



# Test Report : GD2-121503

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2W SIP Package IGBT Sic Gate Driver Power DC-DC 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 | -5.0% ~ +5.0 % | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C           | V1: +0.23%<br>V2: -1.21%                       | P       |
| 2  | RIPPLE & NOISE   | 50 mVp-p (Max) | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C           | V1: 36mV<br>V2: 32mV                           | P       |
| 3  | LINE REGULATION  | -12% ~ +12%    | I/P:10.8VDC~13.2VDC<br>O/P:FULL LOAD<br>Ta:25°C | V1: -10.39% ~ +10.24%<br>V2: -11.20% ~ +11.28% | P       |
| 4  | LOAD REGULATION  | -5.0% ~ +5.0%  | I/P:12VDC<br>O/P:10% LOAD~FULL LOAD<br>Ta:25°C  | V1: -1.93% ~ +1.98%<br>V2: -2.73% ~ +3.45%     | P       |

**INPUT FUNCTION TEST**

| NO | TEST ITEM     | SPECICATION                           | TEST CONDITION                             | RESULT                                  | VERDICT |
|----|---------------|---------------------------------------|--|---|---------|
| 1  | EFFICIENCY    | 78%                                   | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C      | 79.01%                                  | P       |
| 2  | DC CURRENT    | 217 mA / FULL LOAD<br>43 mA / NO LOAD | I/P:12VDC<br>O/P:NO / FULL LOAD<br>Ta:25°C | 204.2mA / FULL LOAD<br>36.9mA / NO LOAD | P       |
| 3  | START UP TIME | 100ms max.                            | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C      | V1: 9.2mS<br>V2: 2.6mS                  | P       |

**PROTECTION FUNCTION TEST**

| NO | TEST ITEM        | SPECICATION | TEST CONDITION                          | RESULT                    | VERDICT |
|----|------------------|-------------|---|---------------------------|---------|
| 1  | SHORT PROTECTION | CONTINUOUS  | I/P:13.2VDC<br>O/P:FULL LOAD<br>Ta:25°C | NO DAMAGE<br>AUTO-RECOVER | P       |

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

| NO | TEST ITEM            | SPECICATION          | TEST CONDITION                  | RESULT                        | VERDICT |
|----|----------------------|----------------------|---------------------------------|-------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P:6.2K VDC/min | I/P-O/P:6.2K 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 : 4HRS<br>I/P:12VDC O/P:FULL LOAD Ta=25°C<br>2. HIGH AMBIENT BURN-IN : 4HRS<br>I/P:12VDC O/P:FULL LOAD Ta=85°C<br>3. HIGH AMBIENT BURN-IN : 8HRS<br>I/P:12VDC O/P:50% LOAD Ta=90°C   |  |           | <b>P</b> |    |          |   |   |   |   |      |        |         |
|    |                              | <table border="1" style="margin-left: auto; margin-right: auto;"> <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>45.4°C</td> <td>103.6°C</td> <td>107.4°C</td> </tr> </tbody> </table> |  |           |          | NO | Position | 1 | 2 | 3 | 1 | CASE | 45.4°C | 103.6°C |
| NO | Position                     | 1  | 2  | 3         |          |    |          |   |   |   |   |      |        |         |
| 1  | CASE                         | 45.4°C   | 103.6°C                                  | 107.4°C   |          |    |          |   |   |   |   |      |        |         |
| 2  | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS  | I/P:12VDC<br>O/P: FULL LOAD<br>Ta= -40°C | TEST : OK | <b>P</b> |    |          |   |   |   |   |      |        |         |

**OTHER**

| NO | TEST ITEM | SPECICATION  | TEST CONDITION | RESULT | VERDICT  |
|----|-----------|--|----------------|--------|----------|
| 1  | MTBF      | MIL-HDBK-217F,GB,25°C<br>TOTAL FAILURE RATE : 0.07153<br>M.T.B.F : 13,980K HRS |                |        | <b>P</b> |

| TEST RESULT | TESTER              | APPROVAL           |
|-------------|---------------------|--------------------|
| <b>PASS</b> | <b>ARCHEN HSIAO</b> | <b>PETER CHENG</b> |