



# Test Report : SKA20A-05

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20W DC-DC Regulated Single Output Converter

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control 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 | -2 %~+2 % (Max)     | I/P:12VDC<br>O/P:100% LOAD<br>Ta:25°C      | -0.48 %           | P       |
| 2  | RIPPLE & NOISE   | 50 mVp-p (Max)      | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C      | 35 mV             | P       |
| 3  | LINE REGULATION  | -0.2 %~+0.2 % (Max) | I/P:9VDC-18VDC<br>O/P:FULL LOAD<br>Ta:25°C | -0.02 % ~ +0.02 % | P       |
| 4  | LOAD REGULATION  | -0.5 %~+0.5 % (Max) | I/P:12VDC<br>O/P:MIN-FULL LOAD<br>Ta:25°C  | -0.12 % ~ +0.06 % | P       |

**INPUT FUNCTION TEST**

| NO | TEST ITEM           | SPECICATION  | TEST CONDITION                             | RESULT                                 | VERDICT |
|----|---------------------|--|--|--|---------|
| 1  | INPUT VOLTAGE RANGE | 9VDC-18VDC   | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C    | 7.9 ~ 18VDC                            | P       |
| 2  | EFFICIENCY          | 87.5 % (Typ)                                       | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C      | 87.8 %                                 | P       |
| 3  | DC CURRENT          | 1910 mA / FULL LOAD (Max)<br>80 mA / NO LOAD (Max) | I/P:12VDC<br>O/P:NO / FULL LOAD<br>Ta:25°C | 1889 mA / FULL LOAD<br>62 mA / NO LOAD | P       |

**PROTECTION FUNCTION TEST**

| NO | TEST ITEM                     | SPECICATION                            | TEST CONDITION                           | RESULT   | VERDICT |
|----|-------------------------------|--|--|--|---------|
| 1  | OVER LOAD PROTECTION          | 110 % - 180 %                          | I/P:12VDC<br>O/P:TESTING<br>Ta:25°C      | 160 %<br>HICCUP MODE<br>AUTO-RECOVER                   | P       |
| 2  | INPUT OVER VOLTAGE PROTECTION | >20VDC-23VDC (Typ)                     | I/P:TESTING<br>O/P:MINI. LOAD<br>Ta:25°C | 22.6 VDC<br>SHUTDOWN OUTPUT<br>VOLTAGE<br>AUTO-RECOVER | P       |
| 3  | SHORT PROTECTION              | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P:18VDC<br>O/P:FULL LOAD<br>Ta:25°C    | NO DAMAGE<br>HICCUP MODE<br>AUTO-RECOVER               | P       |

**CONTROL FUNCTION TEST**

| NO | TEST ITEM      | SPECICATION  | TEST CONDITION                        | RESULT   | VERDICT |
|----|----------------|--|---------------------------------------|--|---------|
| 1  | REMOTE CONTROL | Power on :<br>R.C > 2.5Vdc or open<br>Power off :<br>R.C < 0.8Vdc or short (-Vin)      | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C | Power on :<br>R.C>1.1 Vdc or Open<br>Power off :<br>R.C<1.1 Vdc or Short | P       |
| 2  | TRIM CONTROL   | -10%~ +10% (Typ)<br>Trim ~ +Vout Trim DOWN<br>Trim ~ -Vout Trim UP<br>Using 20k ohm VR | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C | Trim DOWN -9.47 %<br>Trim UP +11.51 %                                    | 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 : 0.02 mA<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 >100 MΩ<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 : 5 HRS<br>I/P:12VDC O/P:FULL LOAD Ta=25°C<br>2. HIGH AMBIENT BURN-IN : 15 HRS<br>I/P:12VDC O/P:FULL LOAD Ta=75°C  |  |           | P       |    |          |     |   |   |   |      |        |        |         |
|    |                              | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CASE</td> <td>CENTER</td> <td>59.1°C</td> <td>105.2°C</td> </tr> </tbody> </table> |  |           |         | NO | Position | P/N | 1 | 2 | 1 | CASE | CENTER | 59.1°C | 105.2°C |
| NO | Position                     | P/N  | 1  | 2         |         |    |          |     |   |   |   |      |        |        |         |
| 1  | CASE                         | CENTER   | 59.1°C                                   | 105.2°C   |         |    |          |     |   |   |   |      |        |        |         |
| 2  | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS  | I/P:12VDC<br>O/P: 100% LOAD<br>Ta= -40°C | TEST : OK | P       |    |          |     |   |   |   |      |        |        |         |

| DATE       | SAMPLE             | TEST RESULT | TESTER | APPROVAL |
|------------|--------------------|-------------|--------|----------|
| 2011.11.15 | RD SAMPLE<br>1122R | PASS        | PETER  | VINCENT  |