

MODEL: MPT-200A

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max) V2: 120 mVp-p (Max) V3: 80 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 27 mVp-p (Max) V2: 29 mVp-p (Max) V3: 7 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4.75 V- 5.5 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	4.53 V- 5.62 V/ 230 VAC 4.53 V- 5.62 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %- -2 % (Max) V2: 8 %- -8 % (Max) V3: 5 %- -5 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.12 %- -0.12 % V2: 3.1 %- -3.1 % V3: 0.36 %- -0.36 %	P
4	LINE REGULATION	V1: 0.5 %- -0.5 % (Max) V2: 1 %- -1 % (Max) V3: 0.5 %- -0.5 % (Max)	I/P: 115 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.12 %- -0.12 % V2: 0.05 %- -0.05 % V3: 0.12 %- -0.12 %	P
5	LOAD REGULATION	V1: 1 %- -1 % (Max) V2: 5 %- -5 % (Max) V3: 1 %- -1 % (Max)	I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.12 %- -0.12 % V2: 1.6 %- -1.6 % V3: 0.36 %- -0.36 %	P
6	CROSS REGULATION	V1: 1 %- -1 % (Max) V2: 5 %- -5 % (Max) V3: 1 %- -1 % (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: 3.1 %- -3.1 % V3: 0.12 %- -0.12 %	P
7	SET UP TIME	230VAC: 1000 ms (Max) 115 VAC: 3000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 663 ms 115VAC/ 1326 ms	P
8	RISE TIME	230VAC: 20 ms (Max) 115VAC: 20 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 12 ms 115VAC/ 11 ms	P
9	HOLD UP TIME	230VAC: 16 ms (TYP) 115VAC: 16 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 18 ms 115VAC/ 18.2 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: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	269 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC-264 VAC)	I/P:TESTING O/P:FULL LOAD Ta:25°C	72 V-264V	P
			I/P: LOW-LINE-3V= 87 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 ~440HZ NO DAMAGE OSC	I/P: 90 VAC ~ 264 VAC O/P:FULL -MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	80% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	79.7%	P
4	POWER FACTOR	0.95/ 230 VAC(TYP) 0.98/1150 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.977 /230 VAC. PF= 0.996 /115 VAC	P
5	INPUT CURRENT	230V/ 1.6 A (TYP) 115V/ 3.5 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 1.14 A/ 230 VAC I = 2.31 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 40 A(TYP) 115V/ 25 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 32 A/ 230 VAC I = 16 A/ 115 VAC	P
7	LEAKAGE CURRENT a. For earth leakage current b. For patient leakage current	a. <180 uA / 264 VAC b. <100 uA / 264 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	a. 73 uA b. 39 uA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	120 %- 160 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta:25°C	145 %/ 230 VAC 145 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 5.75 V- 6.75 V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25°C	6.1V/ 230 VAC 6.1V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE ROTECTION	SPEC: TSW1: 95 ± 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 Hiccup Mode	p

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	Rc+ / Rc- 0V- 0.8V POWER ON 4V- 10V POWER OFF	I/P: 230 VAC O/P: FULL LOAD Ta:25°C	0V ~ 1.7 V POWER ON 2.6V ~10 V POWER OFF	P
2	POWER GOOD SIGNAL	DELAY 10ms ~ 500ms	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta:25°C	366 ms/ 230 VAC 366 ms/ 115 VAC	P
3	POWER FAIL SIGNAL	> 1ms	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta:25°C	5 ms/ 230 VAC 5 ms/ 115 VAC	P
4	REMOTE SENSE	>0.25V	I/P: 230 VAC O/P: FULL LOAD Ta:25°C	> 0.25 V	p

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : MPQ-200B WITH FAN 1. ROOM AMBIENT BURN-IN : 2HRS I/P: 230VAC O/P: FULL LOAD Ta= 28.8 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P: 230VAC O/P: FULL LOAD Ta= 50.7 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: V1@20A V2@9A V3@2.4A V4@2.4A Ta:25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 80 % 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: 272 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.04 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.02 %(0-50°C)	P
6	VIBRATION TEST	1 Carton & 1 Set Operating (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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 4 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.2 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 2 mA I/P-FG: 1.18 mA O/P-FG: 1.55 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: 13 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	28 mΩ	P
4	APPROVAL	TUV: Certificate NO : TA50069957 UL: File NO : E227340			P

E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	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 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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C110 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 437900 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 72238 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 262.1K HRS			P



COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q20 Rated IRFP450 : 500 V 14A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 390 V (2) 394 V (3) 394 V	P
2	Diode Peak Voltage	D100 Rated SBL3040PT : 40 V 30 A D200 Rated S20LC20U : 200 V 20 A D300 Rated SF10SC6 : 60 V 10 A	I/P:High-Line +3V = 267 V O/P: (1) Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 21 V (2) 17.8 V (3) 21.6 V (1) 45.8 V (2) 43.2 V (3) 48.4 V (1) 30.1 V (2) 25.7 V (3) 30.9 V	P
3	Input Capacitor Voltage	C 5 Rated : 150u / 400V/ 105°C	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) 386 V (2) 390 V (3) 398 V	P
4	Control IC Voltage Test	U1 Rated ML4800 : 18 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) 15.1 V (2) 15.1 V (3) 15.4 V	P
5	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated IRFP460A : 500 V 20A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 396 V (2) 414 V (3) 396 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2005/5/17	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2005/9/3	PRODUCT SAMPLE W0507B20	PASS	VINCENT TSENG	MAX LIN
2007/12/24	PRODUCT SAMPLE W0711C35	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023