Test Report : DDRH-45-24

45W 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

■ 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℃	75mV	P
3	LINE REGULATION	-1.0% ~ +1.0%	I/P:150VDC~1500VDC O/P: FULL LOAD Ta:25℃	+0.02% ~ -0.01%	P
4	LOAD REGULATION	-1.0% ~ +1.0%	I/P:800VDC O/P:10% LOAD~FULL LOAD Ta:25℃	+0.02% ~ -0.03%	P
5	HOLD UP TIME	20ms min.	I/P:800VDC O/P:FULL LOAD Ta:25℃	30.8ms	P
6	SETUP TIME	2s max.	I/P:800VDC O/P: FULL LOAD Ta:25℃	132ms	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℃	119.0VDC ~1500 VDC	P
2	EFFICIENCY	86%	I/P:800VDC O/P:FULL LOAD Ta:25℃	87.03%	P
3	DC CURRENT	75mA / FULL LOAD 0.2mA / NO LOAD	I/P:800VDC O/P:NO / FULL LOAD Ta:25℃	64.5mA / FULL LOAD 0.183 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℃	182.4% 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 132Vdc(max) SHUTDOWN VOLTAGE 121Vdc(min)	I/P: TESTING O/P: FULL LOAD Ta:25℃	130.5VDC 119.0VDC	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

NO	Position	1	2	3
1	Ta	25.0℃	50.0℃	70.0℃
2	C101	36.5℃	61.5℃	77.4℃
3	C102	36.9℃	61.9℃	77.7℃
4	C103	36.0℃	61.0℃	77.0℃
5	C104	35.4℃	60.4℃	76.6℃
6	C105	40.6℃	65.6℃	79.9℃
7	C108	38.4℃	63.4℃	78.5℃
8	C202	46.2℃	71.2℃	81.9℃
9	C203	45.3℃	70.3℃	81.1℃
10	C207	46.2℃	71.2℃	81.8℃
11	Q101	35.9℃	60.9℃	77.0℃
12	Q102	48.3℃	73.3℃	85.3℃
13	Q103	48.8℃	73.8℃	85.7℃
14	T2	45.0℃	70.0℃	83.0℃
15	BD1	34.7℃	59.7℃	76.1℃
16	CY2	44.9℃	69.9℃	81.7℃
17	T1	49.2℃	74.2℃	84.9℃
18	PH1	39.9℃	64.9℃	79.0℃
19	D201	60.1℃	85.1℃	88.9℃
20	CASE	41.7℃	66.7℃	80.4℃

2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 4 HOURS	I/P:800VDC O/P: FULL LOAD Ta= -40℃	TEST：OK	P

OTHER

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	MTBF	MIL-HDBK-217F,GB,25℃ TOTAL FAILURE RATE：2.6941 M.T.B.F：371,185 HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG