



Test Report : GEM18I12

AC-DC High Reliability 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	80mVp-p (Max)	I/P:230VAC O/P:FULL LOAD Ta:25°C	26mVp-p	P
2	VOLTAGE TOLERANCE	-3% ~ +3% (Max)	I/P:90VAC~264VAC O/P:FULL~MIN. LOAD Ta:25°C	11.868 12.081 -1.10% ~ +0.68%	P
3	LINE REGULATION	-1% ~ +1% (Max)	I/P:90VAC ~264VAC O/P:FULL LOAD Ta:25°C	11.887 11.887 11.887 -0.01% ~ +0%	P
4	LOAD REGULATION	-3% ~ +3% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD Ta:25°C	11.887 11.981 12.075 -0.79% ~ +0.79%	P
5	SET UP TIME	500 mS	I/P:230VAC O/P:FULL LOAD Ta:25°C	186.9mS	P
6	RISE TIME	30 mS	I/P:230VAC O/P:FULL LOAD Ta:25°C	5.7 mS	P
7	HOLD UP TIME	16 mS (Min)	I/P:115VAC O/P:FULL LOAD Ta:25°C	22.6 mS	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	VOLTAGE RANGE	90VAC ~ 264VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	60V ~ 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	84% (Typ)	I/P:230VAC O/P:FULL LOAD Ta:25°C	86.509%	P
4	AVERAGE EFFICIENCY	85.0% (LEVEL VI)	I/P:115/230VAC O/P:25% 、 50% 、 75% 、 100% LOAD Ta:25°C	85.69% (115VAC) 86.12% (230VAC)	P
5	AC CURRENT	0.45A (Max)	I/P: 100VAC O/P:FULL LOAD Ta:25°C	0.361A	P
6	NO LOAD POWER CONSUMPTION	< 0.075W (Max)	I/P:230VAC O/P: NO LOAD Ta:25°C	0.0463W	P

7	INRUSH CURRENT	< 60A COLD START	I/P:230VAC O/P:FULL LOAD Ta:25°C	45.2 A	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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105% ~ 160%	I/P:230VAC O/P:TESTING Ta:25°C	155% HICCUP MODE RESET : AUTO RECOVER	P
2	OVER VOLTAGE PROTECTION	110% ~ 140%	I/P:230VAC O/P:MIN LOAD Ta:25°C	125% (1N4744A) 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	SPECIFICATION	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	SPECIFICATION	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	<table><tr><th>NO</th><th>Position</th><th>1</th><th>2</th></tr><tr><td>1</td><td>I/P C3</td><td>57.3°C</td><td>72.0°C</td></tr><tr><td>2</td><td>Q2</td><td>66.0°C</td><td>81.7°C</td></tr><tr><td>3</td><td>T1</td><td>64.0°C</td><td>78.2°C</td></tr><tr><td>4</td><td>O/P D1</td><td>69.6°C</td><td>83.8°C</td></tr><tr><td>5</td><td>O/P C9</td><td>58.7°C</td><td>73.3°C</td></tr><tr><td>6</td><td>CASE</td><td>45.1°C</td><td>60.1°C</td></tr></table>	NO	Position	1	2	1	I/P C3	57.3°C	72.0°C	2	Q2	66.0°C	81.7°C	3	T1	64.0°C	78.2°C	4	O/P D1	69.6°C	83.8°C	5	O/P C9	58.7°C	73.3°C	6	CASE	45.1°C	60.1°C		P
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOURS	I/P : 230VAC O/P : 100% LOAD Ta= -20°C	TEST : OK	P																												

OTHER

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C9 IS THE MOST CRITICAL COMPONENT I/P:230 VAC O/P:100% LOAD Ta=25°C LIFE TIME=70034HRS I/P:115 VAC O/P:100% LOAD Ta=25°C LIFE TIME=18000HRS			P
2	MTBF	MIL-KDBK-217F NOTICES 2 PARTS COUNT TOTAL FAILURE RATE : 2.205426 M.T.B.F : 453427 HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	PETER CHENG	VINCENT TSENG