Test Report : DDRH-15-12

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℃	+0.10%	P
2	RIPPLE & NOISE	100 mVp-p	I/P:800VDC O/P:FULL LOAD Ta:25℃	58mV	P
3	LINE REGULATION	-1.0% ~ +1.0%	I/P:150VDC~1500VDC O/P: FULL LOAD Ta:25℃	-0.01% ~ -0.02%	P
4	LOAD REGULATION	-1.0% ~ +1.0%	I/P:800VDC O/P:10% LOAD~FULL LOAD Ta:25℃	-0.06% ~ -0.06%	P
5	HOLD UP TIME	16ms min.	I/P:800VDC O/P:FULL LOAD Ta:25℃	39.6ms	P
6	SETUP TIME	1s max.	I/P:800VDC O/P: FULL LOAD Ta:25℃	168ms	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℃	127.8VDC ~1500 VDC	P
2	EFFICIENCY	79%	I/P:800VDC O/P:FULL LOAD Ta:25℃	79.87%	P
3	DC CURRENT	30mA / FULL LOAD 0.2mA / NO LOAD	I/P:800VDC O/P:NO / FULL LOAD Ta:25℃	21.22mA / FULL LOAD 0.105 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℃	HICCUP MODE AUTO-RECOVER	P
2	OVER LOAD PROTECTION	110% ~ 300%	I/P:800VDC O/P:TESTING Ta:25℃	202.5% HICCUP MODE AUTO-RECOVER	P
3	OVER VOLTAGE PROTECTION	YES	I/P:800VDC O/P: MIN LOAD Ta:25℃	HICCUP MODE AUTO-RECOVER	P

4	DC INPUT REVERSE POLARITY	NO DAMAGE	I/P:800VDC O/P: FULL LOAD Ta:25℃	NO DAMAGE	P
5	UNDER VOLTAGE LOCKOUT	START-UP VOLTAGE 147Vdc SHUTDOWN VOLTAGE 137Vdc	I/P: TESTING O/P: FULL LOAD Ta:25℃	138.9VDC 127.8VDC	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℃	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℃	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℃ 2. HIGH AMBIENT BURN-IN ：4HRS I/P:800VDC O/P:FULL LOAD Ta=50℃ 3. HIGH AMBIENT BURN-IN ：4HRS I/P:800VDC O/P:50% LOAD Ta=70℃			P
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 4 HOURS	I/P:800VDC O/P: FULL LOAD Ta= -40℃	TEST：OK	P

NO	Position	1	2	3
1	Ta	25℃	50℃	70.0℃
2	C101	36.6℃	61.6℃	76.5℃
3	C102	37.1℃	62.1℃	76.8℃
4	C103	36.2℃	61.2℃	76.0℃
5	C104	35.3℃	60.3℃	75.5℃
6	C105	40.8℃	65.8℃	78.4℃
7	C108	39.2℃	64.2℃	77.6℃
8	C202	46.4℃	71.4℃	81.3℃
9	C203	48.6℃	73.6℃	82.5℃
10	T1	48.7℃	73.7℃	82.5℃
11	T2	45.3℃	70.3℃	80.9℃
12	CY2	45.8℃	70.8℃	81.0℃
13	Q102	49.3℃	74.3℃	83.5℃
14	Q103	48.7℃	73.7℃	82.9℃
15	BR1	34.5℃	59.5℃	75.0℃
16	Q101	35.7℃	60.7℃	75.8℃
17	PH1	42.2℃	67.2℃	79.0℃
18	D201	68.5℃	93.5℃	92.8℃
19	CASE	40.3℃	65.3℃	78.0℃

OTHER

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

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG