



# Test Report : RSDW20H-05

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20W 2"x1" Package Reliable 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	-1.5% ~ +1.5 %	I/P:110VDC O/P:FULL LOAD Ta:25°C	-0.8%	P
2	RIPPLE & NOISE	60 mVp-p	I/P:110VDC O/P:FULL LOAD Ta:25°C	30 mV	P
3	LINE REGULATION	-0.2% ~ +0.2%	I/P:43VDC~160VDC O/P:FULL LOAD Ta:25°C	+0.11% ~ +0.12%	P
4	LOAD REGULATION	-0.5% ~ +0.5%	I/P:110VDC O/P:10% LOAD~FULL LOAD Ta:25°C	-0.02% ~ +0.40%	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	EFFICIENCY	88.5%	I/P:110VDC O/P:FULL LOAD Ta:25°C	88.55%	P
2	DC CURRENT	205 mA / FULL LOAD 3 mA / NO LOAD	I/P:110VDC O/P:NO / FULL LOAD Ta:25°C	204.3 mA / FULL LOAD 2.13 mA / NO LOAD	P
3	UNDER VOLTAGE LOCKOUT	POWER UP40VDC (Typ) POWER DOWN 38VDC (Typ)	I/P:TESTING O/P:FULL LOAD Ta:25°C	POWER UP39.0VDC POWER DOWN 38.0VDC	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	AUTOMATIC RECOVERY	P
2	OVER LOAD PROTECTION	110~160%	I/P:110VDC O/P:TESTING Ta:25°C	142.0%	P

## CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	Power on : >5.5~75Vdc 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>2.3Vdc 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 500K ohms VR	I/P:110VDC O/P:FULL LOAD Ta:25°C	Trim DOWN -11.02% Trim UP +14.13%	P

## SAFETY TEST

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDITC
1	WITHSTAND VOLTAGE	I/P-O/P:3.0K VDC/min	I/P-O/P:3.0K VDC/min Ta:25°C	I/P-O/P: 0.002mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P:500 VDC Ta:25°C	I/P-O/P>100MΩ 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:110VDC O/P:FULL LOAD Ta=25°C 2. HIGH AMBIENT BURN-IN : 4HRS I/P:110VDC O/P:FULL LOAD Ta=73°C			P										
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CASE</td> <td>CENTER</td> <td>54.4°C</td> <td>98.4°C</td> </tr> </tbody> </table>				NO	Position	P/N	1	2	1	CASE	CENTER	54.4°C	98.4°C
NO	Position	P/N	1	2											
1	CASE	CENTER	54.4°C	98.4°C											
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 : 1.38888 M.T.B.F : 720K HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	ARCHEN HSIAO	PETER CHENG