



Test Report: ADS-15512

155W Single Output With 5V, 3A 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	VERDICT
1	RIPPLE & NOISE	V1 : 150 mVp-p (Max) V2 : 100 mVp-p (Max)	I/P : 230VAC O/P : FULL LOAD Ta : 25°C	V1 : 130 mVp-p (Max) V2 : 88 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 10.8V ~ 13.2 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	10.36 V ~ 13.83 V / 230 VAC 10.36 V ~ 13.83 V / 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : -2 % ~ +2 % (Max) V2 : -3 % ~ +3 % (Max)	I/P : 100VAC / 264 VAC O/P : FULL / MIN LOAD Ta : 25°C	V1 : -0.05 % ~ 0.157 % V2 : -0.5 % ~ 1.276 %	P
4	LINE REGULATION	V1 : -0.5 % ~ +0.5 % (Max) V2 : -0.5 % ~ +0.5 % (Max)	I/P : 88VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0 % ~ 0 % V2 : 0 % ~ 0 %	P
5	LOAD REGULATION	V1 : -1 % ~ +1 % (Max) V2 : -2 % ~ +2 % (Max)	I/P : 230 VAC O/P : FULL ~ MIN LOAD Ta : 25°C	V1 : -0.05 % ~ 0.05 % V2 : -0.5 % ~ 1.25 %	P
6	CROSS REGULATION	V1 : -1 % ~ +1 % (Max) V2 : -2 % ~ +2 % (Max)	I/P : 230 VAC O/P : Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta : 25°C	V1 : 0 % ~ 0 % V2 : 0 % ~ 0 %	P
7	SET UP TIME	230VAC : 1000 ms (Max) 115VAC : 2000 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC / 450.832 ms 115VAC / 1584.298 ms	P
8	RISE TIME	230VAC : 90 ms (Max) 115VAC : 90 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC / 8.506 ms 115VAC / 8.937 ms	P
9	HOLD UP TIME	230VAC : 24 ms (TYP) 115VAC : 20 ms (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC / 35.521 ms 115VAC / 36.144 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : <5 %	P
11	DYNAMIC LOAD	V1 : 2400 mVp-p V2 : 1000 mVp-p	I/P : 230 VAC (1).O/P : FULL / Min LOAD 90%DUTY / 1KHZ (2).O/P : FULL / Min LOAD 90%DUTY / 3KHZ (3).O/P : FULL / Min LOAD 90%DUTY / 5KHZ (4).O/P : FULL / Min LOAD 50%DUTY / 120HZ Ta : 25°C	(1) V1: 676 / V2: 436 mVp-p (2) V1: 505 / V2: 408 mVp-p (3) V1: 500 / V2: 420 mVp-p (4) V1: 675 / V2: 400 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	88VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	54.768 V~264V	P
			I/P : LOW-LINE-3V= 85 V HIGH-LINE+15%=300 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST : OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P : 100VAC ~ 264 VAC O/P : FULL~MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.92 / 230 VAC(TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.966 / 230 VAC	P
		0.92 / 115 VAC(TYP)		PF= 0.98 / 115 VAC	
4	EFFICIENCY	77 % (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	80.39 %	P
5	INPUT CURRENT	230V/ 1.5 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 0.848 A/ 230 VAC	P
		115V/ 2.5 A (TYP)		I = 1.747 A/ 115 VAC	
6	INRUSH CURRENT	230V/ 40 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 39.585 A/ 230 VAC	P
		115V/ 20 A (TYP) COLD START		I = 18.320 A/ 115 VAC	
7	LEAKAGE CURRENT	< 1 mA / 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.43 mA N-FG : 0.43 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 135 %	I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C	122.1 %/ 230 VAC 121.5 %/ 115 VAC ■ Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 13.8V~16.2V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	14.64 V/ 230 VAC 14.67 V/ 115 VAC ■ Shut down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 264 VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE ■ Constant Current Limiting	P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 2 Rated : 900V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue (4) Dynamic Load 90%Duty/1KHz Ta : 25°C	(1) 816 V (2) 760 V (3) 812 V (4) 836 V	P
2	Diode Peak Voltage	D40 Rated : 200 V 20 A	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 65.8 V (2) 60.5 V (3) 64.5 V	P
3	Clamp Diode Peak Voltage	D1 Rated : 1000 V 1 A	I/P : High-Line +3V = 267 V O/P : (1) Dynamic Load 90%Duty/1KHz (2)Full load continue Ta : 25°C	(1) 745 V (2) 816 V	P
4	Input Capacitor Voltage	C5 Rated : 150 u / 400V/85°C SURGE Voltage:450V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C	(1) 386 V (2) 424 V (3) 404 V	P
5	Control IC Voltage Test	U1 Rated : 30 V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C	(1) 17.4 V (2) 18.2 V (3) 18.0 V	P

6	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : 600 V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue (4)NO Load Turn on Ta : 25°C	(1) 404 V (2) 396 V (3) 404 V (4) 424 V	P
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■ AFETY & E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P : 3 KVAC/min I/P-FG : 1.5 KVAC/min O/P-FG : 0.5 KVAC/min	I/P-O/P : 3.6 KVAC/min I/P-FG : 1.8 KVAC/min O/P-FG : 0.6 KVAC/min Ta : 25°C	I/P-O/P : 2.22 mA I/P-FG : 2.26 mA O/P-FG : 2.98 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P : 500VDC>100MΩ I/P-FG : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ	I/P-O/P : 500 VDC I/P-FG : 500 VDC O/P-FG : 500 VDC Ta : 25°C/70%RH	I/P-O/P : 9999 MΩ I/P-FG : 9999 MΩ O/P-FG : 9999 MΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	5 mΩ	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 ■CLASS B	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	PASS	P
2	CONDUCTION	■EN55022 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab	P
3	RADIATION	■EN55022 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 ■LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 ■LIGHT INDUSTRY INPUT : 1KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 ■LIGHT INDUSTRY L-N : 1KV L,N-PE : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																				
1	TEMPERATURE RISE TEST	MODEL : ADS-15512 1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD Ta= 16.1°C 2. HIGH AMBIENT BURN-IN : 1HRS I/P : 230VAC O/P : FULL LOAD Ta= 49.2°C	<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=16.1°C</th> <th>HIGH AMBIENT Ta= 49.2 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>U1</td><td>64.1°C</td><td>94.1°C</td></tr> <tr><td>2</td><td>LF1</td><td>36.8°C</td><td>68.4°C</td></tr> <tr><td>3</td><td>U100</td><td>56.5°C</td><td>87.7°C</td></tr> <tr><td>4</td><td>BD1</td><td>65.6°C</td><td>95.3°C</td></tr> <tr><td>5</td><td>D2</td><td>67.3°C</td><td>97.7°C</td></tr> <tr><td>6</td><td>L1</td><td>80.0°C</td><td>111.0°C</td></tr> <tr><td>7</td><td>D3</td><td>58.6°C</td><td>88.3°C</td></tr> <tr><td>8</td><td>C5</td><td>50.6°C</td><td>81.4°C</td></tr> <tr><td>9</td><td>Q1</td><td>48.8°C</td><td>79.9°C</td></tr> <tr><td>10</td><td>Q2</td><td>53.8°C</td><td>85.6°C</td></tr> <tr><td>11</td><td>T1coil</td><td>70.6°C</td><td>102.0°C</td></tr> <tr><td>12</td><td>U200</td><td>76.1°C</td><td>106.2°C</td></tr> <tr><td>13</td><td>D40</td><td>82.0°C</td><td>109.6°C</td></tr> <tr><td>14</td><td>L100</td><td>68.7°C</td><td>101.1°C</td></tr> <tr><td>15</td><td>C102</td><td>52.5°C</td><td>85.4°C</td></tr> <tr><td>16</td><td>D201</td><td>50.6°C</td><td>81.6°C</td></tr> <tr><td>17</td><td>L201</td><td>52.0°C</td><td>84.2°C</td></tr> <tr><td>18</td><td>C201</td><td>35.7°C</td><td>67.1°C</td></tr> <tr><td>19</td><td>J106</td><td>57.2°C</td><td>88.1°C</td></tr> <tr><td>20</td><td>C200</td><td>63.6°C</td><td>94.7°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=16.1°C	HIGH AMBIENT Ta= 49.2 °C	1	U1	64.1°C	94.1°C	2	LF1	36.8°C	68.4°C	3	U100	56.5°C	87.7°C	4	BD1	65.6°C	95.3°C	5	D2	67.3°C	97.7°C	6	L1	80.0°C	111.0°C	7	D3	58.6°C	88.3°C	8	C5	50.6°C	81.4°C	9	Q1	48.8°C	79.9°C	10	Q2	53.8°C	85.6°C	11	T1coil	70.6°C	102.0°C	12	U200	76.1°C	106.2°C	13	D40	82.0°C	109.6°C	14	L100	68.7°C	101.1°C	15	C102	52.5°C	85.4°C	16	D201	50.6°C	81.6°C	17	L201	52.0°C	84.2°C	18	C201	35.7°C	67.1°C	19	J106	57.2°C	88.1°C	20	C200	63.6°C	94.7°C		P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 120 % LOAD Ta : 25°C	TEST : OK	P																																																																																				
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/100VAC O/P : 100 % LOAD Ta= -10 °C	TEST : OK	P																																																																																				
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL50°C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																				
5	TEMPERATURE COEFFICIENT	± 0.03%/°C(0~50°C)	I/P : 230 VAC O/P : FULL LOAD	±0.01%/°C(0~50°C)	P																																																																																				
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C ~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		OK	P																																																																																				



155W Single Output With 5V, 3A DC-DC Converter

ADS-155 series

7	THERMAL SHOCK TEST	1. Thermal shock Temperature : -10°C ~ +60°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec ; turn off 2sec	OK	P
8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 2G (5) Test Time : 60min in each axis (X.Y.Z) (6) Ta : 25°C	TEST : OK	P
9	CAPACITOR LIFE CYCLE	SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta=25°C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta=50°C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta=50°C LIFE TIME 3) I/P : 230VAC O/P : 50% LOAD Ta50°C LIFE TIME	(1) 166908HRS (2) 29918HRS (3) 53170HRS (4) 87641HRS	P
10	MTBF	MIL-HDBK-217F NOTICE S2 PARTS COUNT TOTAL FAILURE RATE : 202.3K HRS		P
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 50,000 hours @ TA 50°C		P

2007/3/20 A50-S014

SAMPLE	TEST RESULT	TESTER	APPROVAL
PRODUCT SAMPLE	PASS	SHENYM	WANGDZ