



# Test Report: DDR-120A-24

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120W DIN Rail Type DC-DC Converter

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

## ■ RELIABILITY TEST

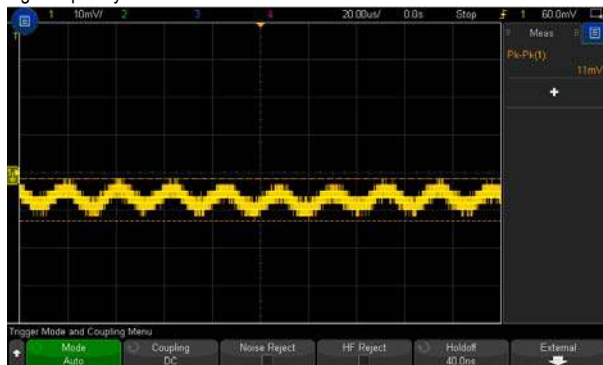
ENVIRONMENT TEST

## DESIGN VERIFY TEST

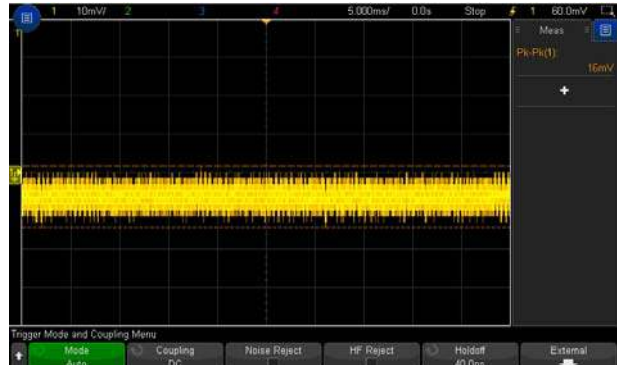
### OUTPUT FUNCTION TEST

| NO | TEST ITEM                         | SPECIFICATION    | TEST CONDITION                                    | RESULT              |
|----|-----------------------------------|------------------|---------------------------------------------------|---------------------|
| 1  | OUTPUT VOLTAGE<br>ADJUST RANGE    | CH1:24 V~28 V    | I/P : 12 VDC<br>O/P : MIN LOAD<br>Ta : 25°C       | 23.46V~28.64V       |
| 2  | OUTPUT VOLTAGE<br>TOLERANCE (Max) | V1: -1 %~1 %     | I/P:9VDC /18VDC<br>O/P:FULL/ MIN. LOAD<br>Ta:25°C | V1:-0.10 %~ 0.11%   |
| 3  | LINE REGULATION (Max)             | V1: -0.5 %~0.5 % | I/P: 9VDC / 18 VDC<br>O/P:FULL LOAD<br>Ta:25°C    | V1: -0.012%~0.012 % |
| 4  | LOAD REGULATION (Max)             | V1: -1 %~ 1 %    | I/P:12VDC<br>O/P:FULL ~MIN LOAD<br>Ta:25°C        | V1:-0.10 %~ 0.11%   |
| 5  | OVER/UNDERSHOOT TEST              | < ±5%            | I/P: 12VDC<br>O/P:FULL LOAD<br>Ta:25°C            | TEST: 2.9 %         |
| 6  | RIPPLE & NOISE (Max)              | V1: 50 mVp-p     | I/P: 12VDC<br>O/P:FULL LOAD<br>Ta:25°C            | V1: 16 mVp-p        |

high frequency :



low frequency :

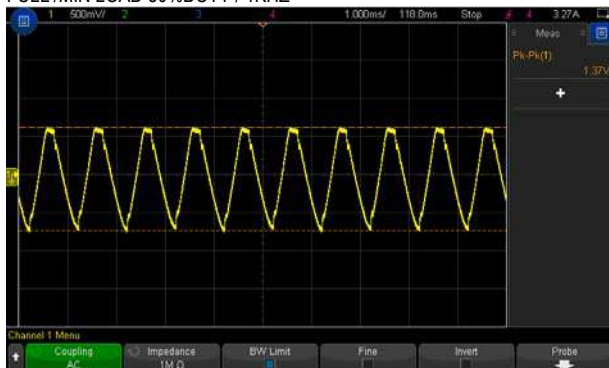


|   |                   |               |                                        |               |
|---|-------------------|---------------|----------------------------------------|---------------|
| 7 | SET UP TIME (Max) | 12VDC/ 500 ms | I/P: 12VDC<br>O/P:FULL LOAD<br>Ta:25°C | 12VDC/ 136 ms |
|---|-------------------|---------------|----------------------------------------|---------------|

