



# Test Report : GEM60I48

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60W AC-DC Reliable Green Interchangeable Medical Adaptor

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

## ■ SAFETY TEST

Safety Test

## ■ RELIABILITY TEST

Environment Test

Other test

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	150 mVp-p (Max)	I/P:230VAC O/P:FULL LOAD Ta:25°C	60 mVp-p	P
2	VOLTAGE TOLERANCE	-3% ~ +3% (Max)	I/P:90VAC~264VAC O/P:FULL~MIN. LOAD Ta:25°C	+0.33% ~ +0.52%	P
3	LINE REGULATION	-1% ~ +1% (Max)	I/P:90VAC ~264VAC O/P:FULL LOAD Ta:25°C	-0.23% ~ -0.38%	P
4	LOAD REGULATION	-2% ~ +2% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD Ta:25°C	+0.12% ~ +0.31%	P
5	SET UP TIME	1000ms	I/P:230VAC O/P:FULL LOAD Ta:25°C	836.7ms	P
6	RISE TIME	100ms	I/P:230VAC O/P:FULL LOAD Ta:25°C	91.45ms	P
7	HOLD UP TIME	10 ms (Min)	I/P:115VAC O/P:FULL LOAD Ta:25°C	42.75ms	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	VOLTAGE RANGE	80VAC ~ 264VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	58V ~ 264V	P
2	FREQUENCY RANGE	50HZ - 60HZ (Typ) NO DAMAGE OSC	I/P: 100VAC ~ 240VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	88%	I/P:230VAC O/P:FULL LOAD Ta:25°C	91.24%	P
4	AVERAGE EFFICIENCY	88.0% ( DoE Level VI ) 89.0% ( CoC Version 5 )	I/P:115/230VAC O/P:25% 、 50% 、 75% 、 100% LOAD Ta:25°C	91.27% (115VAC) 91.03% (230VAC)	P
5	AC CURRENT	1.5 A (Max)	I/P: 100VAC O/P:FULL LOAD Ta:25°C	1.04A	P
6	NO LOAD POWER CONSUMPTION	< 0.15W (Max)	I/P:230VAC O/P: NO LOAD Ta:25°C	0.1228W	P

7	INRUSH CURRENT	< 100A COLD START	I/P:230VAC O/P:FULL LOAD Ta:25°C	76.3A	P
8	LEAKAGE CURRENT	< 100μA	I/P:264VAC O/P:Min LOAD Ta:25°C	L-FG: 20μA N-FG: 20μA	P

## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105%~160%	I/P:230VAC O/P:TESTING Ta:25°C	148% HICCUP MODE RESET : AUTO RECOVER	P
2	OVER VOLTAGE PROTECTION	110%~140%	I/P:230VAC O/P:MIN LOAD Ta:25°C	122.5% (MMSZ5263BF) Clamp by ZENER diode	P
3	SHORT PROTECTION	SHORT OUTPUT 1 HOUR NO DAMAGE	I/P:264VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE HICCUP MODE RESET AUTO RECOVER	P

## ■ SAFETY TEST

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P:5656 VDC/min	I/P-O/P:5656 VDC/min Ta:25°C	I/P-O/P: 0.03uA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P:500 VDC Ta:25°C	I/P-O/P>100MΩ NO DAMAGE	P

## RELIABILITY TEST

### ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	1. ROOM AMBIENT BURN-IN : 4HRS I/P:230VAC O/P:100% LOAD Ta=25°C 2. HI AMBIENT BURN-IN : 4HRS I/P:230VAC O/P:100% LOAD Ta=40°C 3. HI AMBIENT BURN-IN : 4HRS I/P:230VAC O/P:50% LOAD Ta=70°C			P
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOURS	I/P : 230VAC O/P : 100% LOAD Ta= -30°C	TEST : OK	P

### OTHER

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C6 IS THE MOST CRITICAL COMPONENT			P
		I/P:230 VAC O/P:100% LOAD Ta=25°C LIFE TIME= 215258 HRS I/P:230 VAC O/P:100% LOAD Ta=40°C LIFE TIME= 79889 HRS			
2	MTBF	MIL-KDBK-217F NOTICES 2 PARTS COUNT TOTAL FAILURE RATE : 2.042375 M.T.B.F : 489626.05 HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	Archen Hsiao	Peter Cheng