

MODEL : ATX-100

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:100 mVp-p (Max) V2:100 mVp-p (Max) V3:120 mVp-p (Max) V4:120 mVp-p (Max) V5:100 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 18 mVp-p (Max) V2: 7 mVp-p (Max) V3: 9 mVp-p (Max) V4: 31 mVp-p (Max) V5: 16 mVp-p (Max)	P
2	OUTPUT VOLTAGE TOLERANCE	V1: 5 %~ -5 % (Max) V2: 5 %~ -5 % (Max) V3: 5 %~ -5 % (Max) V4: 10 %~ -10 % (Max) V5: 5 %~ -5 % (Max)	I/P: 110 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 1 %~- -1 % V2: 0.3 %~- -0.3 % V3: 0.7 %~- -0.7 % V4: 2.1 %~- -2.1 % V5: 0.4 %~- -0.4 %	P
3	LINE REGULATION	V1: 1 %~ -1 % (Max) V2: 1 %~ -1 % (Max) V3: 1 %~ -1 % (Max) V4: 1 %~ -1 % (Max) V5: 1 %~ -1 % (Max)	I/P: 110 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.18 %~- -0.18 % V2: 0.12 %~- -0.12 % V3: 0 %~- 0 % V4: 0.1 %~- -0.1 % V5: 0.12 %~- -0.12 %	P
4	LOAD REGULATION	V1: 5 %~ -5 % (Max) V2: 5 %~ -5 % (Max) V3: 5 %~ -5 % (Max) V4: 10 %~ -10 % (Max) V5: 5 %~ -5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.4 %~- -0.4 % V2: 0.25 %~- -0.25 % V3: 0.5 %~- -0.5 % V4: 1.8 %~- -1.8 % V5: 0.4 %~- -0.4 %	P
5	CROSS REGULATION	V1: 5 %~ -5 % (Max) V2: 5 %~ -5 % (Max) V3: 5 %~ -5 % (Max) V4: 10 %~ -10 % (Max) V5: 5 %~ -5 % (Max)	I/P: 230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25°C	V1: 0.18 %~- -0.18 % V2: 0.12 %~- -0.12 % V3: 0.05 %~- -0.05 % V4: 1.05 %~- -1.05 % V5: 0.12 %~- -0.12 %	P
6	SET UP TIME	230VAC: 3000 ms (Max) 115 VAC: 3000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 952 ms 115VAC/ 952 ms	P
7	RISE TIME	230VAC: 80 ms (Max) 115VAC: 80 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 13 ms 115VAC/ 12 ms	P
8	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/ 50 ms 115VAC/ 51 ms	P
9	OVER/UNDERSHOOT TEST	< ±10%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <10 %	P
10	DYNAMIC LOAD	V1: 660 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	222 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	64 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 ~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) 0.95 / 115 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.97 / 230 VAC PF= 0.99 / 115 VAC	P
4	EFFICIENCY	80% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	81.8%	P
5	INPUT CURRENT	230V/ 0.7 A (TYP) 115V/ 1.4 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.55 A/ 230 VAC I = 1.09 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 60 A (TYP)  COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 42 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 1.1 mA N-FG: 1.1 mA	P

## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	CH1:6.2A MIN CH2:8.2A MIN CH3:7.2A MIN	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	CH1: 6.75 A/ 230 VAC 6.75A/ 115 VAC CH2: 9.8 A/ 230 VAC 9.8 A/ 115 VAC CH3: 8.9 A/ 230 VAC 8.9A/ 115 VAC  Shunt down Re-power ON (except 5VSB)	P
2	OVER VOLTAGE PROTECTION	CH1: 3.7 V~ 4.1V CH2: 5.7 V~ 6.5V CH3: 13.2 V~ 14.4V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	CH1: 3.8 V/ 230 VAC 3.8V/ 115 VAC CH2: 6.1V/ 230 VAC 6.1V/ 115 VAC CH3: 13.7V/ 230 VAC 13.7V/ 115 VAC  Shunt down Re-power ON (except 5VSB)	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 volotage · 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 Shunt down Re-power ON	P

## CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	PS-ON	POWER ON :PS-ON="Low" or "<0.8V" POWER OFF :PS-ON="Hi" or ">2V"	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	< 1.7V POWER ON > 1.8V POWER OFF	P
2	POWER OK	DELAY 100ms ~ 500ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	315ms/ 230VAC 316 ms/ 115VAC	P
3	No load power consumption	<1W	I/P: 240 VAC O/P:NO LOAD (PS-ON ="Hi") Ta:25°C	0.91W	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																																																					
1	TEMPERATURE RISE TEST	MODEL : ATX-100 1. ROOM AMBIENT BURN-IN : 6 HRS I/P: 230VAC O/P: FULL LOAD Ta= 31 °C 2. HIGH AMBIENT BURN-IN : 14HRS I/P: 230VAC O/P: FULL LOAD Ta= 37.9 °C			P																																																																																																																																																					
		<table border="1"> <thead> <tr> <th>O</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 31 °C</th> <th>HIGH AMBIENT Ta= 37.9°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>Q2</td><td>IRFP450 14A/500V</td><td>78.1°C</td><td>85.6°C</td></tr> <tr><td>2</td><td>C5</td><td>150U/400V 105°C MXC</td><td>78.2°C</td><td>85.6°C</td></tr> <tr><td>3</td><td>LF1</td><td>TR-652</td><td>76.2°C</td><td>83.7°C</td></tr> <tr><td>4</td><td>L2</td><td>TF-1565</td><td>87.8°C</td><td>96.2°C</td></tr> <tr><td>5</td><td>T1 COIL</td><td>TF-1563</td><td>90.9°C</td><td>98.8°C</td></tr> <tr><td>6</td><td>U1</td><td>ML4800CP</td><td>87.7°C</td><td>95.4°C</td></tr> <tr><td>7</td><td>U60</td><td>FSQ0365</td><td>93.9°C</td><td>101.7°C</td></tr> <tr><td>8</td><td>D2</td><td>BYC10-600 10A/600V</td><td>77.3°C</td><td>85.1°C</td></tr> <tr><td>9</td><td>Q1</td><td>IRFP460A 20A/500V</td><td>77.4°C</td><td>85.2°C</td></tr> <tr><td>10</td><td>BD1</td><td>US4K80R 4A/800V</td><td>74.9°C</td><td>82.5°C</td></tr> <tr><td>11</td><td>ZD70</td><td>P6KE200A</td><td>91.7°C</td><td>99.4°C</td></tr> <tr><td>12</td><td>C71</td><td>47U/50V 105°C YXM</td><td>90.5°C</td><td>98.1°C</td></tr> <tr><td>13</td><td>D500</td><td>SB1040FCT 10A/40V</td><td>89.9°C</td><td>98.3°C</td></tr> <tr><td>14</td><td>Q301</td><td>IRF1404 162A/40V</td><td>94.1°C</td><td>102.8°C</td></tr> <tr><td>15</td><td>Q400</td><td>IRL3103 64A/30V</td><td>94.7°C</td><td>103.3°C</td></tr> <tr><td>16</td><td>Q401</td><td>IRF1404 162A/40V</td><td>91.0°C</td><td>99.7°C</td></tr> <tr><td>17</td><td>C107</td><td>1200U/16V 105°C KY</td><td>89.2°C</td><td>98.1°C</td></tr> <tr><td>18</td><td>C308</td><td>470U/6.3V 105°C ZLH</td><td>97.5°C</td><td>106.1°C</td></tr> <tr><td>19</td><td>C408</td><td>470U/16V 105°C ZLH</td><td>87.2°C</td><td>95.8°C</td></tr> <tr><td>20</td><td>L100</td><td>TF-1564</td><td>102.4°C</td><td>111.4°C</td></tr> <tr><td>21</td><td>L301</td><td>TR-729</td><td>100.6°C</td><td>109.2°C</td></tr> <tr><td>22</td><td>L400</td><td>TR-729</td><td>95.8°C</td><td>104.5°C</td></tr> <tr><td>23</td><td>TSW1</td><td>ST-22 105°C</td><td>77.5°C</td><td>85.1°C</td></tr> <tr><td>24</td><td>Q101</td><td>IPP05CN10NG 100A/100V</td><td>93.3°C</td><td>101.8°C</td></tr> <tr><td>25</td><td>D70</td><td>03AF60 3A/600V</td><td>81.2°C</td><td>88.9°C</td></tr> <tr><td>26</td><td>D200</td><td>EC21QS10 2A/100V</td><td>90.7°C</td><td>98.7°C</td></tr> <tr><td>27</td><td>U100</td><td>SP6002</td><td>94.2°C</td><td>102.6°C</td></tr> <tr><td>28</td><td>U300</td><td>NCP1580</td><td>87.0°C</td><td>95.3°C</td></tr> <tr><td>29</td><td>CASE</td><td>CASE 上蓋</td><td>62.2°C</td><td>69.0°C</td></tr> </tbody> </table>	O	Position		P/N	ROOM AMBIENT Ta= 31 °C	HIGH AMBIENT Ta= 37.9°C	1	Q2	IRFP450 14A/500V	78.1°C	85.6°C	2	C5	150U/400V 105°C MXC	78.2°C	85.6°C	3	LF1	TR-652	76.2°C	83.7°C	4	L2	TF-1565	87.8°C	96.2°C	5	T1 COIL	TF-1563	90.9°C	98.8°C	6	U1	ML4800CP	87.7°C	95.4°C	7	U60	FSQ0365	93.9°C	101.7°C	8	D2	BYC10-600 10A/600V	77.3°C	85.1°C	9	Q1	IRFP460A 20A/500V	77.4°C	85.2°C	10	BD1	US4K80R 4A/800V	74.9°C	82.5°C	11	ZD70	P6KE200A	91.7°C	99.4°C	12	C71	47U/50V 105°C YXM	90.5°C	98.1°C	13	D500	SB1040FCT 10A/40V	89.9°C	98.3°C	14	Q301	IRF1404 162A/40V	94.1°C	102.8°C	15	Q400	IRL3103 64A/30V	94.7°C	103.3°C	16	Q401	IRF1404 162A/40V	91.0°C	99.7°C	17	C107	1200U/16V 105°C KY	89.2°C	98.1°C	18	C308	470U/6.3V 105°C ZLH	97.5°C	106.1°C	19	C408	470U/16V 105°C ZLH	87.2°C	95.8°C	20	L100	TF-1564	102.4°C	111.4°C	21	L301	TR-729	100.6°C	109.2°C	22	L400	TR-729	95.8°C	104.5°C	23	TSW1	ST-22 105°C	77.5°C	85.1°C	24	Q101	IPP05CN10NG 100A/100V	93.3°C	101.8°C	25	D70	03AF60 3A/600V	81.2°C	88.9°C	26	D200	EC21QS10 2A/100V	90.7°C	98.7°C	27	U100	SP6002	94.2°C	102.6°C	28	U300	NCP1580	87.0°C	95.3°C	29	CASE	CASE 上蓋	62.2°C	69.0°C	
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN)	I/P: 230 VAC O/P: 125WLOAD 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= 0°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	± 0.024 %(0-50°C)	P																																																																																																																																																					
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (3) Sweep Time:10min/sweep cycle (5) Test Time:1 hour in each axis (X.Y.Z)	(2) Frequency:10~500Hz (4) Acceleration:2G (6) Ta:25°C	TEST : OK	P																																																																																																																																																					

### SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min	I/P-O/P: 3.3 KVAC/min Ta:25°C	I/P-O/P: 4.23 mA  NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C / 70%RH	I/P-O/P: 4.5 GΩ  NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C / 70%RH	10 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			N/A

### E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS D	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 C107 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25°C LIFE TIME= 39003 HRS I/P: 230VAC O/P:FULL LOAD Ta= 40°C LIFE TIME= 11967 HRS I/P: 230VAC O/P:75% LOAD Ta= 40°C LIFE TIME= 37970 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 152KHRS			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>	Q2 Rated IRFP450A 14A/500V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 404 V (2) 442 V	P
2	Diode Peak <b>Voltage</b>	Q300 Rated IRL3103PbF 64A/30V  Q301 Rated IRF1404 162A/40V  Q400 Rated IRL3103PbF 64A/30V  Q401 Rated IRF1404 162A/40V  Q100 Rated STP40NF10L 40A/100V  Q101 Rated IPP05CN10NG 100A/100V  D202 Rated EC21QS10 2A/100V  D500 Rated SB1040FCT 10A/40V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 17 V (2) 15.7 V  (1) 13.2 V (2) 13.5 V  (1) 15.9 V (2) 16.8 V  (1) 14.9 V (2) 16.1 V  (1) 57 V (2) 58.2 V  (1) 67.5 V (2) 70 V  (1) 72 V (2) 74 V  (1) 35.6 V (2) 34.2 V	P
3	Clamp Diode Peak <b>Voltage</b>	D10 Rated SBYV26C 1A/600V  D70 Rated NSF03A60 3A/600V	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 400 V  (1) 402 V	P
4	<b>Input Capacitor Voltage</b>	C5 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) 382 V (2) 380 V (3) 382 V	P
5	<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) 15.18 V (2) 14.67 V (3) 15.18 V	P
6	P.F.C Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q1 Rated IRFP460A 20A/500V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 412 V (2) 402 V	P



DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/6/8	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/10/16	PRODUCT SAMPLE W0707A14	PASS	VINCENT TSENG	MAX LIN
2007/11/28	PRODUCT SAMPLE W0710C61	PASS	VINCENT TSENG	MAX LIN

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