

MODEL : LPH-18-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 120 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 36 mVp-p (Max)	PASS
2	OUTPUT VOLTAGE TOLERANCE	V1: -3 %~ +3 % (Max)	I/P: 190VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: -0.208 %~ +0.208 %	PASS
3	LINE REGULATION	V1: -1 %~ +1 % (Max)	I/P: 190 VAC ~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0 %	PASS
4	LOAD REGULATION	V1: -2 %~ +2 % (Max)	I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0 %~ 0 %	PASS
5	SET UP TIME	230VAC/ 1500 ms (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 856.6 ms	PASS
6	RISE TIME	230VAC/ 30 ms (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 7.34 ms	PASS
7	HOLD UP TIME	230VAC/ 50 ms (Typ)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 57.6 ms	PASS
8	OVER/UNDERSHOOT TEST	<±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: < 5 %	PASS
9	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230 VAC O/P: (1)FULL /Min LOAD 90%DUTY/1KHZ (2)FULL /Min LOAD 50%DUTY/120HZ Ta:25°C	(1) 426 mVp-p (2) 740 mVp-p	PASS

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180 VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	120 V~ 264 V	PASS
			I/P: LOW-LINE-3V= 177 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: 180 VAC ~264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	PASS
3	EFFICIENCY	78 % (Typ)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	80.02 %	PASS
4	INPUT CURRENT	230 V/ 0.3 A (Typ)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 0.15 A/ 230VAC	PASS
5	INRUSH CURRENT	230 V/ 50 A (max) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 45.6 A/ 230VAC	PASS

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	>105% RATED OUTPUT POWER	I/P: 264 VAC I/P: 230 VAC I/P: 190 VAC O/P:TESTING Ta:25°C	149 %/264VAC 141 %/ 230VAC 129 %/190 VAC Hiccup Mode	PASS
2	OVER VOLTAGE PROTECTION	CH1: 13.8 V~ 16.2 V	I/P: 230 VAC O/P:MIN LOAD Ta:25°C	15.28 V/ 230VAC Shut off o/p voltage, clamping by zener diode	PASS
3	OVER TEMPERATURE PROTECTION	SPEC: Tj 170°C O.T.P. NO DAMAGE	I/P: 230 VAC O/P:FULL LOAD	O.T.P. Active Hiccup Mode , recovers automatically after temperature goes down	PASS
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode	PASS

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : LPH-18-12 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 25.2 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 45.3 °C			PASS
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 130 % LOAD Ta:25°C	TEST : OK	PASS
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100 % LOAD Ta= -30 °C	TEST : OK	PASS
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	PASS
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(0-50°C)	PASS
6	VIBRATION TEST	1 Carton & 1 Set Operating at I/P: VAC NO LOAD (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	PASS

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	LPH-18-12 SUPPOSE C 105	IS THE MOST CRITICAL COMPONENT		
		I/P: 230 VAC O/P:FULL LOAD	Ta= 25 °C LIFE TIME= 434526.9 HRS		PASS
		I/P: 230 VAC O/P:FULL LOAD	Ta 50 °C LIFE TIME= 60279 HRS		
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT			PASS
		TOTAL FAILURE RATE: 1200.6K HRS			
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Tcase 75°C ; 50,000 hours @ Tcase 60°C			PASS

SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.0 KVAC/min	I/P-O/P: 3.6 KVAC/min Ta:25°C	I/P-O/P: 0.791 mA NO DAMAGE	PASS
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C	I/P-O/P: >9999 MΩ NO DAMAGE	PASS
4	LEAKAGE CURRENT	< 0.25 mA / 240VAC	I/P: 264 VAC O/P:NO LOAD Ta:25°C	L-FG: 0.072 mA N-FG: 0.071 mA	PASS

E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230/240/220 VAC/50HZ O/P:100%/75%/50%/25% LOAD Ta:25°C	PASS	PASS
2	CONDUCTION	EN55022 CLASS B	I/P:230 VAC (50HZ) /115V(60HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	PASS
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ)/115V(60HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	PASS
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	PASS
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	PASS
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	PASS
7	Test by certified Lab & Test Report Prepare				

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	U1 Rated VIPER22A : 730 V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 508 V (2) 524 V (3) 520 V (4) 500 V	PASS
2	Diode Peak Voltage	D 100 Rated HER302 : 100 V 3 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 57.2 V (2) 56.4 V (3) 58.0 V (4) 58.0 V	PASS
3	Clamp Diode Peak Voltage	D1 Rated GP20A : 800 V 2 A	I/P:High-Line +3V = 267 V O/P: (1)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (2)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 544 V (2) 556 V	PASS
4	Input Capacitor Voltage	C 5 Rated CAPXON : 27 u / 400 V 105 °C / KM Series	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Burn-IN 0.5 Hour Ta:25°C	(1) 316 V (2) 316 V (3) 312 V	PASS
5	Control IC Voltage Test	U 1 Rated VIPER22A : 50 V	I/P:High-Line +3V =267 V O/P:(1) Output Short (2)O.L.P Ta:25°C	(1) 14.5 V (2) 14.5 V	PASS

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DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/2/29	RD SAMPLE	PASS	SKY	LIUWY
2008/4/29	PRODUCT SAMPLE (W0804C311)	PASS	SKY	LIUWY
2008/7/11	PRODUCT SAMPLE (W0805D011)	PASS	SKY	LIUWY