



# Test Report : SPRN01L-15

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1W SIP Package DC-DC Regulated 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 | -3.0 % ~ +3.0 % (Max) | I/P:5VDC<br>O/P:FULL LOAD<br>Ta:25°C           | +0.49%          | P       |
| 2  | RIPPLE & NOISE   | 75 mVp-p (Max)        | I/P:5VDC<br>O/P:FULL LOAD<br>Ta:25°C           | 5mV             | P       |
| 3  | LINE REGULATION  | -1.0% ~ +1.0% (Max)   | I/P:4.75VDC~5.5VDC<br>O/P:FULL LOAD<br>Ta:25°C | -0.07% ~ +0.03% | P       |
| 4  | LOAD REGULATION  | -1.0% ~ +1.0% (Max)   | I/P:5VDC<br>O/P:10% LOAD~FULL LOAD<br>Ta:25°C  | -0.07% ~ +0.05% | P       |

**INPUT FUNCTION TEST**

| NO | TEST ITEM           | SPECICATION                                       | TEST CONDITION                            | RESULT                                | VERDICT |
|----|---------------------|---|---|---------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE | 4.75 VDC ~5.5 VDC                                 | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C   | 4.7VDC ~5.5VDC                        | P       |
| 2  | EFFICIENCY          | 71% (Typ)   | I/P:5VDC<br>O/P:FULL LOAD<br>Ta:25°C      | 72.67%                                | P       |
| 3  | DC CURRENT          | 278 mA / FULL LOAD (Max)<br>40 mA / NO LOAD (Max) | I/P:5VDC<br>O/P:NO / FULL LOAD<br>Ta:25°C | 273 mA / FULL LOAD<br>35 mA / NO LOAD | P       |

**PROTECTION FUNCTION TEST**

| NO | TEST ITEM        | SPECICATION                            | TEST CONDITION                         | RESULT                                | VERDICT |
|----|------------------|--|--|---------------------------------------|---------|
| 1  | SHORT PROTECTION | Current Limit Protection<br>(60s max.) | I/P:5.5VDC<br>O/P:FULL LOAD<br>Ta:25°C | Current Limit Protection<br>NO DAMAGE | P       |

**SAFETY TEST**
**SAFETY TEST**

| NO | TEST ITEM            | SPECICATION          | TEST CONDITION                  | RESULT                        | VERDICT |
|----|----------------------|----------------------|---------------------------------|-------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P:1.5K VDC/min | I/P-O/P:1.5K VDC/min<br>Ta:25°C | I/P-O/P: 0.002mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ | I/P-O/P:500 VDC<br>Ta:25°C      | I/P-O/P>100MΩ<br>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<br>I/P:5VDC O/P:FULL LOAD Ta=25°C<br>2. HIGH AMBIENT BURN-IN : 8HRS<br>I/P:5VDC O/P:FULL LOAD Ta=71°C<br>3. HIGH AMBIENT BURN-IN : 8HRS<br>I/P:5VDC O/P:60% LOAD Ta=85°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>51.1°C</td> <td>93.9°C</td> <td>102.9°C</td> </tr> </tbody> </table> |   |           | NO      | Position | 1 | 2 | 3 | 1 | CASE | 51.1°C | 93.9°C | 102.9°C |  |
| NO | Position                     | 1  | 2                                       | 3         |         |          |   |   |   |   |      |        |        |         |  |
| 1  | CASE                         | 51.1°C   | 93.9°C                                  | 102.9°C   |         |          |   |   |   |   |      |        |        |         |  |
| 2  | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS  | I/P:5VDC<br>O/P: FULL LOAD<br>Ta= -40°C | TEST : OK | P       |          |   |   |   |   |      |        |        |         |  |

**OTHER**

| NO                 | TEST ITEM | SPECICATION   | TEST CONDITION | RESULT          | VERDICT |
|--------------------|-----------|---|----------------|-----------------|---------|
| 1                  | MTBF      | MIL-HDBK-217F,GB,25°C<br>TOTAL FAILURE RATE : 0.80807<br>M.T.B.F : 1,237,522.68 HRS |                |                 | P       |
| <b>TEST RESULT</b> |           | <b>TESTER</b>   |                | <b>APPROVAL</b> |         |
| PASS               |           | ARCHEN HSIAO  |                | PETER CHENG     |         |