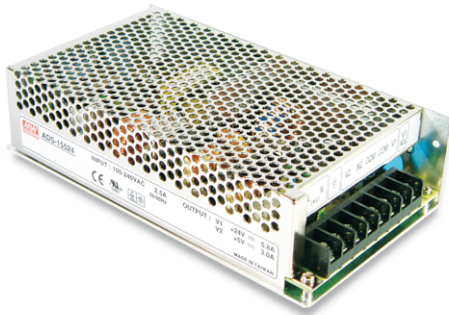




# 155W Single Output with Battery Charger(UPS Function)

# AD-155 series



### ■ Features :

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage
- Battery low and battery polarity protection
- Cooling by free air convection
- 100% full load burn-in test
- Fixed switching frequency at PFC 67KHz, PWM 134KHz
- 2 years warranty

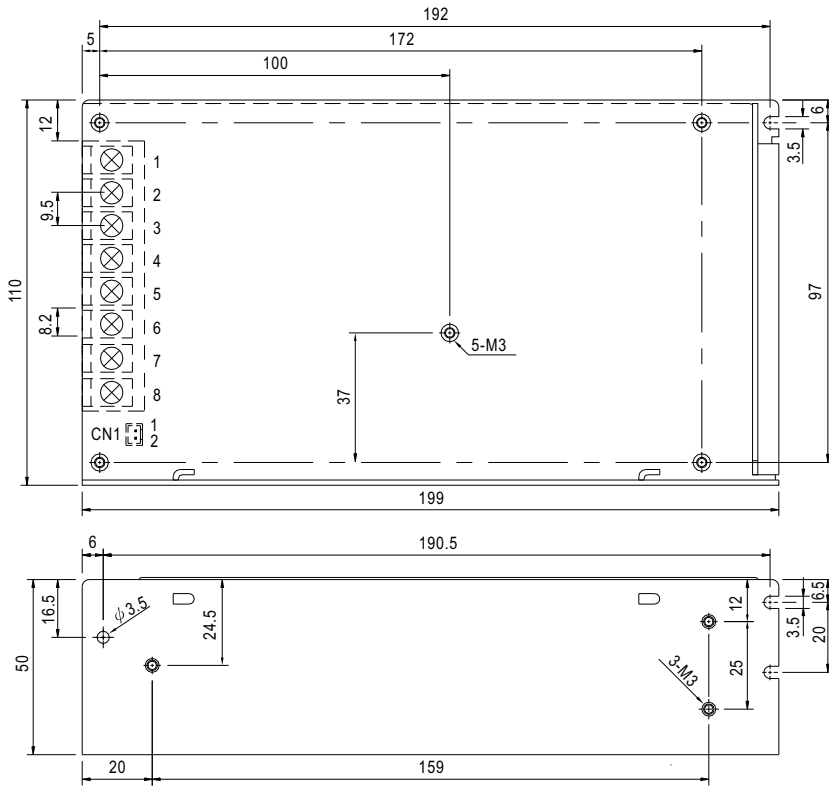


### SPECIFICATION

MODEL	AD-155A		AD-155B		AD-155C		
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH1	CH2	CH1	CH2
	DC VOLTAGE	13.8V	13.3V	27.6V	27.1V	54V	53.5V
	RATED CURRENT	10.5A	0.5A	5A	0.5A	2.7A	0.2A
	CURRENT RANGE	0 ~ 11.5A	0 ~ 0.5A	0 ~ 5.5A	0 ~ 0.5A	0 ~ 2.7A	0 ~ 0.5A
	RATED POWER	151.55W		151.55W		156.5W	
	RIPPLE & NOISE (max.) Note.2	150mVp-p		150mVp-p		240mVp-p	
	VOLTAGE ADJ. RANGE	CH1: 12 ~ 14.5V		CH1: 24 ~ 29V		CH1: 48 ~ 58V	
	VOLTAGE TOLERANCE Note.3	±2.0%		±1.0%		±1.0%	
	LINE REGULATION	±0.5%		±0.5%		±0.5%	
	LOAD REGULATION	±0.5%		±0.5%		±0.5%	
	SETUP, RISE TIME	1000ms, 90ms/230VAC		2000ms, 90ms/115VAC at full load			
HOLD UP TIME (Typ.)	24ms/230VAC		20ms/115VAC at full load				
INPUT	VOLTAGE RANGE	88 ~ 264VAC		124 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF>0.92 at full load					
	EFFICIENCY (Typ.)	80%		84%		84%	
	AC CURRENT (Typ.)	2.5A/115VAC		1.5A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 20A/115VAC		40A/230VAC			
	LEAKAGE CURRENT	<1mA / 240VAC					
PROTECTION	OVERLOAD	CH1:105 ~ 135% CH2:0.51 ~ 0.9A rated output power		Protection type : AC Charging Mode : Constant current limiting, recovers automatically after fault condition is removed UPS Mode : Protected by internal fuse			
	OVER VOLTAGE	CH1:15.87 ~ 18.63V		CH1:31.74 ~ 37.26V		CH1:62.1 ~ 72.9V	
	BATTERY LOW	10V±0.8V		19.5V(+1.5V,-1V)		39V±2V	
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to "Derating Curve")					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)					
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 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 / 25°C / 70% RH					
	EMC EMISSION	Compliance to EN55022 (CISPR22) Class B, EN61000-3-2,-3					
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, light industry level, criteria A					
	MTBF	183.3K hrs min. MIL-HDBK-217F (25°C)					
	DIMENSION	199*110*50mm (L*W*H)					
PACKING	0.88Kg; 16pcs/15Kg/0.95CUFT						
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>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. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p>						

**Mechanical Specification**

Case No. 906B Unit:mm



**Terminal Pin No. Assignment**

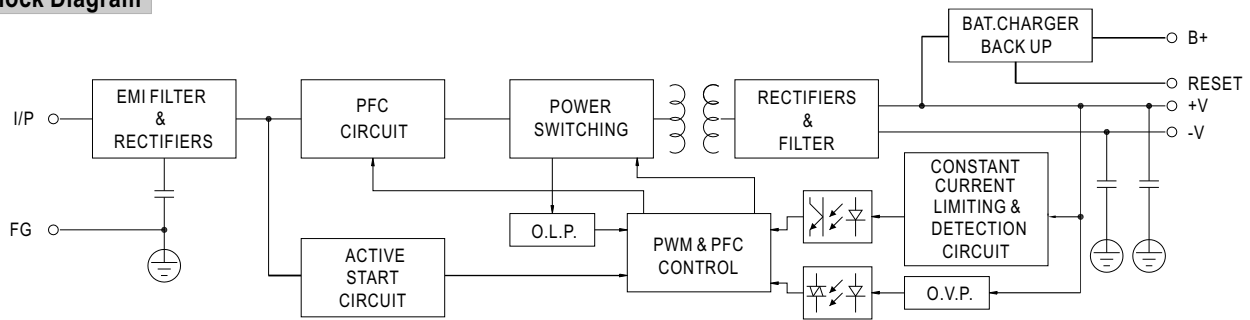
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	BAT. +
2	AC/N	6	BAT. -/COM
3	FG	7	DC OUTPUT COM
4	NC	8	DC OUTPUT +V

**CN1 Pin No. Assignment :JST B2B-XH or equivalent**

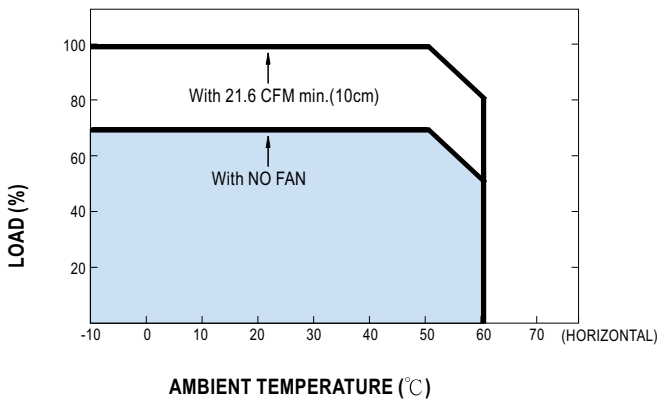
Pin No.	Assignment	Mating Housing	Terminal
1	RESET SW	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2			

