



Test Report: ADS-15524

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 : 98 mVp-p (Max) V2 : 78 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 21.6 V ~ 26.4 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	20.23 V ~ 27.62 V / 230 VAC 20.25 V ~ 27.63 V / 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : -1 % ~ +1 % (Max) V2 : -3 % ~ +3 % (Max)	I/P : 100VAC / 264 VAC O/P : FULL / MIN LOAD Ta : 25°C	V1 : -0.025 % ~ 0.079 % V2 : 0.749 % ~ 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 : -0.5 % ~ +0.5 % (Max) V2 : -2 % ~ +2 % (Max)	I/P : 230 VAC O/P : FULL ~ MIN LOAD Ta : 25°C	V1 : -0.025 % ~ 0.025 % V2 : -0.405 % ~ 1.134 %	P
6	CROSS REGULATION	V1 : -0.5 % ~ +0.5 % (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 % ~ 0.122 %	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 / 424.046 ms 115VAC / 1350.656 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 / 6.778 ms 115VAC / 6.813 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 / 37.143 ms 115VAC / 37.055 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) V1:505 / V2:404 mVp-p (2) V1:428 / V2:386 mVp-p (3) V1:586 / V2:446 mVp-p (4) V1:632 / V2:356 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	50.800 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= 0.981 / 115 VAC	
4	EFFICIENCY	82 % (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	85.03 %	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 = 0.812 A/ 230 VAC	P
		115V/ 2.5 A (TYP)		I = 1.645 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 = 39.289 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 : 0.46 mA N-FG : 0.46 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	126.5 %/ 230 VAC 124.5 %/ 115 VAC ■ Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 27..6V~32.4V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	29.85 V/ 230 VAC 29.79 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 7 A	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) 820 V (2) 656 V (3) 775 V (4) 824 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) 123 V (2) 112 V (3) 112 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) 388 V (2) 424 V (3) 405 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) 17.3 V (2) 18.3 V (3) 17.9 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) 408 V (4) 436 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 : 2.42 mA I/P-FG : 2.31 mA O/P-FG : 4.78 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	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℃ 2. HIGH AMBIENT BURN-IN : 1HRS I/P : 230VAC O/P : FULL LOAD Ta= 49.2℃	<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=16.1℃</th> <th>HIGH AMBIENT Ta= 49.2 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>U1</td><td>64.1℃</td><td>94.1℃</td></tr> <tr><td>2</td><td>LF1</td><td>36.8℃</td><td>68.4℃</td></tr> <tr><td>3</td><td>U100</td><td>56.5℃</td><td>87.7℃</td></tr> <tr><td>4</td><td>BD1</td><td>65.6℃</td><td>95.3℃</td></tr> <tr><td>5</td><td>D2</td><td>67.3℃</td><td>97.7℃</td></tr> <tr><td>6</td><td>L1</td><td>80.0℃</td><td>111.0℃</td></tr> <tr><td>7</td><td>D3</td><td>58.6℃</td><td>88.3℃</td></tr> <tr><td>8</td><td>C5</td><td>50.6℃</td><td>81.4℃</td></tr> <tr><td>9</td><td>Q1</td><td>48.8℃</td><td>79.9℃</td></tr> <tr><td>10</td><td>Q2</td><td>53.8℃</td><td>85.6℃</td></tr> <tr><td>11</td><td>T1coil</td><td>70.6℃</td><td>102.0℃</td></tr> <tr><td>12</td><td>U200</td><td>76.1℃</td><td>106.2℃</td></tr> <tr><td>13</td><td>D40</td><td>82.0℃</td><td>109.6℃</td></tr> <tr><td>14</td><td>L100</td><td>68.7℃</td><td>101.1℃</td></tr> <tr><td>15</td><td>C102</td><td>52.5℃</td><td>85.4℃</td></tr> <tr><td>16</td><td>D201</td><td>50.6℃</td><td>81.6℃</td></tr> <tr><td>17</td><td>L201</td><td>52.0℃</td><td>84.2℃</td></tr> <tr><td>18</td><td>C201</td><td>35.7℃</td><td>67.1℃</td></tr> <tr><td>19</td><td>J106</td><td>57.2℃</td><td>88.1℃</td></tr> <tr><td>20</td><td>C200</td><td>63.6℃</td><td>94.7℃</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=16.1℃	HIGH AMBIENT Ta= 49.2 ℃	1	U1	64.1℃	94.1℃	2	LF1	36.8℃	68.4℃	3	U100	56.5℃	87.7℃	4	BD1	65.6℃	95.3℃	5	D2	67.3℃	97.7℃	6	L1	80.0℃	111.0℃	7	D3	58.6℃	88.3℃	8	C5	50.6℃	81.4℃	9	Q1	48.8℃	79.9℃	10	Q2	53.8℃	85.6℃	11	T1coil	70.6℃	102.0℃	12	U200	76.1℃	106.2℃	13	D40	82.0℃	109.6℃	14	L100	68.7℃	101.1℃	15	C102	52.5℃	85.4℃	16	D201	50.6℃	81.6℃	17	L201	52.0℃	84.2℃	18	C201	35.7℃	67.1℃	19	J106	57.2℃	88.1℃	20	C200	63.6℃	94.7℃		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℃	TEST : OK	P																																																																																				
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/100VAC O/P : 100 % LOAD Ta= -10 ℃	TEST : OK	P																																																																																				
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL50℃ NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50℃ HUMIDITY= 95 %R.H	TEST : OK	P																																																																																				
5	TEMPERATURE COEFFICIENT	± 0.03%/℃(0~50℃)	I/P : 230 VAC O/P : FULL LOAD	±0.01%/℃(0~50℃)	P																																																																																				
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45℃~ +90℃ 2. Temperature change rate : 25℃ / 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 (4) I/P : 230VAC O/P : 50% LOAD Ta=50°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

