MODEL：PID-250B

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:150 mVp-p (Max) V2:50 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25℃	V1: 63 mVp-p (Max) V2: 9 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 21.6 V~ 26.4 V CH1: 4.75 V~ 5.25 V	I/P: 230 VAC O/P:MIN LOAD Ta:25℃	19.9 V~ 27.4 V/ CH1 4.57 V~ 6.23 V/ CH2	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %~ -2 % (Max) V2: 2 %~ -2 % (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25℃	V1: 0.3 %~ -0.3 % V2: 0.12 %~ -0.12 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max) V2: 0.5 %~ -0.5 % (Max)	I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25℃	V1: 0.03 %~ -0.03 % V2: 0.12 %~ -0.12 %	P
5	LOAD REGULATION	V1: 1%~ -1 % (Max) V2: 2 %~ -2 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: 0.11 %~ -0.11 % V2: 0.12 %~ -0.12 %	P
6	CROSS REGULATION	V1: 1%~ -1 % (Max) V2: 2 %~ -2 % (Max)	I/P: 230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25℃	V1: 0.03 %~ -0.03 % V2: 0.12 %~ -0.12 %	P
7	SET UP TIME	230VAC: 1200 ms (Max) 115 VAC: 2500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 741 ms 115VAC/ 1482 ms	P
8	RISE TIME	230VAC: 60 ms (Max) 115VAC: 60 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 17 ms 115VAC/ 20 ms	P
9	HOLD UP TIME	230VAC: 30 ms (TYP) 115VAC: 30 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 37 ms 115VAC/ 37 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	TEST: < 5 %	P
11	DYNAMIC LOAD	V1: 2400 mVp-p V2: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25℃	332 mVp-p / V1 320 mVp-p / V2	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℃	56 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℃	TEST: OK	P
3	POWER FACTOR	0.92 / 230 VAC(TYP) 0.97 / 115 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	PF= 0.95 / 230 VAC PF= 0.99 / 115 VAC	P
4	EFFICIENCY	86% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	86.3 %	P
5	INPUT CURRENT	230V/ 1.5 A (TYP) 115V/ 3 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	I = 1.31 A/ 230 VAC I = 2.66 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 60 A (TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	I = 53.8 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 3.5 mA / 240 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25℃	L-FG: 0.7 mA N-FG: 0.7 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 170 % / CH1 101 %~ 150 % / CH2	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25℃	CH1: 112 %/ 230 VAC 112 %/ 115 VAC Normally work within 10sec and Then shutdown , re-power on to Recover Over 180% rated power or short Circuit ,constant current limiting Within 10 sec and then shutdown , Re-power on to recover CH2: 132 %/ 230 VAC 132 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 27.6V~ 32.4V CH2: 5.5V~ 6.75V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	CH1: 30.1 V/ 230 VAC 30.1 V/ 115 VAC CH2: 6.3 V/ 0.15A Shunt down o/p voltage , Re- power ON to recover for CH1 Hiccup Mode ,recovers Automatically after fault condition is removed for CH2 (by zener diode clamp)	P
3	OVER TEMPERATURE PROTECTION	SPEC: TSW1: 105 ± 5℃ 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℃	NO DAMAGE CH2 : Hiccup Mode CH1 : constant current limiting Within 10 sec and then shutdown	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	CN52 OPEN:CH1&CH2 power on CN52 SHORT:CH1 power off,CH2 power on When CH2is malfunction , CH1 will be shut down	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	OK	P

