



# Test Report : SMU02N-24N

---

2W DC-DC Unregulated Single output 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            | VERDICT |
|----|------------------|----------------------|---|-------------------|---------|
| 1  | VOLTAGE ACCURACY | -3.0% ~ +3.0 % (Max) | I/P:24VDC<br>O/P:FULL LOAD<br>Ta:25°C           | -0.89%            | P       |
| 2  | RIPPLE & NOISE   | 100 mVp-p (Max)      | I/P:26.4VDC<br>O/P:FULL LOAD<br>Ta:25°C         | 21 mV             | P       |
| 3  | LINE REGULATION  | -12% ~ +12 %         | I/P:21.6VDC~26.4VDC<br>O/P:FULL LOAD<br>Ta:25°C | -10.30% ~ +10.31% | P       |
| 4  | LOAD REGULATION  | -8.0% ~ +8.0%        | I/P:24VDC<br>O/P:10% LOAD~FULL LOAD<br>Ta:25°C  | -0.79% ~ +0.79%   | P       |

**INPUT FUNCTION TEST**

| NO | TEST ITEM  | SPECICATION                         | TEST CONDITION                             | RESULT                                | VERDICT |
|----|------------|-------------------------------------|--|---------------------------------------|---------|
| 1  | EFFICIENCY | 88%                                 | I/P:24VDC<br>O/P:FULL LOAD<br>Ta:25°C      | 88.76%                                | P       |
| 2  | DC CURRENT | 95 mA / FULL LOAD<br>8 mA / NO LOAD | I/P:24VDC<br>O/P:NO / FULL LOAD<br>Ta:25°C | 93 mA / FULL LOAD<br>6.1 mA / NO LOAD | P       |

**PROTECTION FUNCTION TEST**

| NO | TEST ITEM        | SPECICATION | TEST CONDITION                          | RESULT                            | VERDICT |
|----|------------------|-------------|---|-----------------------------------|---------|
| 1  | SHORT PROTECTION | CONTINUOUS  | I/P:26.4VDC<br>O/P:FULL LOAD<br>Ta:25°C | CONTINUOUS,<br>AUTOMATIC RECOVERY | P       |
| 2  | CASE TEMPERATURE | +115°C max  | I/P:24VDC<br>O/P:TESTING<br>Ta: TESTING | OK<br>AUTOMATIC RECOVERY          | P       |

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

| NO | TEST ITEM            | SPECICATION          | TEST CONDITION                  | RESULT                        | VERDICT |
|----|----------------------|----------------------|---------------------------------|-------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P:1500 VDC/min | I/P-O/P:1500 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    |    |          |   |   |   |   |      |        |        |         |
|----|------------------------------|--|--|-----------|----|----------|---|---|---|---|------|--------|--------|---------|
| 1  | TEMPERATURE RISE TEST        | 1. ROOM AMBIENT BURN-IN : 4HRS<br>I/P:24VDC O/P:FULL LOAD Ta=25°C<br>2. HIGH AMBIENT BURN-IN : 4HRS<br>I/P:24VDC O/P:FULL LOAD Ta=85°C<br>3. HIGH AMBIENT BURN-IN : 4HRS<br>I/P:24VDC O/P:60% LOAD Ta=105°C                  |  |           |    |          |   |   |   |   |      |        |        |         |
|    |                              | <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>39.4°C</td> <td>94.9°C</td> <td>112.7°C</td> </tr> </tbody> </table> |  |           | NO | Position | 1 | 2 | 3 | 1 | CASE | 39.4°C | 94.9°C | 112.7°C |
| NO | Position                     | 1  | 2  | 3         |    |          |   |   |   |   |      |        |        |         |
| 1  | CASE                         | 39.4°C   | 94.9°C                                   | 112.7°C   |    |          |   |   |   |   |      |        |        |         |
| 2  | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS  | I/P:24VDC<br>O/P: FULL LOAD<br>Ta= -40°C | TEST : OK |    |          |   |   |   |   |      |        |        |         |

### OTHER

| NO | TEST ITEM | SPECICATION  | TEST CONDITION | RESULT |
|----|-----------|--|----------------|--------|
| 1  | MTBF      | MIL-HDBK-217F,GB,25°C<br>TOTAL FAILURE RATE : 0.5<br>M.T.B.F : 2,000KHRS |                |        |

| TEST RESULT | TESTER       | APPROVAL    |
|-------------|--------------|-------------|
| PASS        | ARCHEN HSIAO | PETER CHENG |