

MODEL : IPC-250

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:50 mVp-p (Max) V2:50 mVp-p (Max) V3:120 mVp-p (Max) V4:100 mVp-p (Max) V5:120 mVp-p (Max) V6:50 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 32 mVp-p (Max) V2: 24 mVp-p (Max) V3: 53 mVp-p (Max) V4: 16 mVp-p (Max) V5: 42 mVp-p (Max) V6: 38 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 3.14V~ 3.5V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	3.05 V~ 3.76 V/ 230 VAC 3.05 V~ 3.76 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 5 %~ -5 % (Max) V2: 5 %~ -5 % (Max) V3: 7 %~ -7 % (Max) V4: 8 %~ -8 % (Max) V5: 10 %~ -10 % (Max) V6: 5 %~ -5 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ 40% LOAD Ta:25°C	V1: 1.3 %~ -1.3 % V2: 2.3 %~ -2.3 % V3: 2 %~ -2 % V4: 0.6 %~ -0.6 % V5: 3.3 %~ -3.3 % V6: 2.8 %~ -2.8 %	P
4	LINE REGULATION	V1: 1 %~ -1 % (Max) V2: 1 %~ -1 % (Max) V3: 1 %~ -1 % (Max) V4: 2 %~ -2 % (Max) V5: 2 %~ -2 % (Max) V6: 1 %~ -1 % (Max)	I/P: 115 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.2 %~ -0.2 % V2: 0 %~ 0 % V3: 0 %~ 0 % V4: 0.2 %~ -0.2 % V5: 0 %~ 0 % V6: 0.2 %~ -0.2 %	P
5	LOAD REGULATION	V1: 5 %~ -5 % (Max) V2: 5 %~ -5 % (Max) V3: 7 %~ -7 % (Max) V4: 8 %~ -8 % (Max) V5: 10 %~ -10 % (Max) V6: 5 %~ -5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 1.3 %~ -1.3 % V2: 2.3 %~ -2.3 % V3: 1.6 %~ -1.6 % V4: 0.5 %~ -0.5 % V5: 1.4 %~ -1.4 % V6: 2.8 %~ -2.8 %	P
6	CROSS REGULATION	V1: 5 %~ -5 % (Max) V2: 5 %~ -5 % (Max) V3: 7 %~ -7 % (Max) V4: 8 %~ -8 % (Max) V5: 10 %~ -10 % (Max) V6: 5 %~ -5 % (Max)	I/P: 230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25°C	V1: 0.6 %~ -0.6 % V2: 0.25 %~ -0.25 % V3: 1.7 %~ -1.7 % V4: 0.7 %~ -0.7 % V5: 1.4 %~ -1.4 % V6: 0.7 %~ -0.7 %	P
7	SET UP TIME	230VAC: 800 ms (Max) 115 VAC: 2500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 230 ms 115VAC/ 230 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/ 13 ms 115VAC/ 13 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/ 18.4 ms 115VAC/ 18.9 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: 660 mVp-p	I/P: 230 VAC O/P:FULL /50% LOAD 90%DUTY/1KHZ Ta:25°C	275 mVp-p	P

INPUT FUNCTION TEST

N O	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC)	I/P:TESTING O/P:FULL LOAD Ta:25°C	65 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: 90VAC ~ 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 I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.958 / 230 VAC	P
		0.95 / 115 VAC (TYP)		PF= 0.99 / 115 VAC	
4	EFFICIENCY	75% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	77.3 %	P
5	INPUT CURRENT	230V/ 2 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 1.51 A/ 230 VAC	P
		115V/ 4 A (TYP)		I = 3.03 A/ 115 VAC	
6	INRUSH CURRENT	230V/ 80 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 40 A/ 230 VAC	P
		115V/ 40 A (TYP) COLD START		I = 20 A/ 115 VAC	
7	LEAKAGE CURRENT	< 3 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 1.2 mA N-FG: 1.2 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 135 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	139 %/ 230 VAC 130 %/ 115 VAC Shunt down Re-power ON	P
2	OVER VOLTAGE PROTECTION	+3V,+5V: 110%~140% of rated voltage  +12V: 13.2V~16V	I/P: 230 VAC O/P:MIN LOAD Ta:25°C	118 %/ +3V 122 %/ +5V 15.5V/ +12V Shunt down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Shunt down Re-power ON	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	POWER GOOD SIGNAL	DELAY 100ms ~ 500ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	212 ms/ 230VAC 214 ms/ 115 VAC	P
2	POWER FAIL SIGNAL	>1ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	5 ms/ 230 VAC 4.9 ms/115 VAC	P
3	PS-ON INPUT SIGNAL	Power off :PS-ON="Hi" or ">2v" Power on :PS-ON="Low" or "<0.5v"	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	Power off : PS-ON="Hi" or 0.7V~5V Power on : PS-ON="Low" or 0V~0.7V	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : IPC-250 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 28.6 °C 2. HIGH AMBIENT BURN-IN : 3 HRS I/P: 230VAC O/P: FULL LOAD Ta= 40.6 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 139 % 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= -20 °C	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 40 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 40 °C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.05 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.02 %(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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 1.5 KVAC/min I/P-FG: 1.5 KVAC/min	I/P-O/P: 1.8 KVAC/min I/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 6.56 mA I/P-FG: 6.82 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: 2 GΩ I/P-FG: 16 GΩ O/P-FG: 10 GΩ  NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	3 mΩ	P
4	APPROVAL	TUV: Certificate NO : 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 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 C 142 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 316356 HRS I/P: 230VAC O/P:FULL LOAD Ta= 40 °C LIFE TIME= 175462 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 94.1K HRS			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 21 Rated 2SK2082 : 900V 9A  Q 22 Rated 2SK2082 : 900V 9A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 764 V (2) 780 V (3) 380 V  (1) 752 V (2) 764 V (3) 764 V	P
2	Diode <b>Peak Voltage</b>	D101 Rated MBR3060PT : 60V 30A  D110 Rated S60SC4M : 40V 60A  D112 Rated 31DQ10 : 100V 3A  D140 Rated S30C4M : 40V 30A  D160 Rated YG802C04 : 40V 10A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 33.4 V (2) 31.3 V (3) 0 V  (1) 27.2 V (2) 24.6 V (3) 0 V  (1) 61.6 V (2) 54.8 V (3) 0 V  (1) 32 V (2) 31.8 V (3) 0 V  (1) 33.6 V (2) 33.6 V (3) 33.6 V	P
3	<b>Input Capacitor Voltage</b>	C 5 Rated : 150u / 400V/ 85°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) 414 V (2) 388 V (3) 412 V	P
4	<b>Control IC Voltage Test</b>	U1 Rated ML4800CP : 18V	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) 15.3 V (2) 13.7 V (3) 13.7 V	P
5	PFC Power Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q 1 Rated 16N50C3 : 500V 30A	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) 392 V (3) 390 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2005/1/19	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2005/7/15	PRODUCT SAMPLE W0504B42	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023