



Test Report: APC-8-700

8W Single Output Switching Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

Environment Test

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

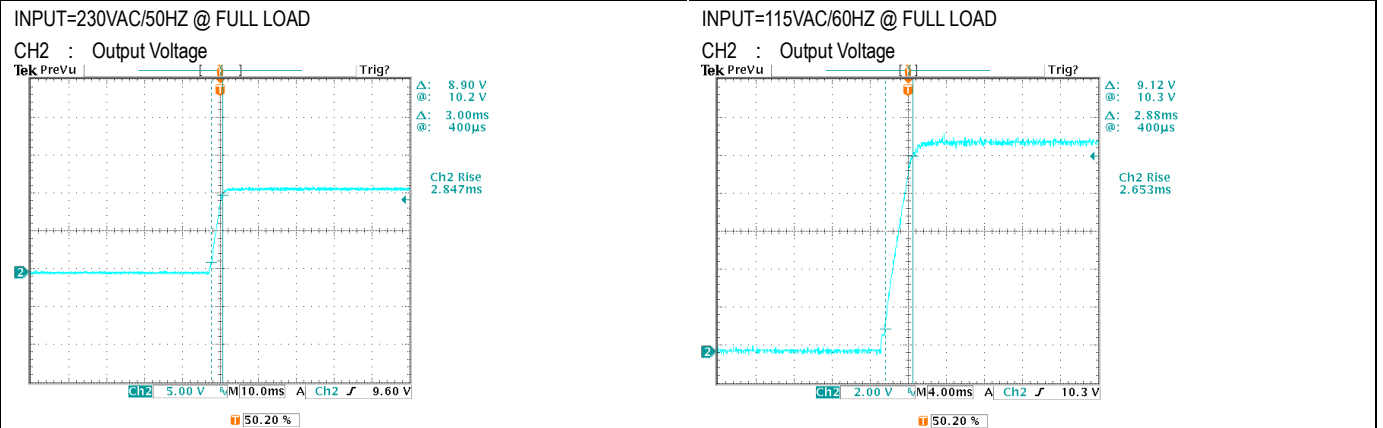
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT ACCURACY	$< \pm 8\%$	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	2.98%
2	OPERATING VOLTAGE RANGE	5V~ 11V	I/P: 230VAC O/P: LED MODE Ta:25°C	4.9V~13.2V
3	NO LOAD OUTPUT VOLTAGE (Max)	17V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	15.82V
4	OVER/UNDERSHOOT TEST	$< \pm 5\%$	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	$< 5\%$
5	RIPPLE & NOISE(Max)	250mVp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	132mVp-p
		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>high frequency :</p> </div> <div style="text-align: center;"> <p>low frequency :</p> </div> </div>		
6	SET UP TIME(Max)	230VAC/ 500ms 115VAC/ 3000ms	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 54.4 ms 115VAC/ 122 ms
		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH2 : Output Voltage CH1 : AC Input Voltage</p> </div> <div style="text-align: center;"> <p>INPUT=115VAC/60HZ @ FULL LOAD</p> <p>CH2 : Output Voltage CH1 : AC Input Voltage</p> </div> </div>		



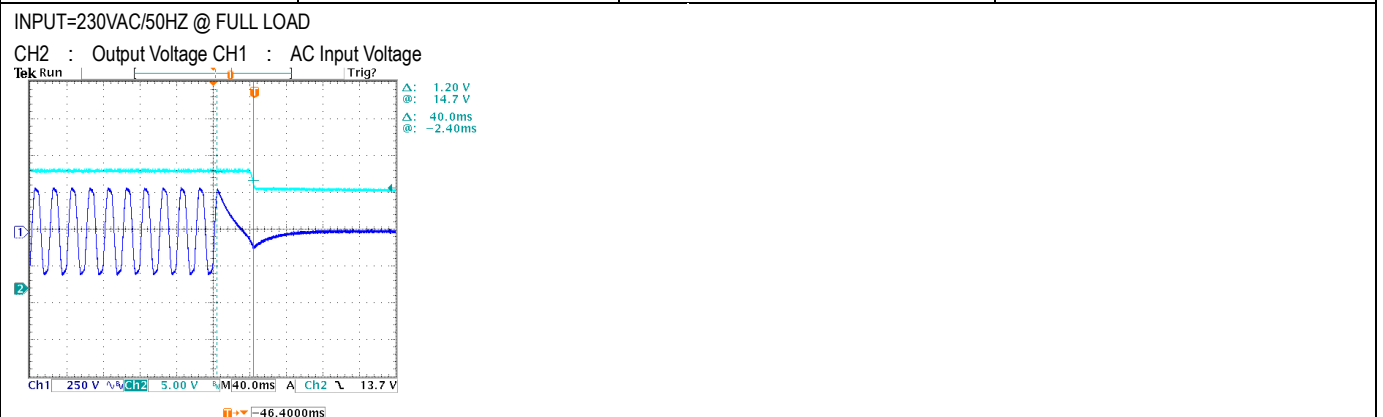
8W Single Output Switching Power Supply

APC-8 series

7	RISE TIME (Max)	230VAC/ 180ms 115VAC/ 150ms	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 2.847 ms 115VAC/ 2.653 ms
---	-----------------	--------------------------------	--	--------------------------------------



8	HOLD UP TIME(Typ)	230VAC/ 20ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 40.0 ms
---	-------------------	--------------	--	-----------------





INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	87V~267V
			I/P: (1)LOW-LINE-3V=87 V HIGH-LINE+15%=300 V O/P: FULL/MIN LOAD ON: 30 Sec OFF: 30 Sec 10MIN (2)230Vac ON: 0.5 Sec OFF: 0.5 Sec 20MIN (3)230Vac ON: 3Sec OFF: 3Sec 12HOURS (POWER ON/OFF NO DAMAGE)	TEST: OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 90 VAC ~264 VAC O/P: FULL~MIN LOAD Ta: 25°C	TEST: OK
3	INPUT CURRENT (Typ)	230V/ 0.15A 115V/ 0.3A	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I =0.097A/ 230VAC I =0.146A/ 115VAC
4	LEAKAGE CURRENT	< 0.25mA / 240 VAC	I/P: 240 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.0028 mA N-FG: 0.0028 mA
5	INRUSH CURRENT(Typ)	230V/ 70A Twidth =120 us measured at 50% Ipeak COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 32.5A Twidth =88.8us
INPUT=230VAC/50HZ @ FULL LOAD CH2 : Input current CH1 : AC Input Voltage 				
6	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.086W
7	EFFICIENCY(Typ)	80%	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	80.15%



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup mode, recovers automatically after fault condition is removed

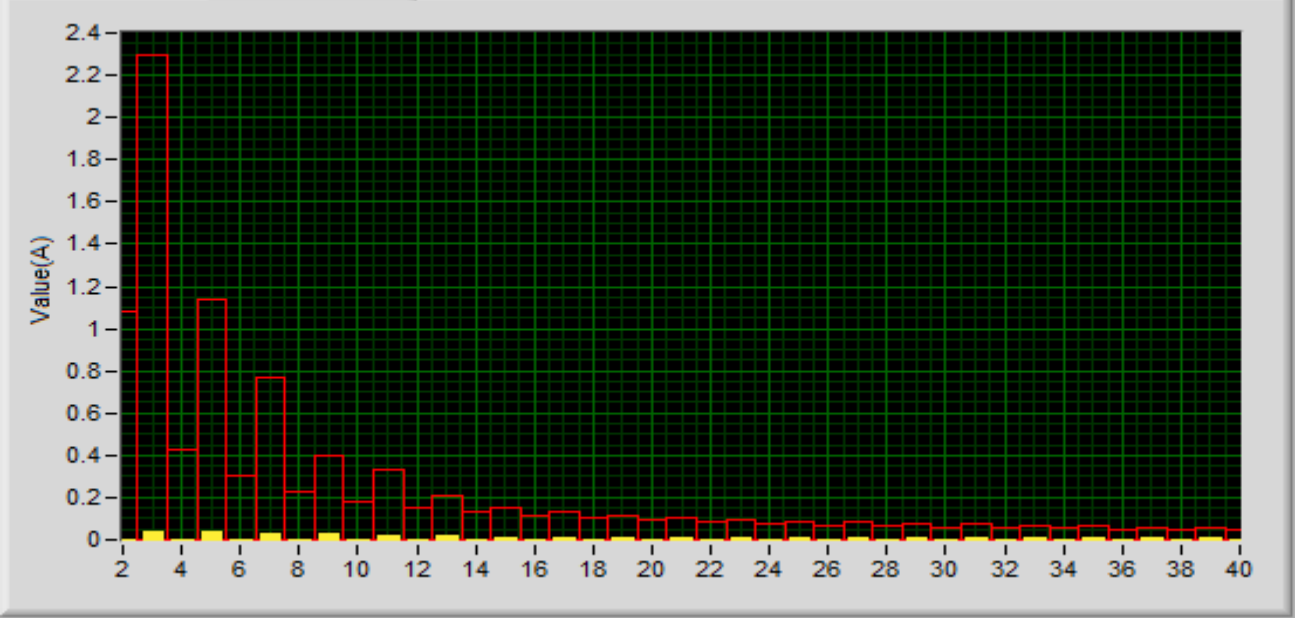
COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	U1 Rated 650V	I/P: High-Line +3V =267V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 590V (2) 514V (3) 502V
2	Diode Peak Voltage	D100 Rated 200V/3A	I/P: High-Line +3V =267V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 126V (2) 106V (3) 98.4V
3	Input Capacitor Voltage	C6 Rated 10uF/400V	I/P: High-Line +3V =267 V O/P: (1) Full Load input on/off (2) Min load input on /Off Ta: 25°C	(1) 398V (2) 358V
4	Control IC Voltage Test	U1 Rated 17V	I/P: High-Line +3V =267 V O/P: (1) Full Load input on/off (2) Min load input on /Off Ta: 25°C	(1) 16.9V (2) 16.8V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC/min	I/P-O/P: 4.2KVAC/min Ta: 25°C	I/P-O/P: 1.299mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P: 500VDC>100MΩ	I/P-O/P: 500VDC Ta: 25°C	I/P-O/P: >9999MΩ NO DAMAGE

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C	PASS
				
2	CONDUCTION	EN55015	I/P: 230 VAC (50HZ) O/P: FULL LOAD Ta: 25°C	PASS Test by certified Lab
3	RADIATION	EN55015	I/P: 230 VAC (50HZ) O/P: FULL LOAD Ta: 25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR: 8KV Contact: 4KV	I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA A
6	SURGE	EN61000-4-5 INDUSTRY L-N : 2KV	I/P: 230VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare			

RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																				
1	TEMPERATURE RISE TEST	MODEL: APC-8-700 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 26.1℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 46.7℃																																						
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 26.1 ℃</th> <th>HIGH AMBIENT Ta= 46.7 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>L1</td><td>45.2℃</td><td>64.2℃</td></tr> <tr><td>2</td><td>C6</td><td>68.6℃</td><td>87.5℃</td></tr> <tr><td>3</td><td>U1</td><td>70.3℃</td><td>90.3℃</td></tr> <tr><td>4</td><td>D1</td><td>83.2℃</td><td>103.8℃</td></tr> <tr><td>5</td><td>T1</td><td>89.4℃</td><td>108.5℃</td></tr> <tr><td>6</td><td>C101</td><td>64.7℃</td><td>82.2℃</td></tr> <tr><td>7</td><td>D100</td><td>77.0℃</td><td>93.7℃</td></tr> <tr><td>8</td><td>TC</td><td>62.4℃</td><td>81.0℃</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 26.1 ℃	HIGH AMBIENT Ta= 46.7 ℃	1	L1	45.2℃	64.2℃	2	C6	68.6℃	87.5℃	3	U1	70.3℃	90.3℃	4	D1	83.2℃	103.8℃	5	T1	89.4℃	108.5℃	6	C101	64.7℃	82.2℃	7	D100	77.0℃	93.7℃	8	TC	62.4℃	81.0℃		
NO	Position	ROOM AMBIENT Ta= 26.1 ℃	HIGH AMBIENT Ta= 46.7 ℃																																					
1	L1	45.2℃	64.2℃																																					
2	C6	68.6℃	87.5℃																																					
3	U1	70.3℃	90.3℃																																					
4	D1	83.2℃	103.8℃																																					
5	T1	89.4℃	108.5℃																																					
6	C101	64.7℃	82.2℃																																					
7	D100	77.0℃	93.7℃																																					
8	TC	62.4℃	81.0℃																																					
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 264VAC/100VAC O/P: FULL LOAD Ta= -35℃	TEST: OK																																				
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45℃ NO DAMAGE	I/P: 272 VAC O/P: FULL LOAD Ta= 45℃ HUMIDITY= 95 % R.H	TEST: OK																																				
4	TEMPERATURE COEFFICIENT	±0.2 %/℃(0~45℃)	I/P: 230 VAC O/P: FULL LOAD	±0.019 %/℃(0~45℃)																																				
5	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature: -45℃~ +90℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle: 5 CYCLE 5. Input/Output condition: STATIC		TEST: OK																																				
6	THERMAL SHOCK TEST	1. Thermal shock Temperature: -35℃~ +50℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle: 10 CYCLE 5. Input/Output condition: 230VAC/Full Load AC ON/OFF TEST turn on 58 sec; turn off 2 sec		TEST: OK																																				
7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency: 10~500Hz (3) Sweep Time: 10min/sweep cycle (4) Acceleration: 2G (5) Test Time: 60min in each axis (X.Y.Z) (6) Ta: 25℃		TEST: OK																																				



8W Single Output Switching Power Supply

APC-8 series

8	CAPACITOR LIFE CYCLE	APC-8-700 : SUPPOSE C101 IS THE MOST CRITICAL COMPONENT (1) I/P: 230VAC O/P: FULL LOAD Ta= 25 °C LIFE TIME (2) I/P: 230VAC O/P: FULL LOAD Ta= 45 °C LIFE TIME (3) I/P: 230VAC O/P: 75% LOAD Ta= 45 °C LIFE TIME (4) I/P: 230VAC O/P: 50% LOAD Ta= 45 °C LIFE TIME	(1) 164170 HRS (2) 50843 HRS (3) 63042 HRS (4) 85577 HRS
9	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE: 2275.8K HRS	
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 20,000 hours @ Tcase 75°C	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY