



# Test Report : SPBW06W8-05

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6W SIP Package 8:1 Ultra-Wide Input DC-DC Regulated 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 | -1.5% ~ +1.5 % (Max) | I/P:48VDC<br>O/P:FULL LOAD<br>Ta:25°C         | -0.30%          | P       |
| 2  | RIPPLE & NOISE   | 100 mVp-p (Max)      | I/P:48VDC<br>O/P:FULL LOAD<br>Ta:25°C         | 7 mV            | P       |
| 3  | LINE REGULATION  | -0.5% ~ +0.5 %       | I/P:9VDC~75VDC<br>O/P:FULL LOAD<br>Ta:25°C    | +0.02% ~ -0.10% | P       |
| 4  | LOAD REGULATION  | -0.5% ~ +0.5%        | I/P:48VDC<br>O/P:0% LOAD~FULL LOAD<br>Ta:25°C | -0.16% ~ +0.13% | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECICATION                            | TEST CONDITION                             | RESULT                                   | VERDICT |
|----|-----------------------|----------------------------------------|--------------------------------------------|------------------------------------------|---------|
| 1  | EFFICIENCY            | 82%                                    | I/P:48VDC<br>O/P:FULL LOAD<br>Ta:25°C      | 83.05%                                   | P       |
| 2  | DC CURRENT            | 153 mA / FULL LOAD<br>4 mA / NO LOAD   | I/P:48VDC<br>O/P:NO / FULL LOAD<br>Ta:25°C | 149.0 mA / FULL LOAD<br>1.5 mA / NO LOAD | P       |
| 3  | UNDER VOLTAGE LOCKOUT | START-UP 8.8V<br>SHUTDOWN VOLTAGE 8.0V | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C    | 8.07 VDC<br>7.51 VDC                     | P       |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM            | SPECICATION | TEST CONDITION                          | RESULT                                | VERDICT |
|----|----------------------|-------------|-----------------------------------------|---------------------------------------|---------|
| 1  | SHORT PROTECTION     | CONTINUOUS  | I/P:75VDC<br>O/P:FULL LOAD<br>Ta:25°C   | CONTINUOUS,<br>AUTOMATIC RECOVERY     | P       |
| 2  | OVER LOAD PROTECTION | 110~230%    | I/P:48VDC<br>O/P:TESTING<br>Ta:25°C     | 169.2%<br>HICCUP MODE<br>AUTO-RECOVER | P       |
| 3  | CASE TEMPERATURE     | +120°C max  | I/P:48VDC<br>O/P:TESTING<br>Ta: TESTING | OK<br>AUTOMATIC RECOVERY              | P       |

### CONTROL FUNCTION TEST

| NO | TEST ITEM      | SPECICATION                                                                                    | TEST CONDITION                        | RESULT                                                                    | VERDICT |
|----|----------------|------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------|---------|
| 1  | REMOTE CONTROL | POWER ON :<br>R.C. ~ -VIN<1.2VDC<br>OR OPEN CIRCUIT<br>POWER OFF :<br>R.C. ~ -VIN >5.5 ~ 15VDC | I/P:48VDC<br>O/P:100% LOAD<br>Ta:25°C | POWER ON :<br>R.C.<2.2VDC OR OPEN<br>POWER OFF :<br>R.C.>2.25VDC OR SHORT | P       |

## SAFETY TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECICATION           | TEST CONDITION                  | RESULT                        | VERDICT |
|----|----------------------|-----------------------|---------------------------------|-------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P:3000 VDC/min  | I/P-O/P:3000 VDC/min<br>Ta:25°C | I/P-O/P: 0.002mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P:500VDC>1000MΩ | I/P-O/P:500 VDC<br>Ta:25°C      | I/P-O/P>1000MΩ<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:48VDC O/P:FULL LOAD Ta=25°C<br>2. HIGH AMBIENT BURN-IN : 4HRS<br>I/P:48VDC O/P:FULL LOAD Ta=61°C<br>3. HIGH AMBIENT BURN-IN : 4HRS<br>I/P:48VDC O/P:60% LOAD Ta=85°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>75.7°C</td><td>114.3°C</td><td>115.9°C</td></tr> </tbody> </table> | NO        | Position | 1 | 2 | 3 | 1 | CASE | 75.7°C | 114.3°C | 115.9°C |  |
| NO | Position                     | 1                                                                                                                                                                                                          | 2                                                                                                                                                                                                                   | 3         |          |   |   |   |   |      |        |         |         |  |
| 1  | CASE                         | 75.7°C                                                                                                                                                                                                     | 114.3°C                                                                                                                                                                                                             | 115.9°C   |          |   |   |   |   |      |        |         |         |  |
| 2  | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS                                                                                                                                                                                      | I/P:48VDC<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 : 0.54054<br>M.T.B.F : 1,850KHRS |                |        |

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