



# Test Report : MDD03F-15

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3W DIP Package DC-DC Medical Grade Regulated Converter

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

## ■ SAFETY TEST

Safety Test

## ■ RELIABILITY TEST

Environment Test

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT
1	VOLTAGE ACCURACY	-2.0% ~ +2.0 % (Max)	I/P:12VDC O/P:FULL LOAD Ta:25°C	-1.28% -1.22%
2	RIPPLE & NOISE	150 mVp-p (Max)	I/P:12VDC O/P:FULL LOAD Ta:25°C	45 mV 40 mV
3	LINE REGULATION	-0.5% ~ +0.5% (Max)	I/P:9VDC~36VDC O/P:FULL LOAD Ta:25°C	+0.02% ~ +0.01% +0.01% ~ +0.01%
4	LOAD REGULATION	-0.5% ~ +0.5% (Max)	I/P:12VDC O/P:10% LOAD~FULL LOAD Ta:25°C	-0.05% ~ -0.02% -0.10% ~ +0.07%

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	9 VDC ~36 VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	7.78 VDC ~36.0 VDC
2	EFFICIENCY	79% (Typ)	I/P:12VDC O/P:FULL LOAD Ta:25°C	79.67%
3	DC CURRENT	320 mA / FULL LOAD (Max) 20 mA / NO LOAD (Max)	I/P:12VDC O/P:NO / FULL LOAD Ta:25°C	318 mA / FULL LOAD 13.8 mA / NO LOAD

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT
1	SHORT PROTECTION	CONTINUOUS	I/P:36VDC O/P:FULL LOAD Ta:25°C	HICCUP MODE AUTO-RECOVER
2	OVER LOAD PROTECTION	110% ~ 250% (Typ)	I/P:12VDC O/P:TESTING Ta:25°C	198.3% HICCUP MODE AUTO-RECOVER

## SAFETY TEST

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P:6K VDC/min	I/P-O/P:6K VDC/min Ta:25°C	I/P-O/P: 0.002mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>1000MΩ	I/P-O/P:500 VDC Ta:25°C	I/P-O/P>1000MΩ NO DAMAGE

## ■ RELIABILITY TEST

### ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT													
1	TEMPERATURE RISE TEST	1. ROOM AMBIENT BURN-IN : 8HRS I/P:12VDC O/P:FULL LOAD Ta=25°C 2. HIGH AMBIENT BURN-IN : 8HRS I/P:12VDC O/P:FULL LOAD Ta=71°C 3. HIGH AMBIENT BURN-IN : 8HRS I/P:12VDC O/P:75% LOAD Ta=80°C 4. HIGH AMBIENT BURN-IN : 8HRS I/P:12VDC O/P:50% LOAD Ta=90°C															
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CASE</td> <td>43.3°C</td> <td>85.5°C</td> <td>92.3°C</td> <td>100.5°C</td> </tr> </tbody> </table>				NO	Position	1	2	3	4	1	CASE	43.3°C	85.5°C	92.3°C	100.5°C
NO	Position	1	2	3	4												
1	CASE	43.3°C	85.5°C	92.3°C	100.5°C												
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 4 HOURS	I/P:12VDC O/P: FULL LOAD Ta= -40°C	TEST : OK													

### OTHER

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT
1	MTBF	MIL-HDBK-217F,GB,25°C TOTAL FAILURE RATE : 2.19842 M.T.B.F : 454,871.72 HRS		

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG