

MODEL: MP650-CCEHH

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max) V2: 80 mVp-p (Max) V3: 150 mVp-p (Max) V4: 150 mVp-p (Max) V5: 150 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 30 mVp-p (Max) V2: 28 mVp-p (Max) V3: 18 mVp-p (Max) V4: 11 mVp-p (Max) V5: 6 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4 V~ 6 V CH2: 4 V~ 6 V CH3: 9 V~ 13.2 V CH4: 20 V~ 26.4 V CH5: 20 V~ 26.4 V	I/P: 230 VAC O/P:MIN LOAD Ta:25°C	3.88 V~ 6.59 V 3.88 V~ 6.59 V 8.4 V~ 14.09 V 17.9 V~ 29.2 V 18.5 V~ 29.32 V	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %- -2 % (Max) V2: 2 %- -2 % (Max) V3: 1 %- -1 % (Max) V4: 1 %- -1 % (Max) V5: 1 %- -1 % (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.9 %- -0.9 % V2: 0.7 %- -0.7 % V3: 0.21 %- -0.21 % V4: 0.2 %- -0.2 % V5: 0.2 %- -0.2 %	P
4	LINE REGULATION	V1: 0.5 %- -0.5 % (Max) V2: 0.5 %- -0.5 % (Max) V3: 0.3 %- -0.3 % (Max) V4: 0.2 %- -0.2 % (Max) V5: 0.2 %- -0.2 % (Max)	I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %- 0 % V2: 0 %- 0 % V3: 0 %- 0 % V4: 0 %- 0 % V5: 0.02 %- -0.02 %	P
5	LOAD REGULATION	V1: 1 %- -1 % (Max) V2: 1 %- -1 % (Max) V3: 0.5 %- -0.5 % (Max) V4: 0.5 %- -0.5 % (Max) V5: 0.5 %- -0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.4 %- -0.4 % V2: 0.5 %- -0.5 % V3: 0.15 %- -0.15 % V4: 0.03 %- -0.03 % V5: 0.1 %- -0.1 %	P
6	SET UP TIME	230VAC: 1500 ms (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 733 ms	P
7	RISE TIME	230VAC: 50 ms (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 20 ms	P
8	HOLD UP TIME	230VAC: 20 ms (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 21.3 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 1000 mVp-p V2: 1000 mVp-p V3: 1200 mVp-p V4: 2400 mVp-p V5: 2400 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	666 mVp-p 364 mVp-p 511 mVp-p 475 mVp-p 283 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	85VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	78V~264V	P
			I/P: LOW-LINE-3V= 82 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: 85 VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	POWER FACTOR	0.95 / 230 VAC(TYP)	I/P: 230 VAC	PF= 0.98 / 230 VAC	P
		0.98 / 115 VAC(TYP)	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.99 / 115 VAC	
4	EFFICIENCY	85 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	85.05 %	P
5	INPUT CURRENT	230V/ 4.5 A(TYP)	I/P: 230 VAC	I = 3.4 A/ 230 VAC	P
		115V/ 9 A(TYP)	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 7.1 A/ 115 VAC	
6	INRUSH CURRENT	230V/ 50 A(TYP)	I/P: 230 VAC	I = 35.5 A/ 230 VAC	P
		115V/ 30 A(TYP) COLD START	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 18 A/ 115 VAC	
7	LEAKAGE CURRENT	< 1 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.74 mA N-FG: 0.74 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	CH1: 121 %~ 150 % CH2: 121 %~ 150 % CH3: 121 %~ 150 % CH4: 121 %~ 150 % CH5: 121 %~ 150 %	I/P: 230 VAC O/P: TESTING Ta:25°C	CH1: 132 % CH2: 132 % CH3: 131 % CH4: 141 % CH5: 141 % Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 6.1 V~ 7.5 V CH2: 6.1 V~ 7.5 V CH3: 13.3 V~ 18 V CH4: 26.5 V~ 35 V CH5: 26.5 V~ 35 V	I/P: 230 VAC O/P: MIN LOAD Ta:25°C	CH1: 6.7 V CH2: 6.7 V CH3: 16.2 V CH4: 29.1 V CH5: 29.1 V Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: 80 ± 5°C O.T.P. NO DAMAGE	I/P: 264 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 Constant Current Limiting	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	FAN SPEED CONTROL	-----	I/P: 230 VAC O/P: FULL LOAD Ta:25°C	Fan Voltage= 12.25V	P
2	REMOTE CONTROL	Rc+ / Rc- short or 0V-0.8V POWER ON open or 4V-12V POWER OFF	I/P: 230 VAC O/P: FULL LOAD Ta:25°C	short or 0V - 3V POWER ON open or 3.1V - 12V POWER OFF	P

SAFETY TEST

NO	TEST ITEM	SPECICATION	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	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 3.97 mA I/P-FG: 3.28 mA O/P-FG: 6.15 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: 8 GΩ I/P-FG: 6 GΩ O/P-FG: 4 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	48 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50056599 UL: File NO : E183223			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 LIGHT 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 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
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	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 C 237 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 290149 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 55737 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	Q 3 Rated SPP20N60C3 : 650 V 20.7 A Q 2 Rated SPP20N60C3 : 650 V 20.7 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) 504 V (2) 498 V (3) 470 V (1) 550 V (2) 496 V (3) 428 V	P
2	Input Capacitor Voltage	C 5 Rated : 470u / 420V/ 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) 402 V (2) 402 V (3) 402 V	P
3	Power Transistor (D to S) or (C to E) Peak Voltage	U5 Rated TOP242P : 700V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 666 V (2) 638 V (3) 638 V	P
4	Control IC Voltage Test	U5 Rated TOP242P : 9V	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) 5.87 V (2) 5.87 V (3) 5.87 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2004/7/29	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2004/11/3	PRODUCT SAMPLE W0408B39	PASS	VINCENT TSENG	MAX LIN
2005/3/8	PRODUCT SAMPLE W0501E28	PASS	VINCENT TSENG	MAX LIN
2006/04/25	PRODUCT SAMPLE	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023