



# Test Report : DDRH-15-15

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15W High Reliable 150~1500Vdc Ultra Wide Input 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	VERDITC
1	VOLTAGE ACCURACY	-2.0% ~ +2.0 %	I/P:800VDC O/P:FULL LOAD Ta:25°C	-0.34%	P
2	RIPPLE & NOISE	100 mVp-p	I/P:800VDC O/P:FULL LOAD Ta:25°C	55mV	P
3	LINE REGULATION	-1.0% ~ +1.0%	I/P:150VDC~1500VDC O/P: FULL LOAD Ta:25°C	+0.05% ~ +0.05%	P
4	LOAD REGULATION	-1.0% ~ +1.0%	I/P:800VDC O/P:10% LOAD~FULL LOAD Ta:25°C	-0.09% ~ +0.09%	P
5	HOLD UP TIME	16ms min.	I/P:800VDC O/P:FULL LOAD Ta:25°C	48.0ms	P
6	SETUP TIME	1s max.	I/P:800VDC O/P: FULL LOAD Ta:25°C	145ms	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	INPUT VOLTAGE RANGE	150 VDC ~1500 VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	123.6VDC ~1500 VDC	P
2	EFFICIENCY	87%	I/P:800VDC O/P:FULL LOAD Ta:25°C	89.51%	P
3	DC CURRENT	30mA / FULL LOAD 0.2mA / NO LOAD	I/P:800VDC O/P:NO / FULL LOAD Ta:25°C	20.51mA / FULL LOAD 0.151 mA / NO LOAD	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	SHORT PROTECTION	CONTINUOUS	I/P:1500VDC O/P:FULL LOAD Ta:25°C	HICCUP MODE AUTO-RECOVER	P
2	OVER LOAD PROTECTION	110% ~ 300%	I/P:800VDC O/P:TESTING Ta:25°C	201.0% HICCUP MODE AUTO-RECOVER	P
3	OVER VOLTAGE PROTECTION	YES	I/P:800VDC O/P: MIN LOAD Ta:25°C	HICCUP MODE AUTO-RECOVER	P

4	DC INPUT REVERSE POLARITY	NO DAMAGE	I/P:800VDC O/P: FULL LOAD Ta:25°C	NO DAMAGE	P
5	UNDER VOLTAGE LOCKOUT	START-UP VOLTAGE 147Vdc SHUTDOWN VOLTAGE 137Vdc	I/P: TESTING O/P: FULL LOAD Ta:25°C	131.2VDC  123.6VDC	P

## ■ SAFETY TEST

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	WITHSTAND VOLTAGE	I/P-O/P:4.0KVAC/min	I/P-O/P:4.0KVAC/min Ta:25°C	I/P-O/P: 0.002mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>1000MΩ	I/P-O/P:500 VDC Ta:25°C	I/P-O/P>1000MΩ NO DAMAGE	P

## ■ RELIABILITY TEST

### ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC																																																																																															
1	TEMPERATURE RISE TEST	1. ROOM AMBIENT BURN-IN : 4HRS I/P:800VDC O/P:FULL LOAD Ta=25°C 2. HIGH AMBIENT BURN-IN : 4HRS I/P:800VDC O/P:FULL LOAD Ta=50°C 3. HIGH AMBIENT BURN-IN : 4HRS I/P:800VDC O/P:50% LOAD Ta=70°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>Ta</td><td>25°C</td><td>50°C</td><td>70.0</td></tr> <tr><td>2</td><td>C101</td><td>34.1°C</td><td>59.1°C</td><td>75.3°C</td></tr> <tr><td>3</td><td>C102</td><td>34.3°C</td><td>59.3°C</td><td>75.3°C</td></tr> <tr><td>4</td><td>C103</td><td>33.4°C</td><td>58.4°C</td><td>74.5°C</td></tr> <tr><td>5</td><td>C104</td><td>32.4°C</td><td>57.4°C</td><td>74.0°C</td></tr> <tr><td>6</td><td>C105</td><td>37.1°C</td><td>62.1°C</td><td>76.6°C</td></tr> <tr><td>7</td><td>C108</td><td>35.5°C</td><td>60.5°C</td><td>75.7°C</td></tr> <tr><td>8</td><td>C202</td><td>43.7°C</td><td>68.7°C</td><td>80.1°C</td></tr> <tr><td>9</td><td>C203</td><td>44.2°C</td><td>69.2°C</td><td>80.3°C</td></tr> <tr><td>10</td><td>T1</td><td>45.4°C</td><td>70.4°C</td><td>81.3°C</td></tr> <tr><td>11</td><td>T2</td><td>40.3°C</td><td>65.3°C</td><td>78.7°C</td></tr> <tr><td>12</td><td>CY2</td><td>43.7°C</td><td>68.7°C</td><td>80.5°C</td></tr> <tr><td>13</td><td>Q102</td><td>43.8°C</td><td>68.8°C</td><td>81.4°C</td></tr> <tr><td>14</td><td>Q103</td><td>45.2°C</td><td>70.2°C</td><td>82.1°C</td></tr> <tr><td>15</td><td>BR1</td><td>34.1°C</td><td>59.1°C</td><td>75.6°C</td></tr> <tr><td>16</td><td>PH1</td><td>40.1°C</td><td>65.1°C</td><td>78.4°C</td></tr> <tr><td>17</td><td>D201</td><td>61.8°C</td><td>86.8°C</td><td>90.0°C</td></tr> <tr><td>18</td><td>CASE</td><td>46.6°C</td><td>71.6°C</td><td>82.1°C</td></tr> </tbody> </table>				NO	Position	1	2	3	1	Ta	25°C	50°C	70.0	2	C101	34.1°C	59.1°C	75.3°C	3	C102	34.3°C	59.3°C	75.3°C	4	C103	33.4°C	58.4°C	74.5°C	5	C104	32.4°C	57.4°C	74.0°C	6	C105	37.1°C	62.1°C	76.6°C	7	C108	35.5°C	60.5°C	75.7°C	8	C202	43.7°C	68.7°C	80.1°C	9	C203	44.2°C	69.2°C	80.3°C	10	T1	45.4°C	70.4°C	81.3°C	11	T2	40.3°C	65.3°C	78.7°C	12	CY2	43.7°C	68.7°C	80.5°C	13	Q102	43.8°C	68.8°C	81.4°C	14	Q103	45.2°C	70.2°C	82.1°C	15	BR1	34.1°C	59.1°C	75.6°C	16	PH1	40.1°C	65.1°C	78.4°C	17	D201	61.8°C	86.8°C	90.0°C	18	CASE	46.6°C	71.6°C	82.1°C
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 4 HOURS	I/P:800VDC O/P: FULL LOAD Ta= -40°C	TEST : OK	P																																																																																															

**OTHER**

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	MTBF	MIL-HDBK-217F,GB,25°C TOTAL FAILURE RATE : M.T.B.F : 388K HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG