

MODEL : SD-1000H-24

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 150 mVp-p (Max)	I/P: 96 VDC O/P: FULL LOAD Ta: 25°C	V1: 10 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 23 V ~ 30 V	I/P: 96 VDC O/P: MIN LOAD Ta: 25°C	22.03 V ~ 30.7 V	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1% ~ -1% (Max)	I/P: 96 VDC / 144VDC O/P: FULL / MIN LOAD Ta: 25°C	V1: 0.03 % ~ -0.03 %	P
4	LINE REGULATION	V1: 0.5 % ~ -0.5 % (Max)	I/P: 96VDC ~ 144VDC O/P: FULL LOAD Ta: 25°C	V1: 0.03 % ~ -0.03 %	P
5	LOAD REGULATION	V1: 0.5 % ~ -0.5 % (Max)	I/P: 96 VDC O/P: FULL ~ MIN LOAD Ta: 25°C	V1: 0.03 % ~ -0.03 %	P
6	SET UP TIME	500 ms (Max)	I/P: 96 VDC O/P: FULL LOAD Ta: 25°C	155 ms	P
7	RISE TIME	50 ms (Max)	I/P: 96 VDC O/P: FULL LOAD Ta: 25°C	27 ms	P
8	OVER/UNDERSHOOT TEST	< ±5%	I/P: 96 VDC O/P: FULL LOAD Ta: 25°C	TEST: <5 %	P
9	DYNAMIC LOAD	V1: 2400 mVp-p	I/P: 96 VDC O/P: FULL / Min LOAD 90% DUTY / 1KHZ Ta: 25°C	559 mVp-p	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	72VDC~ 144VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	70.7 V~ 144V	P
			I/P: LOW-LINE-0.2V= 71.8V HIGH-LINE+5%= 151V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN ( AC POWER ON/OFF NO DAMAGE )	TEST: OK	
2	EFFICIENCY	89 % (TYP)	I/P: 96 VDC O/P:FULL LOAD Ta:25°C	90.9 %	P
3	INPUT CURRENT	11.6 A / 96 V(TYP)	I/P: 96VDC O/P:FULL LOAD Ta:25°C	I = 11.1 A	P
4	INRUSH CURRENT	100 A /96V (TYP) COLD START	I/P: 96 VDC O/P:FULL LOAD Ta:25°C	I = 81 A	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 125 %	I/P: 96VDC O/P:TESTING Ta:25°C	115 % Constant Current Limiting, unit will shut down o/p voltage above 5sec Re-power on to recover	P
2	OVER VOLTAGE PROTECTION	CH1: 30.8V~ 35.2V	I/P: 96VDC O/P:MIN LOAD Ta:25°C	32.8 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: 96 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: 144VDC 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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	FAN SPEED CONTROL	0%LOAD=6V~8.5V 100%LOAD=11.8V~12.8V	I/P: 96 VDC O/P:FULL LOAD Ta:25°C	Fan Voltage= 7.25 V/ NO LOAD Fan Voltage= 12.2 V/ 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 (D)	I/P: 96 VDC O/P:FULL LOAD Ta:25°C	(A)OK (B)OK (C)OK	P
3	REMOTE SENSE	>0.3V	I/P: 96 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: 96 VDC O/P:FULL LOAD Ta:25°C	SINK CURRENT: 10 mA OUTPUT STATUS ON= 0.06 V OUTPUT STATUS OFF= 12.5V	P
5	FAN LOCK	SHUTDOWN RE-POWER ON	I/P: 96 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: 96VDC Ta:25°C	13.05 V/0A 13.1 V/0.25A	P
7	DC I/P UVP	69V~71.6V	O/P:100% LOAD Ta:25°C	70.7 VDC	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																			
1	TEMPERATURE RISE TEST	MODEL : SD-1000H-24 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 96VDC O/P: FULL LOAD Ta= 28.1°C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 96VDC O/P: FULL LOAD Ta= 53.7°C			P																																																																																																																			
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 96VDC O/P: 112% LOAD Ta:25°C	TEST : OK	P																																																																																																																			
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 96VDC O/P: 100% LOAD Ta= -20 °C	TEST : OK	P																																																																																																																			
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50°C NO DAMAGE	I/P: 147 VDC O/P: FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																																																			
5	TEMPERATURE COEFFICIENT	± 0.02%(0~50°C)	I/P: 96 VDC O/P: FULL LOAD	± 0.0017 %(0~50°C)	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°C		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: 4.87 mA I/P-FG: 4.61 mA O/P-FG: 4.98 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	I/P-O/P: 10 GΩ I/P-FG: 11 GΩ O/P-FG: 11 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C / 70%RH	11 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: 96VDC 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: 96 VDC O/P:FULL LOAD Ta:25°C	CRITERIA A	P
3	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 96VDC 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: 96 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-1000H-24 : SUPPOSE C113 IS THE MOST CRITICAL COMPONENT I/P: 96VDC O/P:FULL LOAD Ta=25 °C LIFE TIME= 370952 HRS I/P: 96VDC O/P:FULL LOAD Ta=50 °C LIFE TIME= 91276 HRS			P
2	MTBF	Conducted by Parts Stress Analysis Prediction 898.2K hrs min. Telcordia SR-332 (Bellcore) ; 106.7K hrs min. MIL-HDBK-217F (25°C)			P



**COMPONENT STRESS TEST**

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q 900 Rated IRFP460A 20A/500V	I/P:High-Line +3V = 147V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 360 V (2) 358 V	P
2	Diode <b>Peak Voltage</b>	D101 Rated S30JC10 30A/100V	I/P:High-Line +3V = 147 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 78 V (2) 43 V	P
3	Clamp Diode <b>Peak Voltage</b>	D 900 Rated S3L60 2.2A/600V	I/P:High-Line +3V = 147 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 372 V	P
4	<b>Input Capacitor Voltage</b>	C5 Rated 470u/200V 105°C	I/P:High-Line +3V = 147 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) 157 V (2) 156 V (3) 157 V	P
5	<b>Control IC Voltage Test</b>	U2 Rated UCC28220: 8V~14 V	I/P:High-Line +3V = 147 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) 13.57 V (2) 13.41 V (3) 13.57 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

2003/12/12 A50-F023