



# Test Report : RQB150W3-110S54

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150W Quarter Brick 60~160Vdc wide Input Railway DC-DC Converter

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

## ■ SAFETY TEST

Safety Test

## ■ RELIABILITY TEST

Environment Test

Other Test

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	VOLTAGE ACCURACY	-1% ~ +1 %	I/P:110VDC O/P:FULL LOAD Ta:25°C	-0.35%	P
2	RIPPLE & NOISE	480 mVp-p	I/P:110VDC O/P:FULL LOAD Ta:25°C	185 mV	P
3	LINE REGULATION	-0.2% ~ +0.2%	I/P:60VDC~110VDC O/P:FULL LOAD Ta:25°C	-0.02% ~ +0.00%	P
4	LOAD REGULATION	-0.4% ~ +0.4%	I/P:110VDC O/P: 0% LOAD~FULL LOAD Ta:25°C	-0.02% ~ +0.02%	P
5	HOLD UP TIME	S2(>10ms) S3(>20ms) C2(>30ms)	I/P:110VDC O/P:FULL LOAD Ta:25°C	12.9ms 22.6ms 35.0ms	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	INPUT VOLTAGE RANGE	60 VDC ~160 VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	56.6 VDC ~ 160 VDC	P
2.	EFFICIENCY	88%	I/P:110VDC O/P:FULL LOAD Ta:25°C	88.29%	P
3	DC CURRENT	1.55 A / FULL LOAD 10 mA / NO LOAD	I/P:110VDC O/P:NO / FULL LOAD Ta:25°C	1.539 A / FULL LOAD 4.59 mA / NO LOAD	P
4	SETUP TIME	< 300mS	I/P:110VDC O/P:FULL LOAD Ta:25°C	171.3 mS	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	SHORT PROTECTION	CONTINUOUS	I/P:160VDC O/P:FULL LOAD Ta:25°C	HICCUP MODE AUTOMATIC RECOVERY	P
2	OVER LOAD PROTECTION	120~200%	I/P:110VDC O/P:TESTING Ta:25°C	150.5% HICCUP MODE AUTO-RECOVER	P
3	OVER VOLTAGE	YES	I/P:110VDC O/P:TESTING Ta:25°C	PROTECTION TYPE : CLAMP BY ZENER DIODE	P
3	OVER TEMPERATURE	+115°C THEMAL SHUTDOWN	I/P:110VDC O/P:TESTING Ta: TESTING	OK AUTOMATIC RECOVERY	P

## CONTROL FUNCTION TEST

	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	Power on : >3.0~12Vdc or open circuit Power off : R.C <1.2Vdc or short	I/P:110VDC O/P:FULL LOAD Ta:25°C	Power on : R.C>2.1Vdc or Open Power off : R.C<1.9Vdc or Short	P
2	TRIM	-10%~ +10% (Typ) Trim ~ +Vout Trim DOWN Trim ~ -Vout Trim UP Using 2M ohms VR	I/P:110VDC O/P:FULL LOAD Ta:25°C	Trim DOWN -10.30% Trim UP +9.38%	P

## SAFETY TEST

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	WITHSTAND VOLTAGE	I/P-O/P:3.0K VAC/min I/P-CASE:1.5K VAC/min	I/P-O/P:3.0K VAC/min I/P-CASE:1.5K VAC/min Ta:25°C	I/P-O/P: 0.002mA I/P-O/P: 0.002mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>1000MΩ I/P-CASE: 500VDC>1000MΩ	I/P-O/P:500 VDC I/P-CASE:500 VDC Ta:25°C	I/P-O/P>1000MΩ I/P-CASE>1000 MΩ NO DAMAGE	P

## RELIABILITY TEST

### ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	Please refer to derating curve in specification.			P
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 4 HOURS	I/P:110VDC 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 : 5.0 M.T.B.F : 200K HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG