



Test Report : RSDW40H-48

40W 2"x1" Package Reliable Railway DC-DC Converter

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

■ SAFETY TEST

Safety Test

■ RELIABILITY TEST

Environment Test

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|------------------|----------------------|--|-----------------|
| 1 | VOLTAGE ACCURACY | -1.0% ~ +1.0 % (Max) | I/P:110VDC O/P:FULL LOAD Ta:25°C | -0.28% |
| 2 | RIPPLE & NOISE | 150 mVp-p (Max) | I/P:110VDC O/P:FULL LOAD Ta:25°C | 110mV |
| 3 | LINE REGULATION | -0.2% ~ +0.2% (Max) | I/P:40VDC~160VDC O/P:FULL LOAD Ta:25°C | +0.00% ~ +0.02% |
| 4 | LOAD REGULATION | -0.5% ~ +0.5% (Max) | I/P:110VDC O/P:0% LOAD~FULL LOAD Ta:25°C | -0.01% ~ +0.03% |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|---------------------|---|---|--|
| 1 | INPUT VOLTAGE RANGE | 40VDC ~160 VDC | I/P:TESTING O/P:FULL LOAD Ta:25°C | 35.61VDC ~160VDC |
| 2 | EFFICIENCY | 89.0% (Typ) | I/P:110VDC O/P:FULL LOAD Ta:25°C | 89.11% |
| 3 | DC CURRENT | 0.5A / FULL LOAD (Max) 10 mA / NO LOAD (Max) | I/P:110VDC O/P:NO / FULL LOAD Ta:25°C | 0.401A / FULL LOAD 5.7 mA / NO LOAD |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|----------------------|-------------------|--|--|
| 1 | SHORT PROTECTION | CONTINUOUS | I/P:160VDC O/P:FULL LOAD Ta:25°C | HICCUP MODE AUTO-RECOVER |
| 2 | OVER LOAD PROTECTION | 125% ~ 210% (Typ) | I/P:110VDC O/P:TESTING Ta:25°C | 167.47% HICCUP MODE AUTO-RECOVER |

CONTROL FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|----------------|--|--|---|
| 1 | REMOTE CONTROL | Power on : R.C. ~ - Vin > 3.0~12Vdc or open circuit Power off : R.C. ~ - Vin < 1.2Vdc or short | I/P:110VDC O/P:FULL LOAD Ta:25°C | Power on : R.C.>3.0Vdc or Open Power off : R.C<1.2Vdc or short |
| 2 | TRIM CONTROL | +10%~ -10% (Typ) Trim ~ +Vout Trim DOWN Trim ~ -Vout Trim UP Using 1.5M ohm VR | I/P:110VDC O/P:FULL LOAD Ta:25°C | Trim DOWN -9.8% Trim UP +10.0% |

SAFETY TEST

SAFETY TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|----------------------|-----------------------|---------------------------------|-------------------------------|
| 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 |
| 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 |

RELIABILITY TEST

ENVIRONMENT TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | | | | | | | | | | |
|--|------------------------------|---|---|-----------|----|----------|---|---|---|---|------|--------|---------|---------|
| 1 | TEMPERATURE RISE TEST | 1. ROOM AMBIENT BURN-IN : 8HRS I/P:110VDC O/P:FULL LOAD Ta=25°C 2. HIGH AMBIENT BURN-IN : 8HRS I/P:110VDC O/P:FULL LOAD Ta=50°C 3. HIGH AMBIENT BURN-IN : 8HRS I/P:110VDC O/P:50% LOAD Ta=70°C | | | | | | | | | | | | |
| <table border="1" style="margin-left: auto; margin-right: auto;"> <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>CASE</td> <td>79.3°C</td> <td>104.4°C</td> <td>105.9°C</td> </tr> </tbody> </table> | | | | | NO | Position | 1 | 2 | 3 | 1 | CASE | 79.3°C | 104.4°C | 105.9°C |
| NO | Position | 1 | 2 | 3 | | | | | | | | | | |
| 1 | CASE | 79.3°C | 104.4°C | 105.9°C | | | | | | | | | | |
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 4 HOURS | I/P:110VDC O/P: FULL LOAD Ta= -40°C | TEST : OK | | | | | | | | | | |

OTHER

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|-----------|--|----------------|--------|
| 1 | MTBF | MIL-HDBK-217F,GB,25°C TOTAL FAILURE RATE : 1.283 M.T.B.F : 779KHRS | | |

| TEST RESULT | TESTER | APPROVAL |
|-------------|--------------|-------------|
| PASS | ARCHEN HSIAO | PETER CHENG |