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：PID-250B NO FAN / NO CASE
1. ROOM AMBIENT BURN-IN：1 HRS
I/P: 230VAC O/P: FULL LOAD Ta= 27.9 ℃
2. HIGH AMBIENT BURN-IN：1.5 HRS
I/P: 230VAC O/P: FULL LOAD Ta= 41.9 ℃</td><td>P</td></tr>
<tr><td colspan="6">
<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT
Ta= 27.9 ℃</th><th>HIGH AMBIENT
Ta= 41.9 ℃</th></tr>
<tr><td>1</td><td>ZD2</td><td>1.5KE440A</td><td>71.5℃</td><td>84.8℃</td></tr>
<tr><td>2</td><td>D10</td><td>IN4007 1A/1KV</td><td>71.3℃</td><td>88.4℃</td></tr>
<tr><td>3</td><td>D8</td><td>HER208 2A/1KV</td><td>65.1℃</td><td>79.2℃</td></tr>
<tr><td>4</td><td>C51</td><td>330U/25V NCC KY 105℃</td><td>57.3℃</td><td>66.6℃</td></tr>
<tr><td>5</td><td>C5</td><td>220U/400V 105℃</td><td>57.8℃</td><td>68.8℃</td></tr>
<tr><td>6</td><td>U1</td><td>CM6800G</td><td>58.1℃</td><td>65.9℃</td></tr>
<tr><td>7</td><td>BD1</td><td>D10XB60 10A/600V</td><td>60.0℃</td><td>73.7℃</td></tr>
<tr><td>8</td><td>LF1</td><td>TR-738</td><td>52.1℃</td><td>63.9℃</td></tr>
<tr><td>9</td><td>Q2</td><td>IRFP460 20A/500V</td><td>64.2℃</td><td>76.5℃</td></tr>
<tr><td>10</td><td>U3</td><td>STRW-6251 650V</td><td>65.8℃</td><td>77.9℃</td></tr>
<tr><td>11</td><td>D1</td><td>BYC10-600 10A/600V</td><td>65.4℃</td><td>77.0℃</td></tr>
<tr><td>12</td><td>LF2</td><td>TR-548</td><td>52.5℃</td><td>64.2℃</td></tr>
<tr><td>13</td><td>L1</td><td>TF-1571</td><td>61.4℃</td><td>74.4℃</td></tr>
<tr><td>14</td><td>T1</td><td>TF-1539</td><td>89.2℃</td><td>101.8℃</td></tr>
<tr><td>15</td><td>D101</td><td>FME220B 20A/150V</td><td>85.7℃</td><td>99.3℃</td></tr>
<tr><td>16</td><td>C103</td><td>1500U/35V 105℃ KY</td><td>45.0℃</td><td>59.1℃</td></tr>
<tr><td>17</td><td>L100</td><td>TR-722</td><td>80.3℃</td><td>95.3℃</td></tr>
<tr><td>18</td><td>D71</td><td>ST02D-170</td><td>112.0℃</td><td>122.9℃</td></tr>
<tr><td>19</td><td>T2</td><td>TF-1572</td><td>61.6℃</td><td>74.9℃</td></tr>
<tr><td>20</td><td>C202</td><td>1200U/16V 105℃ KY</td><td>66.5℃</td><td>78.9℃</td></tr>
<tr><td>21</td><td>D201</td><td>MBR2045CT 20A/45V</td><td>77.2℃</td><td>89.2℃</td></tr>
<tr><td>22</td><td>CN4</td><td>ST-22 105℃</td><td>63.9℃</td><td>76.0℃</td></tr>
<tr><td>23</td><td>D102</td><td>FME220A 20A/100V</td><td>73.0℃</td><td>86.6℃</td></tr>
<tr><td>24</td><td>Q3</td><td>STW9NK90Z 8A/900V</td><td>74.7℃</td><td>89.6℃</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>OVER LOAD BURN-IN TEST</td><td>NO DAMAGE
1 HOUR (MIN)</td><td>I/P: 230 VAC
O/P: V1=10.5A V2=5.5A
Ta:25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P: 230 VAC
O/P: 100% LOAD
Ta= -10℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 40
NO DAMAGE</td><td>I/P: 272 VAC
O/P:FULL LOAD
Ta= 40℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.05 %(0~50℃)</td><td>I/P: 230 VAC
O/P:FULL LOAD</td><td>± 0.005 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">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℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

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℃	I/P-O/P: 4.82 mA I/P-FG: 3.93 mA O/P-FG: 3.44 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℃ / 70%RH	I/P-O/P: 6 GΩ I/P-FG: 7 GΩ O/P-FG: 11 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25℃	6 mΩ	P
4	APPROVAL	TUV: Certificate NO ：R 50102435 UL: File NO ：E183223			P

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℃	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25℃	PASS Test by certified Lab	P
3	RADIATION	EN5502 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25℃	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℃	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	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℃	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 C103 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 ℃ LIFE TIME= 734767 HRS I/P: 230VAC O/P:FULL LOAD Ta= 40 ℃ LIFE TIME= 257943 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 150.4KHRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) **Peak Voltage**	Q3 Rated STW9NK90Z : 8A/900V U3 Rated STRW6251 : 650 V 2.7 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25℃	(1) 824 V (2) 896 V (1) 615 V (2) 610 V	P
2	Diode Peak **Voltage**	D101 Rated FME-220B 20A/150V D201 Rated MBR2045CT : 45V 20 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25℃	(1) 145 V (2) 148 V. (1) 36 V (2) 32 V	P
3	Clamp Diode Peak **Voltage**	D8 Rated HER208 : 1000V 2A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 636 V	P
4	**Input Capacitor Voltage**	C5 Rated : 220u / 400V/ 105℃	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℃	(1) 398 V (2) 392 V (3) 398 V	P
5	**Control IC Voltage Test**	U1 Rated CM6800GIP : 18V U3 Rated STRW6251 : 32V	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℃	(1) 15.14 V (2) 14.91 V (3) 15.14 V (1) 25.4 V (2) 11.11 V (3) 25.4 V	P
6	P.F.C Transistor (D to S) or (C to E) **Peak Voltage**	Q2 Rated IRFP460A : 500 V 20 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25℃	(1) 430 V (2) 430 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/1/5	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/3/6	PRODUCT SAMPLE W0701C33	PASS	VINCENT TSENG	MAX LIN
2007/6/4	PRODUCT SAMPLE W0705D41	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023