



MODEL : SDR-480-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 100 mVp-p (Max)	I/P : 230VAC O/P : FULL LOAD Ta : 25°C	V1 : 23 mVp-p (Max)	P
2	PEAK POWER	V1 : 720W (>3sec.)	I/P : 230VAC O/P : 720W Ta : 25°C	Ok	P
3	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 24 V- 28V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	23.53 V- 28.73 V/ 230 VAC 23.53 V- 28.73 V/ 115 VAC	P
4	OUTPUT VOLTAGE TOLERANCE	V1 : 1 %- -1 % (Max)	I/P : 100 VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 0.6 %- -0.6 %	P
5	LINE REGULATION	V1 : 0.5 %- -0.5 % (Max)	I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0.03 %- -0.03 %	P
6	LOAD REGULATION	V1 : 1 %- -1 % (Max)	I/P : 230 VAC O/P : FULL -MIN LOAD Ta : 25°C	V1 : 0.55 %- -0.55 %	P
7	SET UP TIME	230VAC : 1500 ms (Max) 115 VAC : 3000 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 610 ms 115VAC/ 1220 ms	P
8	RISE TIME	230VAC : 150 ms (Max) 115VAC : 150 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 112 ms 115VAC/ 101 ms	P
9	HOLD UP TIME	230VAC : 14 ms (TYP) 115VAC : 14 ms (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 15.6 ms 115 VAC 15.9 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	I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/1KHZ Ta : 25°C	337 mVp-p	P



**INPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC-264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	79 V ~264V	P
			I/P : LOW-LINE-3V= 87V 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 : 100 VAC ~ 264 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.92 / 230 VAC(TYP) 0.99 / 115 VAC(TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.95 / 230 VAC PF= 1 / 115 VAC	P
4	EFFICIENCY	94% (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	94.8 %	P
5	INPUT CURRENT	230V/ 2.5 A (TYP) 115V/ 5 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 2.3 A/ 230 VAC I = 4.48 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 80 A (TYP) 115V/ 40 A (TYP) COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 77 A/ 230 VAC I = 38 A/ 115 VAC	P
7	LEAKAGE CURRENT	< 0.8 mA / 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.51 mA N-FG : 0.5 mA	P

**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110%~ 150 %  Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery >150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C	127 %/ 230 VAC 126 %/ 115 VAC  Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery >150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	P
2	OVER VOLTAGE PROTECTION	CH1 : 29 V- 33V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	30.54 V/ 230 VAC 30.74 V/ 115 VAC Shut down o/p voltage with auto-recovery or re-power on to recovery	P
3	OVER TEMPERATURE PROTECTION	SPEC : TSW1 : 105 ± 5°C O.T.P. NO DAMAGE	I/P : 230 VAC O/P : FULL LOAD	O.T.P. Active Shut down o/p voltage · recovers automatically after temperature goes down	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 264 VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE Shut down Re-power ON	P

**CONTROL FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	DC OK REALY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	I/P : 230 VAC O/P : FULL LOAD	OK	P

**ENVIRONMENT TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																																		
1	TEMPERATURE RISE TEST	MODEL : SDR-480-24 1. ROOM AMBIENT BURN-IN : 2.5HRS I/P : 230VAC O/P : FULL LOAD Ta= 30.2 °C 2. HIGH AMBIENT BURN-IN : 1.5HRS I/P : 230VAC O/P : FULL LOAD Ta= 59.6 °C																																																																																																																																					
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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 : 230 VAC O/P : 100 % LOAD Ta= -30 °C	TEST : OK	P																																																																																																																																		
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60 °C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 60 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																																																																		
5	TEMPERATURE COEFFICIENT	± 0.03 % (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.056 % (0~50°C)	P																																																																																																																																		
6	VIBRATION TEST	A.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 B. 1 Set Mounting : Compliance to IEC60068-2-6		TEST : OK	P																																																																																																																																		

**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 O/P-DC OK : 0.5KVAC/min	I/P-O/P : 3.6 KVAC/min I/P-FG : 1.8 KVAC/min O/P-FG : 0.6 KVAC/min O/P-DC OK : 0.6 KVAC/min Ta : 25°C	I/P-O/P : 5.64 mA I/P-FG : 4.21 mA O/P-FG : 24.05 mA O/P-DC OK : 0.029 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 : 12.8 GΩ I/P-FG : 10.47 GΩ O/P-FG : 25 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	16 mΩ	P
4	APPROVAL	TUV : Certificate NO : R50148750 UL : File NO : E215312			P

**E.M.C TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS D	I/P : 230/240/220 VAC/50HZ O/P : 100/75/50/25%LOAD Ta : 25°C	PASS	P
2	CONDUCTION	EN55022 EN55011 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 EN55011 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 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 INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A	P
7	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	SDR-480-24 : SUPPOSE C 106 IS THE MOST CRITICAL COMPONENT	I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME= 179679 HRS I/P : 230VAC O/P : FULL LOAD Ta= 60 °C LIFE TIME= 14625 HRS I/P : 230VAC O/P : 75%OAD Ta= 60 °C LIFE TIME= 38099 HRS		P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 112.9K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 30,000 hours @ TA 60°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 40 Rated IRFB20N50K 20A/500V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short Ta : 25°C	(1) 452 V (2) 414 V	P
2	Diode Peak Voltage	Q100 Rated IRFB3307 130A/75V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short Ta : 25°C	(1) 57.6 V (2) 82 V	P
3	PFC Transistor ( D to S) or (C to E) Peak Voltage	Q902 Rated STW25NM50N 22A/550V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short Ta : 25°C	(1) 548 V (2) 410 V	P
4	Clamp Diode Peak Voltage	D41 /42 Rated SBD MBR1200 1A/200V	I/P : High-Line +3V = 267 V O/P : (1) Dynamic Load 90%Duty/1KHz Ta : 25°C	(1) 20.2 / 21.6 V	P
	Input Capacitor Voltage	C901 Rated 180u/450V 105°C 25*30 HU	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) 392.6 V (2) 394.1 V (3) 394.1 V	P
6	Control IC Voltage Test	U2 Rated L6599D 16V (max) 8.85V (min)	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) 12.33 V (2) 12.292 V (3) 12.291 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/11/10	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/5/5	PRODUCT SAMPLE W0902A49	PASS	SANFORD SU	VINCENT TSENG
2009/6/16	PRODUCT SAMPLE W0905A47	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023