PFC fosc : 67KHz  
PWM fosc : 134KHz

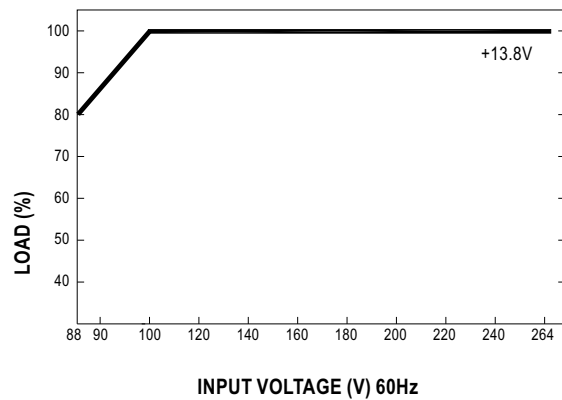
**Block Diagram**



**Derating Curve**



**Output Derating VS Input Voltage (A)**



# Quality Engineering Test Report

**SERIES: AD-155 155W AC-DC SINGLE OUTPUT WITH CHARGER**

**SAMPLE:   A.AD-155A           +V1: 13.8V / 10.5A           B.AD-155B           +V1:27.6V /5A**  
**+V2:13.3V /0.5A**  
**C.AD-155C           +V1:54V /2.7A**  
**+V2:53.5V/0.2A**

