



MODEL : SD-1000L-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 150 mVp-p (Max)	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	V1: 72 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1:11 V - 15 V	I/P: 48 VDC O/P:MIN LOAD Ta:25°C	10.3V - 15.61V	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1% - -1 % (Max)	I/P: 48 VDC / 72VDC O/P:FULL / MIN LOAD Ta:25°C	V1: 0.21 % - -0.21 %	P
4	LINE REGULATION	V1: 0.5 % - -0.5 % (Max)	I/P: 48VDC ~ 72VDC O/P:FULL LOAD Ta:25°C	V1: 0 % - 0 %	P
5	LOAD REGULATION	V1: 0.5 % - -0.5 % (Max)	I/P: 48 VDC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.21 % - -0.21 %	P
6	SET UP TIME	500 ms (Max)	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	90 ms	P
7	RISE TIME	50 ms (Max)	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	23 ms	P
8	OVER/UNDERSHOOT TEST	< ±5%	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
9	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 48 VDC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	518 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	19VDC~ 72 VDC	I/P:TESTING O/P:LOW LINE /70% LOAD HIGH LINE /FULL LOAD Ta:25°C	17.9 V - 72 V	P
			I/P: LOW-LINE-0.2V= 18.8V O/P:70%/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE) HIGH-LINE+5%= 75 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST: OK	
2	EFFICIENCY	84 % (TYP)	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	84.3 %	P
3	INPUT CURRENT	23.5 A/ 48 V (TYP)	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	I = 18 A	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 125 %	I/P: 48VDC O/P:TESTING Ta:25°C	112 % Constant Current Limiting, unit will shut down o/p voltage above 5sec Re-power on to recover	P
2	OVER VOLTAGE PROTECTION	CH1: 16V~ 19V	I/P: 48VDC O/P:MIN LOAD Ta:25°C	17.4 V Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: 75°C ± 5°C OT.P. (TSW1) 85°C ± 5°C OT.P. (TSW2) NO DAMAGE	I/P: 48 VDC O/P:FULL LOAD	O.T.P. Active Shut down o/p volotage · recovers automatically after temperature goes down	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 72 VDC O/P: FULL LOAD Ta:25°C	NO DAMAGE Constant Current Limiting, unit will shut down o/p voltage above 5sec Re-power on to recover	p

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	FAN SPEED CONTROL	0%LOAD=6V-8.5V 100%LOAD=11.8V-12.8V	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	Fan Voltage= 6.8V/ NO LOAD Fan Voltage= 12.31V/ 100%LOAD	P
2	REMOTE CONTROL	Rc+ / Rc- POWER ON:OPEN BETWEEN ON/OFF POWEROFF:SHORT BETWEEN ON/OFF (A) Using External Voltage Source (B) Using Internal 12V Auxiliary Output (C) Using Internal 12V Auxiliary Output	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	(A)OK (B)OK (C)OK	P
3	REMOTE SENSE	>0.3V	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	> 0.3 V	P
4	OUTPUT OK SIGNAL	OPEN COLLECTOR SIGNAL LOW WHEN PSU TURN ON,MAX.SINK CURRENT 10mA,external voltage is 13V 0-0.5V OUTPUT STATUS ON 12-13V OUTPUT STATUS OFF	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	SINK CURRENT: 10 mA OUTPUT STATUS ON= 0 V OUTPUT STATUS OFF= 12.5V	P
5	FAN LOCK	SHUTDOWN RE-POWER ON	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	SHUTDOWN RE-POWER ON	P
6	AUX POWER	0-0.25A(10.8V-13.2V)	I/P: 48 VDC Ta:25°C	12.8 V/0A 12.1 V/0.25A	P
7	DC I/P UVP	17V-18.7V	O/P:70% LOAD Ta:25°C	17.9 VDC	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																			
1	TEMPERATURE RISE TEST	MODEL : SD-1000L-24 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 48 VDC O/P: FULL LOAD Ta= 29.6℃ 2. HIGH AMBIENT BURN-IN : 2HRS I/P: 48 VDC O/P: FULL LOAD Ta= 53.6℃			P																																																																																																																			
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 29.6 ℃</th> <th>HIGH AMBIENT Ta= 53.6 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>U2</td><td>UCC28220D</td><td>46.6℃</td><td>65.0℃</td></tr> <tr><td>2</td><td>D2</td><td>60CPQ150 60A/150V</td><td>44.0℃</td><td>64.6℃</td></tr> <tr><td>3</td><td>Q3</td><td>IRFP3710 57A/100V</td><td>53.3℃</td><td>69.3℃</td></tr> <tr><td>4</td><td>Q1</td><td>IRFP3710 57A/100V</td><td>50.0℃</td><td>73.8℃</td></tr> <tr><td>5</td><td>TSW1</td><td>ST-22 75℃</td><td>42.2℃</td><td>63.1℃</td></tr> <tr><td>6</td><td>LF1</td><td>TR-757</td><td>51.3℃</td><td>72.3℃</td></tr> <tr><td>7</td><td>C8</td><td>1000U/100V 105℃ MXR</td><td>50.7℃</td><td>71.2℃</td></tr> <tr><td>8</td><td>T2 