INPUT=12VDC @ FULL LOAD

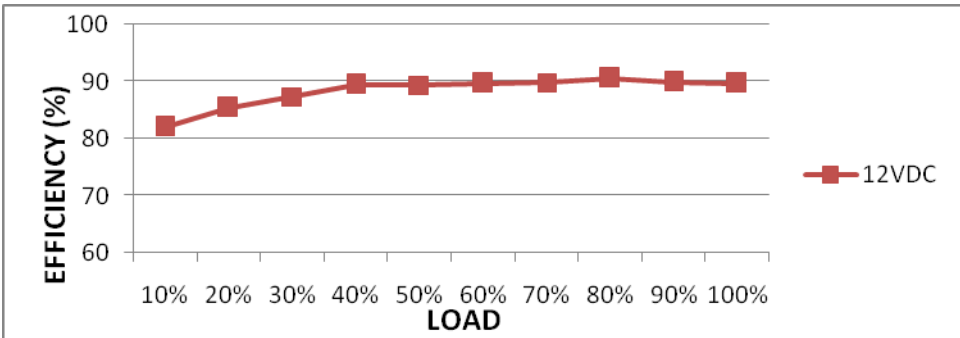
CH1 : DC Input Voltage CH2 : Output Voltage



|    |                                                                                                                                                                                                                                             |                |                                                                                                        |                        |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------|------------------------|
| 8  | RISE TIME (Max)                                                                                                                                                                                                                             | 12VDC/ 60 ms   | I/P: 12 VDC<br>O/P:FULL LOAD<br>Ta:25°C                                                                | 12VDC/ 6.1 ms          |
|    | INPUT=12VDC @ FULL LOAD<br>                                                                                                                                |                |                                                                                                        |                        |
| 9  | HOLD UP TIME (TYP)                                                                                                                                                                                                                          | 12VDC/ 3 ms    | I/P: 12VDC<br>O/P:FULL LOAD<br>Ta:25°C                                                                 | 12VDC/3.66 ms          |
|    | INPUT=12VDC @ FULL LOAD<br>CH1 : DC Input Voltage CH2 : Output Voltage<br>                                                                                |                |                                                                                                        |                        |
| 10 | DYNAMIC LOAD                                                                                                                                                                                                                                | V1: 2400 mVp-p | I/P: 12VDC<br>O/P:<br>(1)FULL /MIN LOAD 50%DUTY / 120HZ<br>(2)FULL /MIN LOAD 50%DUTY / 1KHZ<br>Ta:25°C | 1690mVp-p<br>1370mVp-p |
|    | FULL /MIN LOAD 50%DUTY / 120HZ<br> FULL /MIN LOAD 50%DUTY / 1KHZ<br> |                |                                                                                                        |                        |

### INPUT FUNCTION TEST

| NO | TEST ITEM           | SPECIFICATION | TEST CONDITION                          | RESULT    |
|----|---------------------|---------------|-----------------------------------------|-----------|
| 1  | INPUT VOLTAGE RANGE | 9VDC~ 18VDC   | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C | 8.64V~18V |

|                                                                                                             |                     |                          |                                                                                                                                                                       |                                                      |
|-------------------------------------------------------------------------------------------------------------|---------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
|                                                                                                             |                     |                          | I/P:<br>LOW-LINE-0.2=8.8 V<br>HIGH-LINE+3V= 21V<br>O/P:FULL/MIN LOAD<br>(PLEASE CHECK DERATING CURVE)<br>ON: 30 Sec . OFF: 30 Sec 10MIN<br>( POWER ON/OFF NO DAMAGE ) | TEST (1) <u>OK</u><br>(2) <u>OK</u><br>(3) <u>OK</u> |
| 2                                                                                                           | INPUT CURRENT(TYP)  | 12VDC/ 11.2 A            | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                 | I =9.37 A/ 12VDC                                     |
| 3                                                                                                           | EFFICIENCY(TYP)     | 88.5 %                   | I/P:12VDC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                 | 89.9%                                                |
| EFFICIENCY vs LOAD       |                     |                          |                                                                                                                                                                       |                                                      |
| 4                                                                                                           | INRUSH CURRENT(TYP) | 12VDC/ 5 A<br>COLD START | I/P: 12VDC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                | I = 3.68A/12 VDC                                     |
| INPUT=12VDC @ FULL LOAD  |                     |                          |                                                                                                                                                                       |                                                      |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM            | SPECIFICATION               | TEST CONDITION                                                  | RESULT                                                                                                                                                                                                                           |
|----|----------------------|-----------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | OVER LOAD PROTECTION | 105%~135%RATED OUTPUT POWER | I/P: 18VDC<br>I/P: 12VDC<br>I/P: 9VDC<br>O/P:TESTING<br>Ta:25°C | 124.9%/ 18VDC<br>124.76%/12VDC<br>124.9%/ 9VDC<br>PROTECTION TYPE :<br>Normally works within 150% rated output power for more than 3 seconds and then constant current protection 105~135% rated output power with auto-recovery |

|   |                         |                                        |                                                                   |                                                                                                                  |
|---|-------------------------|----------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 2 | OVER VOLTAGE PROTECTION | CH: 28.8V~ 33.6 V                      | I/P: 18VDC<br>I/P: 12VDC<br>I/P: 9VDC<br>O/P: MIN LOAD<br>Ta:25°C | 30.9V/18VDC<br>30.9V/12 VDC<br>30.9V/ 9VDC<br>PROTECTION TYPE :<br>Shut down O/P voltage, re-power on to recover |
| 3 | SHORT PROTECTION        | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P: 18VDC<br>O/P: FULL LOAD<br>Ta:25°C                           | NO DAMAGE<br>PROTECTION TYPE :<br>constant current protection 105~135%<br>rated output power with auto-recovery  |
| 4 | INPUT REVERSE           | POWER OK                               | I/P: 18VDC<br>O/P: NO LOAD<br>Ta:25°C                             | NO DAMAGE                                                                                                        |

### COMPONENT STRESS TEST

| NO | TEST ITEM                                           | SPECIFICATION                                  | TEST CONDITION                                                                                                                                                  | RESULT                                                                                                        |
|----|-----------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 1  | PWM Transistor<br>(D to S) or (C to E) Peak Voltage | Q 5 Rated:<br>60 V<br><br>Q 6 Rated:<br>-100V  | I/P: High-Line +3V =21V<br>DC ON/OFF<br>VDS:<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Full Load Continue<br>Ta:25°C                                     | Q5<br>VDS:<br>(1) 46.5V<br>(2) 42.1V<br>(3) 46.5V<br><br>Q6<br>VDS:<br>(1) -28.9V<br>(2) -24.1V<br>(3) -28.9V |
| 2  | Diode Peak Voltage                                  | Q100 Rated:<br>200V<br><br>Q101 Rated:<br>200V | I/P: High-Line +3V =21 V<br>DC ON/OFF<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Full Load Continue<br>Ta:25°C                                            | Q100:<br>VDS:<br>(1) 148V<br>(2) 51.3V<br>(3) 50.5V<br><br>Q101<br>VDS:<br>(1) 120V<br>(2) 110V<br>(3) 118V   |
| 3  | Input Capacitor Voltage                             | C5 Rated:<br>1500 $\mu$ / 35 V                 | I/P: High-Line +3V =21V<br>O/P: (1) Full Load input on/off<br>(2) Min load input on /Off<br>(3) Full Load /Min load Change<br>(4) Full load continue<br>Ta:25°C | C5:<br>(1) 23.6V<br>(2) 23.2V<br>(3) 21.6V<br>(4) 20.8V                                                       |
| 4  | Control IC Voltage Test                             | PWM IC U1 Rated:<br>-0.3V~16V                  | I/P: High-Line +3V =21V<br>DC ON/OFF<br>O/P: (1) FULL LOAD<br>(2) Output Short<br>(3) O.L.P<br>(4) O.V.P.<br>Ta:25°C                                            | U1:<br>(1) 14.4V<br>(2) 14.2V<br>(3) 14.4V<br>(4) 14.4V                                                       |

## SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                       | TEST CONDITION                                                           | RESULT                                                            |
|----|----------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P:4KVDC/min<br>I/P-FG:2.5 KVDC/min<br>O/P-FG:2.5KVDC/min      | I/P-O/P: 4.4KVDC/min<br>I/P-FG: 3 KVDC/min<br>O/P-FG:3KVDC/min<br>Ta:25℃ | I/P-O/P: 0 mA<br>I/P-FG: 0 mA<br>O/P-FG: 0 mA<br>NO DAMAGE        |
| 2  | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ<br>I/P-FG: 500VDC>100MΩ<br>O/P-FG:500VDC>100MΩ | I/P-O/P: 500 VDC<br>I/P-FG: 500 VDC<br>O/P-FG: 500 VDC<br>Ta:25℃         | I/P-O/P: 9999MΩ<br>I/P-FG: 9999 MΩ<br>O/P-FG:9999 MΩ<br>NO DAMAGE |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                              | 40A / 2min<br>Ta:25℃                                                     | 10mΩ                                                              |

## E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                                                                                                                                   | TEST CONDITION                         | RESULT                                                                                             |
|----|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------|
| 1  | RADIATION                                   | <input checked="" type="checkbox"/> EN55032 <input type="checkbox"/> EN55011<br><input type="checkbox"/> CLASS A<br><input checked="" type="checkbox"/> CLASS B | I/P: 12 VDC<br>O/P:FULL LOAD<br>Ta:25℃ | <input checked="" type="checkbox"/> PASS<br><input type="checkbox"/> FAIL<br>Test by certified Lab |
| 2  | CONDUCTION                                  | <input checked="" type="checkbox"/> EN55032 <input type="checkbox"/> EN55011<br><input type="checkbox"/> CLASS A<br><input checked="" type="checkbox"/> CLASS B | I/P: 12 VDC<br>O/P:FULL LOAD<br>Ta:25℃ | <input checked="" type="checkbox"/> PASS<br><input type="checkbox"/> FAIL<br>Test by certified Lab |
| 3  | E.S.D                                       | EN61000-4-2<br><input type="checkbox"/> Din rail Model :<br>AIR: 8KV / Contact: 6KV                                                                             | I/P: 12 VDC<br>O/P:FULL LOAD<br>Ta:25℃ | <input checked="" type="checkbox"/> CRITERIA A<br><input type="checkbox"/> CRITERIA B              |
| 4  | E.F.T                                       | EN61000-4-4<br><input type="checkbox"/> INDUSTRY<br>INPUT: 2KV                                                                                                  | I/P:12 VDC<br>O/P:FULL LOAD<br>Ta:25℃  | <input checked="" type="checkbox"/> CRITERIA A<br><input type="checkbox"/> CRITERIA B              |
| 5  | SURGE                                       | IEC61000-4-5<br><input type="checkbox"/> INDUSTRY<br>L-N :1KV<br>L,N-FG:2KV                                                                                     | I/P:12 VDC<br>O/P:FULL LOAD<br>Ta:25℃  | <input checked="" type="checkbox"/> CRITERIA A<br><input type="checkbox"/> CRITERIA B              |
| 6  | Test by certified Lab & Test Report Prepare |                                                                                                                                                                 |                                        |                                                                                                    |

## ■ RELIABILITY TEST

## ENVIRONMENT TEST

| NO | TEST ITEM             | SPECIFICATION                                                                                                                                                               | TEST CONDITION | RESULT |
|----|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|
| 1  | TEMPERATURE RISE TEST | MODEL : DDR-120A-12<br>1. ROOM AMBIENT BURN-IN : 1 HRS<br>I/P : 12VDC O/P : FULL LOAD Ta=24.0 ℃<br>2. HIGH AMBIENT BURN-IN : 1 HRS<br>I/P : 12VDC O/P : FULL LOAD Ta=56.1 ℃ |                |        |

