc33 : 39.8°C Life: 218989 hrs I/P : 24VDC O/P : FULL LOAD Ta : 45.4°C Tc33 : 51.2°C Life: 148541 hrs		P																																			
19	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	C: FUSE : 5A/250V G PH INPUT DIODE : 1N5401 LINE FILTER : LS TF-346 TRANSFOMER : MT TF-338-R2 EI-25 POWER SWITCHER : K2391 TO-220 OUTPUT DIODE : BYQ28X-200 OUTPUT CAPACITOR : 330uF/50V(v) 105°C HL INPUT CAPACITOR : N.C.C 330uF/100V SL 2Kh P.C.B : FR-4 2 OZ DS SD-25-R1																																					
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																																			
980420	SD-25B	PASS	H.C.LIOU	Max Lin																																			