



# Test Report : MDS20A-15

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20W 2"x1" Package Medical Grade DC-DC Converter

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

## ■ SAFETY TEST

Safety Test

## ■ RELIABILITY TEST

Environment Test

Other

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	VOLTAGE ACCURACY	-1.0% ~ +1.0 % (Max)	I/P:12VDC O/P:FULL LOAD Ta:25°C	+0.12%	P
2	RIPPLE & NOISE	60 mVp-p (Max)	I/P:12VDC O/P:FULL LOAD Ta:25°C	8 mV	P
3	LINE REGULATION	-0.5% ~ +0.5% (Max)	I/P:9VDC~18VDC O/P:FULL LOAD Ta:25°C	+0.00% ~ +0.01%	P
4	LOAD REGULATION	-0.5% ~ +0.5% (Max)	I/P:12VDC O/P:5% LOAD~FULL LOAD Ta:25°C	-0.03% ~ +0.02%	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	9 VDC ~ 18 VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	8.09 VDC ~ 18.0 VDC	P
2	EFFICIENCY	88% (Typ)	I/P:12VDC O/P:FULL LOAD Ta:25°C	89.20%	P
3	DC CURRENT	1950 mA / FULL LOAD 10 mA / NO LOAD	I/P:12VDC O/P:NO / FULL LOAD Ta:25°C	1869 mA / FULL LOAD 6.15 mA / NO LOAD	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	SHORT PROTECTION	CONTINUOUS	I/P:18VDC O/P:FULL LOAD Ta:25°C	HICCUP MODE AUTO-RECOVER	P
2	OVER LOAD PROTECTION	110% ~ 180% (Typ)	I/P:12VDC O/P:TESTING Ta:25°C	165.0% HICCUP MODE AUTO-RECOVER	P

## SAFETY TEST

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P:4.0K VAC/min	I/P-O/P:4.0K VAC/min Ta:25°C	I/P-O/P: 0.002mA 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 : 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=60°C 3. HIGH AMBIENT BURN-IN : 8HRS I/P:12VDC O/P:50% LOAD Ta=80°C			P									
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CASE</td> <td>62.6°C</td> <td>94.4°C</td> <td>100.5°C</td> </tr> </tbody> </table>				NO	Position	1	2	3	1	CASE	62.6°C	94.4°C
NO	Position	1	2	3										
1	CASE	62.6°C	94.4°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	P									

### OTHER

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	MTBF	MIL-HDBK-217F,GB,25°C TOTAL FAILURE RATE : 0.984251 M.T.B.F : 1016 KHRS			P

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG