



Test Report : MDS20B-24

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:24VDC O/P:FULL LOAD Ta:25°C | +0.03% | P |
| 2 | RIPPLE & NOISE | 60 mVp-p (Max) | I/P:24VDC O/P:FULL LOAD Ta:25°C | 6 mV | P |
| 3 | LINE REGULATION | -0.5% ~ +0.5% (Max) | I/P:18VDC~36VDC O/P:FULL LOAD Ta:25°C | +0.00% ~ +0.00% | P |
| 4 | LOAD REGULATION | -0.5% ~ +0.5% (Max) | I/P:24VDC O/P:5% LOAD~FULL LOAD Ta:25°C | -0.01% ~ +0.01% | P |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | VERDICT |
|----|---------------------|---------------------------------------|--|---|---------|
| 1 | INPUT VOLTAGE RANGE | 18 VDC ~ 36 VDC | I/P:TESTING O/P:FULL LOAD Ta:25°C | 16.89 VDC ~ 36.0 VDC | P |
| 2 | EFFICIENCY | 88% (Typ) | I/P:24VDC O/P:FULL LOAD Ta:25°C | 89.17% | P |
| 3 | DC CURRENT | 1000 mA / FULL LOAD 7 mA / NO LOAD | I/P:24VDC O/P:NO / FULL LOAD Ta:25°C | 930 mA / FULL LOAD 5.38 mA / NO LOAD | P |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------------|-------------------|---------------------------------------|---------------------------------------|---------|
| 1 | SHORT PROTECTION | CONTINUOUS | I/P:36VDC O/P:FULL LOAD Ta:25°C | HICCUP MODE AUTO-RECOVER | P |
| 2 | OVER LOAD PROTECTION | 110% ~ 180% (Typ) | I/P:24VDC O/P:TESTING Ta:25°C | 158.5% 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:24VDC O/P:FULL LOAD Ta=25°C 2. HIGH AMBIENT BURN-IN : 8HRS I/P:24VDC O/P:FULL LOAD Ta=60°C 3. HIGH AMBIENT BURN-IN : 8HRS I/P:24VDC 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>63.6°C</td> <td>97.1°C</td> <td>117.2°C</td> </tr> </tbody> </table> | NO | Position | | 1 | 2 | 3 | 1 | CASE | 63.6°C | 97.1°C | 117.2°C | |
| NO | Position | 1 | 2 | 3 | | | | | | | | | | |
| 1 | CASE | 63.6°C | 97.1°C | 117.2°C | | | | | | | | | | |
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS | I/P:24VDC 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 |