COIL</td><td>TF-1684</td><td>66.2℃</td><td>87.9℃</td></tr> <tr><td>9</td><td>D901</td><td>S3L60 2.2A/600V</td><td>56.9℃</td><td>78.1℃</td></tr> <tr><td>10</td><td>L2</td><td>TF-1655</td><td>59.5℃</td><td>79.3℃</td></tr> <tr><td>11</td><td>U9</td><td>TNY280PN</td><td>58.8℃</td><td>80.7℃</td></tr> <tr><td>12</td><td>ZD10</td><td>P6KE100A</td><td>56.5℃</td><td>78.3℃</td></tr> <tr><td>13</td><td>U1</td><td>IR1150IS(PbF)</td><td>39.6℃</td><td>60.1℃</td></tr> <tr><td>14</td><td>Q903</td><td>IRFP260N 50A/200V</td><td>66.6℃</td><td>91.5℃</td></tr> <tr><td>15</td><td>C73</td><td>10U/50V 105℃ KY</td><td>54.9℃</td><td>76.1℃</td></tr> <tr><td>16</td><td>L100</td><td>TF-1455</td><td>58.6℃</td><td>80.1℃</td></tr> <tr><td>17</td><td>Q161</td><td>TIP42C -5A/100V</td><td>51.0℃</td><td>72.8℃</td></tr> <tr><td>18</td><td>TSW2</td><td>ST-22 90℃</td><td>61.1℃</td><td>85.9℃</td></tr> <tr><td>19</td><td>D102</td><td>ESAD83-006 30A/60V</td><td>70.4℃</td><td>92.0℃</td></tr> <tr><td>20</td><td>PCB</td><td>T2 與 ZD10 間</td><td>59.4℃</td><td>82.2℃</td></tr> <tr><td>21</td><td>內 TA</td><td>C303 上方處</td><td>43.8℃</td><td>64.5℃</td></tr> <tr><td>22</td><td>C113</td><td>1000U/35V 105℃ YXG</td><td>58.1℃</td><td>78.9℃</td></tr> </tbody> </table>	NO	Position		P/N	ROOM AMBIENT Ta= 29.6 ℃	HIGH AMBIENT Ta= 53.6 ℃	1	U2	UCC28220D	46.6℃	65.0℃	2	D2	60CPQ150 60A/150V	44.0℃	64.6℃	3	Q3	IRFP3710 57A/100V	53.3℃	69.3℃	4	Q1	IRFP3710 57A/100V	50.0℃	73.8℃	5	TSW1	ST-22 75℃	42.2℃	63.1℃	6	LF1	TR-757	51.3℃	72.3℃	7	C8	1000U/100V 105℃ MXR	50.7℃	71.2℃	8	T2 COIL	TF-1684	66.2℃	87.9℃	9	D901	S3L60 2.2A/600V	56.9℃	78.1℃	10	L2	TF-1655	59.5℃	79.3℃	11	U9	TNY280PN	58.8℃	80.7℃	12	ZD10	P6KE100A	56.5℃	78.3℃	13	U1	IR1150IS(PbF)	39.6℃	60.1℃	14	Q903	IRFP260N 50A/200V	66.6℃	91.5℃	15	C73	10U/50V 105℃ KY	54.9℃	76.1℃	16	L100	TF-1455	58.6℃	80.1℃	17	Q161	TIP42C -5A/100V	51.0℃	72.8℃	18	TSW2	ST-22 90℃	61.1℃	85.9℃	19	D102	ESAD83-006 30A/60V	70.4℃	92.0℃	20	PCB	T2 與 ZD10 間	59.4℃	82.2℃	21	內 TA	C303 上方處	43.8℃	64.5℃	22	C113	1000U/35V 105℃ YXG	58.1℃	78.9℃		
NO	Position	P/N	ROOM AMBIENT Ta= 29.6 ℃	HIGH AMBIENT Ta= 53.6 ℃																																																																																																																				
1	U2	UCC28220D	46.6℃	65.0℃																																																																																																																				
2	D2	60CPQ150 60A/150V	44.0℃	64.6℃																																																																																																																				
3	Q3	IRFP3710 57A/100V	53.3℃	69.3℃																																																																																																																				
4	Q1	IRFP3710 57A/100V	50.0℃	73.8℃																																																																																																																				
5	TSW1	ST-22 75℃	42.2℃	63.1℃																																																																																																																				
6	LF1	TR-757	51.3℃	72.3℃																																																																																																																				
7	C8	1000U/100V 105℃ MXR	50.7℃	71.2℃																																																																																																																				
8	T2 COIL	TF-1684	66.2℃	87.9℃																																																																																																																				
9	D901	S3L60 2.2A/600V	56.9℃	78.1℃																																																																																																																				
10	L2	TF-1655	59.5℃	79.3℃																																																																																																																				
11	U9	TNY280PN	58.8℃	80.7℃																																																																																																																				
12	ZD10	P6KE100A	56.5℃	78.3℃																																																																																																																				
13	U1	IR1150IS(PbF)	39.6℃	60.1℃																																																																																																																				
14	Q903	IRFP260N 50A/200V	66.6℃	91.5℃																																																																																																																				
15	C73	10U/50V 105℃ KY	54.9℃	76.1℃																																																																																																																				
16	L100	TF-1455	58.6℃	80.1℃																																																																																																																				
17	Q161	TIP42C -5A/100V	51.0℃	72.8℃																																																																																																																				
18	TSW2	ST-22 90℃	61.1℃	85.9℃																																																																																																																				
19	D102	ESAD83-006 30A/60V	70.4℃	92.0℃																																																																																																																				
20	PCB	T2 與 ZD10 間	59.4℃	82.2℃																																																																																																																				
21	內 TA	C303 上方處	43.8℃	64.5℃																																																																																																																				
22	C113	1000U/35V 105℃ YXG	58.1℃	78.9℃																																																																																																																				
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 48 VDC O/P: 113 % LOAD Ta:25℃	TEST : OK	P																																																																																																																			
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 48 VDC O/P: 100% LOAD Ta= -20℃	TEST : OK	P																																																																																																																			
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50℃ NO DAMAGE	I/P: 72 VDC O/P:FULL LOAD Ta= 50℃ HUMIDITY= 95 %R.H	TEST : OK	P																																																																																																																			
5	TEMPERATURE COEFFICIENT	± 0.02%(0-50℃)	I/P: 48VDC O/P:FULL LOAD	± 0.013 %(0-50℃)	P																																																																																																																			
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25℃		TEST : OK	P																																																																																																																			

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 2 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 2.4 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C / 70%RH	I/P-O/P: 3.98 mA I/P-FG: 3.87 mA O/P-FG: 2.92 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	I/P-O/P: 2.2 GΩ I/P-FG: 1.5 GΩ O/P-FG: 4.7 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C / 70%RH	10 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			N/A

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN55022 CLASS B	I/P: 48VDC O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
2	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	CRITERIA A	P
3	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 48VDC O/P:FULL LOAD Ta:25°C	CRITERIA A	P
4	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :0.5KV L,N-PE:0.5KV	I/P: 48 VDC O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SD-1000L-24 : SUPPOSE C113 IS THE MOST CRITICAL COMPONENT I/P: 48VDC O/P:FULL LOAD Ta=50 °C LIFE TIME= 251623 HRS I/P: 48VDC O/P:FULL LOAD Ta=50 °C LIFE TIME= 55554 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 32KKHRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 30,000 hours @ TA 50°C			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 900 Rated IRFP260N: 200 V 50 A	I/P:High-Line +3V = 75V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 204 V (2) 200 V	P
2	Diode Peak Voltage	D101 Rated ESAD83-006 30A/60V	I/P:High-Line +3V = 75 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 42 V (2) 22 VV	P
3	Clamp Diode Peak Voltage	D 900 Rated S3L60 2.2A/600V	I/P:High-Line +3V = 75 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 177 V	P
4	Input Capacitor Voltage	C5 Rated 1000u /100 V /105°C	I/P:High-Line +3V = 75 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) 78 V (2) 78 V (3) 78 V	P
5	Control IC Voltage Test	U2 Rated UCC28220: 8V-14 V	I/P:High-Line +3V = 75 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) 13.76 V (2) 13.56 V (3) 13.76 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/9/14	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/11/16	PRODUCT SAMPLE W0710C50	PASS	VINCENT TSENG	MAX LIN
2007/12/24	PRODUCT SAMPLE W0712A53	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023