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING           SPEC:88~264VAC O/P:FULL LOAD	B:66.58VAC~264VAC	P
2	LINE REGULATION	I/P:88V~264VAC           SPEC: O/P:FULL LOAD           A :+V1 :±0.5% +V2 :-----% B :+V1 :±0.5% +V2 :-----% C :+V1 :±0.5% +V2 :-----%	A: +V1: 0%~0% +V2: -----%~-----% B: +V1: 0%~0% +V2: -----%~-----% C: +V1: 0.011%~0.011% +V2: -----%~-----%	P
3	LOAD REGULATION	I/P:230VAC           SPEC: O/P:MIN. TO FULL LOAD   A :+V1 : ±0.5% +V2 : -----% B :+V1 : ±0.5% +V2 : -----% C :+V1 : ±0.5% +V2 : -----%	A: +V1: -0.043%~+0.043% +V2: -----%~-----% B: +V1: -0.021%~+0.00% +V2: -----%~-----% C: +V1: -0.022%~0.092% +V2: -----%~-----%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:88~264VAC           SPEC: O/P:MIN. TO FULL LOAD   A :+V1 : ±1% +V2 : ----% B :+V1 : ±1% +V2 : ----% C :+V1 : ±1% +V2 : ----%	A: +V1: -0.086%~+0.043% +V2: -----%~-----% B: +V1: -0.00%~0.043% +V2: -----%~-----% C: +V1: -0.126%~0.024% +V2: -----%~-----%	P
5	RIPPLE&NOISE	I/P:230VAC           SPEC: O/P:FULL LOAD           A :+V1 :150mV +V2 :----mV B :+V1 :150mV +V2 :----mV C :+V1 :240mV +V2 :----mV	A: +V1: 4mV +V2: ---mV B: +V1: 14mV +V2: ---mV C: +V1: 5mV +V2: ---mV	P
6	AC INPUT CURRENT	I/P:230VAC           SPEC:1.5A O/P:FULL LOAD	B:0.808A	P
7	MAX. INRUSH CURREN	I/P:230VAC           SPEC:40A O/P: FULL LOAD	B:17.406A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC           SPEC: O/P:MIN. LOAD           A: V1:12V~14.5V B: V1:24V~29V C: V1:48V~58V	A: 11.566V~16.509V B: 23.18V~30.47V C: 44.6V~60.3V	P
9	SET UP TIME	I/P:230VAC           SPEC:900mS O/P:FULL LOAD	B: 666.45mS	P
10	HOLD UP TIME	I/P:230VAC           SPEC:20mS O/P:FULL LOAD	B: 37.32mS	P
11	EFFICIENCY	I/P:230VAC           SPEC: A:81% O/P:FULL LOAD           B:84% C:84%	A:81.1% B:84.86% C:84.66%	P
12	OVER LOAD PROTECTION	I/P:230VAC           SPEC:105%~135%(CH1) O/P:TESTING           0.51A~0.9A(CH2)	A:118%(CH1)   0.8A (CH2) B:143%       0.7 A C:125.9%   0.7A	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC           SPEC: L-FG--<1mA N-FG--<1mA	A: L-FG:0.39mA N-FG:0.39mA	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.	B: O/P-FG >100M Ohms I/P-O/P >100M Ohms I/P-FG >100M Ohms	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																			
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 min. (10mA CUT-OFF) I/P - FG: 1500VAC/ 1 min. (10mA CUT-OFF) O/P - FG: 500VAC/ 1 min. (10mA CUT-OFF)	B: I/P-O/P :4.6mA I/P-FG 3.2mA O/P-FG :1.2mA	P																																			
17	BATTERY LOW PROTECTION	I/P:230VAC SPEC: O/P FULL LOAD A:9.5~10.5V B:19~20V C:38.5~39.5V	A: 10.5V B: 19.5V C: 39V	P																																			
18	BURN-IN TEST	I/P: 230VAC O/P100% LOAD with 18.6CFM FAN TA:24.6°C BURN-IN DURATION :1hr	A: NON BREAK	P																																			
19	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230 VAC O/P:100% LOAD AMBIENT TEMPERATURE:-9.6°C	A :AFTER 15 hrs POWER ON OK	P																																			
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:51.1°C with 18.6CFM FAN	A :AFTER 3 hrs NON BREAK																																				
		3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST I/P:264VAC O/P:FULL LOAD AMBIENT TEMPERATURE : 25°C AMBIENT HUMIDITY : 95%	A : AFTER15 hrs POWER ON/OFFNON BREAK																																				
20	TEMPERATURE RISE TEST T rise OF PARTS	A: I/P :230VAC O/P :100%LOAD AFTER 1hr BURN-IN TA:24.6°C with 18.6CFM FAN	<table border="1"> <thead> <tr> <th></th> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>T rise</th> </tr> </thead> <tbody> <tr> <td></td> <td>BD1</td> <td>BRIDGE DIODE</td> <td>57.3°C</td> <td>32.7°C</td> </tr> <tr> <td></td> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>41.5°C</td> <td>16.9°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER</td> <td>58.2°C</td> <td>33.6°C</td> </tr> <tr> <td></td> <td>D40</td> <td>O/P DIODE</td> <td>85.5°C</td> <td>60.9°C</td> </tr> <tr> <td></td> <td>C44</td> <td>O/P FILTER CAPACITOR</td> <td>66.9°C</td> <td>42.3°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>34.2°C</td> <td>9.6°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	T rise		BD1	BRIDGE DIODE	57.3°C	32.7°C		Q1	MAIN TRANSISTOR	41.5°C	16.9°C		T1	MAIN TRANSFORMER	58.2°C	33.6°C		D40	O/P DIODE	85.5°C	60.9°C		C44	O/P FILTER CAPACITOR	66.9°C	42.3°C		C5	I/P FILTER CAPACITOR	34.2°C	9.6°C	P
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21	LIFE CYCLE	A: SUPPOSE C44 IS THE MOST CRITICAL COMPONENT with 18.6CFM FAN I/P:230VAC O/P:100% LOAD Ta:24.6°C Tc:66.9°C Life:100008.5hrs I/P:230VAC O/P:100% LOAD Ta:51.1°C Tc:91.9°C Life:19649.8hrs		P																																			
22	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	A: FUSE : 3A/250V CHARGER 15A/250V BRIDGE DIODE : KBJ608G LINE FILTER : LF201 TRANSFOMER : TF-695 POWER SWITCHER : 2SK2039 OUTPUT DIODE : D9202 OUTPUT CAPACITOR : RUBYCON 1000uF/25V YXG 105°C INPUT CAPACITOR : HITACHI 150uF/400V HP3 85°C P.C.B : ADD-155																																					

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
20001229	RD SAMPLE	PASS	VINCENT	Max Lin
20000130	PRDUCTION SAMPLE A101B30 AD155A AD155B AD155C	PASS	SAM	Max Lin
20010409	PRDUCTION SAMPLE A104C25A AD155A AD155B AD155C	PASS	VINCENT	Max Lin
20010630	PRDUCTION SAMPLE A106B04 AD155A	PASS	VINCENT	Max Lin
20010727	PRDUCTION SAMPLE A107C27 AD155A	PASS	VINCENT	Max Lin
20010901	PRDUCTION SAMPLE A108C01 AD155A	PASS	VINCENT	Max Lin
20011102	PRDUCTION SAMPLE A110C04A AD155B	PASS	VINCENT	Max Lin