|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                   |          |                         |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
|-------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------|-------------------------|-------------------------|--------------|-------------------------|---------|-------|-----------------|-------|------|------------|---------------------|--|-----------|
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | NO                                                                | Position | ROOM AMBIENT Ta=24.0 °C | HIGH AMBIENT Ta=56.1 °C |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1                                                                 | LF1      | 84.1°C                  | 107.3°C                 |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2                                                                 | LF2      | 71.0°C                  | 102.6°C                 |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3                                                                 | LF100    | 66.5°C                  | 99.3°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4                                                                 | T1       | 76.0°C                  | 110.6°C                 |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5                                                                 | T2       | 77.2°C                  | 111.2°C                 |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6                                                                 | Q1       | 75.4°C                  | 91.1°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7                                                                 | Q5       | 71.6°C                  | 90.6°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8                                                                 | Q100     | 64.4°C                  | 93.8°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9                                                                 | Q101     | 62.6°C                  | 92.8°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10                                                                | L100     | 78.1°C                  | 96.5°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 11                                                                | C1       | 72.3°C                  | 96.5°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 12                                                                | C5       | 67.6°C                  | 93.0°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13                                                                | C6       | 67.6°C                  | 92.2°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 14                                                                | C7       | 71.2°C                  | 93.4°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 15                                                                | C8       | 72.6°C                  | 97.0°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
|                         |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 16                                                                | C101     | 68.0°C                  | 93.9°C                  |              |                         |         |       |                 |       |      |            |                     |  |           |
| 17                      | C102                                                              | 69.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 94.7°C                                                            |          |                         |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 2                       | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | I/P : 12 VDC<br>O/P : 116 % LOAD<br>Ta : 25°C                     |          | TEST : OK               |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 3                       | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | I/P : 10.8 VDC/ 18 VDC<br>O/P : 100 % LOAD<br>Ta= -45 °C          |          | TEST : OK               |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 4                       | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 55 °C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                           | I/P : 21 VDC<br>O/P : FULL LOAD<br>Ta= 55 °C<br>HUMIDITY= 95 %R.H |          | TEST : OK               |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 5                       | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03 %(0~55°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I/P : 12 VDC<br>O/P : FULL LOAD                                   |          | ± 0.0061 %(0~55°C)      |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 6                       | STORAGE TEMPERATURE TEST                                          | 1. Thermal shock Temperature : -45°C~ +90°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 10 CYCLE<br>5. Input/Output condition : STATIC                                                                                                                                                                                                                                                                                  |                                                                   |          | TEST : OK               |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 7                       | THERMAL SHOCK TEST                                                | 1. Thermal shock Temperature : -45°C~ +60°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 16 CYCLE<br>5. Input/Output condition : 12VDC/Full Load DC ON/OFF TEST<br>turn on 3sec ; turn off 1sec@15cycle\ 12VDC/Full Load DC ON@1cycle                                                                                                                                                                                    |                                                                   |          | TEST : OK               |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 8                       | VIBRATION TEST                                                    | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 10min/sweep cycle<br>(4) Acceleration : 5G<br>(5) Test Time : 60min in each axis (X.Y.Z)<br>(6) Ta : 25°C<br>2 Din Rail <table><tr><td></td><td>Displacement</td><td>Acceleration</td></tr><tr><td>2 (+3/-0) Hz up to 15Hz</td><td>± 2.5mm</td><td>-----</td></tr><tr><td>15Hz up to 50Hz</td><td>-----</td><td>2.3g</td></tr><tr><td>Sweep rate</td><td colspan="2">Max 1 Octave/minute</td></tr></table> |                                                                   |          |                         | Displacement            | Acceleration | 2 (+3/-0) Hz up to 15Hz | ± 2.5mm | ----- | 15Hz up to 50Hz | ----- | 2.3g | Sweep rate | Max 1 Octave/minute |  | TEST : OK |
|                         | Displacement                                                      | Acceleration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                   |          |                         |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 2 (+3/-0) Hz up to 15Hz | ± 2.5mm                                                           | -----                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                   |          |                         |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| 15Hz up to 50Hz         | -----                                                             | 2.3g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                   |          |                         |                         |              |                         |         |       |                 |       |      |            |                     |  |           |
| Sweep rate              | Max 1 Octave/minute                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                   |          |                         |                         |              |                         |         |       |                 |       |      |            |                     |  |           |



# 120W DIN Rail Type DC-DC Converter

DDR-120A series

|    |                             |                                                                                                                                                                                                                                                                           |                                                                        |
|----|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 9  | CAPACITOR<br>LIFE CYCLE     | SUPPOSE C102 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 12 VDC O/P : FULL LOAD Ta= 25 °C LIFE TIME<br>(2) I/P : 12 VDC O/P : FULL LOAD Ta= 25 °C LIFE TIME<br>(3) I/P : 12 VDC O/P : 75% LOAD Ta= 25 °C LIFE TIME<br>(4) I/P : 12 VDC O/P : 50% LOAD Ta= 25 °C LIFE TIME | (1) 112716 HRS<br>(2) 22220 HRS<br>(3) 42748.3 HRS<br>(4) 100850.1 HRS |
| 10 | MTBF                        | Conducted by Parts Stress Analysis Prediction<br>214.6K hrs min. MIL-HDBK-217F (25°C)                                                                                                                                                                                     |                                                                        |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 30,000 hours @ TA 55°C                                                                                                                                                                                     |                                                                        |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|--------|--------|----------|
| PASS        | LIUTT  |        | WANGDZ   |

12.10.30 A50-F031