

MODEL : PLP-20-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 2500 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 650 mVp-p (Max)	PASS
2	CURRENT ADJUST RANGE	CH1: 1.2A ~ 1.6A	I/P: 230 VAC I/P:115 VAC O/P:MIN LOAD Ta:25°C	0.704A~1.623A/230VAC 0.714A~1.631A/115VAC	PASS
3	OUTPUT VOLTAGE TOLERANCE	V1: -10 %~ +10 % (Max)	I/P: 100VAC / 277 VAC O/P:FULL/ 0% LOAD Ta:25°C	V1: -4.583%~ +4.375 %	PASS
4	LINE REGULATION	V1: -3 %~ +3 % (Max)	I/P: 100 VAC ~ 277VAC O/P:FULL LOAD Ta:25°C	V1: -0.05 %~ +0.06 %	PASS
5	LOAD REGULATION	V1: -10 %~ +10 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.26 %~ 0.31 %	PASS
6	SET UP TIME	230VAC/500 ms (Max) 115VAC/ 2000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 459.996 ms 115 VAC/ 327.055ms	PASS
7	RISE TIME	230VAC/ 200 ms (Max) 115VAC/ 200 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/16.44ms 115 VAC/15.91ms	PASS
8	OVER/UNDERSHOOT TEST	< ±10 %	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: +7.05 % -1.61 %	PASS
9	DYNAMIC LOAD	V1: 2500 mVp-p	I/P: 230 VAC O/P: (1)FULL /Min LOAD 90%DUTY/1KHZ (2)FULL /Min LOAD 50%DUTY/120HZ Ta:25°C	(1) 650 mVp-p (2) 800 mVp-p	PASS

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90 VAC~ 277 VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	90 V~ 277 V	PASS
			(1) I/P: LOW-LINE-3V= 87 V HIGH-LINE+15%= 300 V O/P: FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (2) I/P: 230VAC ON: 0.5 Sec . OFF: 0.5 Sec 20MIN (AC POWER ON/OFF NO DAMAGE)	TEST: (1) OK (2) OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 90 VAC ~277 VAC O/P: FULL-MIN LOAD Ta: 25°C	TEST: OK	PASS
3	POWER FACTOR	>0.9 / 230 VAC(Typ)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	PF= 0.935 / 230VAC	PASS
4	EFFICIENCY	80 % (Typ)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	82.7 %	PASS
5	INPUT CURRENT	230 V/ 0.2 A (Typ) 115 V/ 0.4 A (Typ)	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 0.106A / 230VAC I = 0.205A / 115VAC	PASS
6	INRUSH CURRENT	230 V/ 25 A COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 14.6 A / 230VAC	PASS

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95%~ 110 % RATED OUTPUT POWER	I/P: 277 VAC I/P: 230 VAC I/P: 100 VAC O/P: TESTING Ta: 25°C	109.4 %/277VAC 109.4 %/ 230VAC 108.9 %/ 100 VAC Constant Current Limiting	PASS
2	OVER VOLTAGE PROTECTION	CH1: 14 V~ 16 V	I/P: 277 VAC I/P: 230 VAC I/P: 90 VAC O/P: MIN LOAD Ta: 25°C	15.6 V/277VAC 15.6 V/ 230VAC 15.6 V/ 90 VAC Shut off o/p voltage, clamping by zener diode	PASS
3	OVER TEMPERATURE PROTECTION	SPEC: TSW1= 110 °C ±10 °C O.T.P. NO DAMAGE	I/P: 230 VAC O/P: FULL LOAD	111.5 °C / 230 VAC O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	PASS
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 277 VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup Mode	PASS

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	MODEL : PLP-20-12 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 36.1 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 50.8 °C			PASS																																																																																
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 36.1 °C</th> <th>HIGH AMBIENT Ta= 50.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>TR-6080</td><td>48.9°C</td><td>64.0°C</td></tr> <tr><td>2</td><td>BD1</td><td>KBP208G</td><td>55.1°C</td><td>70.1°C</td></tr> <tr><td>3</td><td>C8</td><td>224/450V MMX</td><td>59.3°C</td><td>74.6°C</td></tr> <tr><td>4</td><td>L1</td><td>TR-6065A</td><td>57.5°C</td><td>76.3°C</td></tr> <tr><td>5</td><td>Q1</td><td>2SK3532</td><td>65.8°C</td><td>81.4°C</td></tr> <tr><td>6</td><td>U1</td><td>L6561D</td><td>59.9°C</td><td>75.5°C</td></tr> <tr><td>7</td><td>D1</td><td>BYV26EGP</td><td>81.0°C</td><td>95.3°C</td></tr> <tr><td>8</td><td>ZD1</td><td>P6KE180A</td><td>73.4°C</td><td>88.4°C</td></tr> <tr><td>9</td><td>T1</td><td>TF-6194</td><td>73.2°C</td><td>90.1°C</td></tr> <tr><td>10</td><td>C16</td><td>100u/35V YXF</td><td>66.1°C</td><td>81.8°C</td></tr> <tr><td>11</td><td>D100</td><td>YG865C10R</td><td>70.5°C</td><td>85.3°C</td></tr> <tr><td>12</td><td>C105</td><td>1000uF/50V KY</td><td>56.8°C</td><td>72.0°C</td></tr> <tr><td>13</td><td>C106</td><td>220u/50V KY</td><td>61.0°C</td><td>76.4°C</td></tr> <tr><td>14</td><td>C125</td><td>22u/50V YXM</td><td>48.2°C</td><td>64.1°C</td></tr> <tr><td>15</td><td>TSW1</td><td>220KΩ 3Φ 1%</td><td>67.1°C</td><td>83.6°C</td></tr> </tbody> </table>	NO	Position		P/N	ROOM AMBIENT Ta= 36.1 °C	HIGH AMBIENT Ta= 50.8 °C	1	LF1	TR-6080	48.9°C	64.0°C	2	BD1	KBP208G	55.1°C	70.1°C	3	C8	224/450V MMX	59.3°C	74.6°C	4	L1	TR-6065A	57.5°C	76.3°C	5	Q1	2SK3532	65.8°C	81.4°C	6	U1	L6561D	59.9°C	75.5°C	7	D1	BYV26EGP	81.0°C	95.3°C	8	ZD1	P6KE180A	73.4°C	88.4°C	9	T1	TF-6194	73.2°C	90.1°C	10	C16	100u/35V YXF	66.1°C	81.8°C	11	D100	YG865C10R	70.5°C	85.3°C	12	C105	1000uF/50V KY	56.8°C	72.0°C	13	C106	220u/50V KY	61.0°C	76.4°C	14	C125	22u/50V YXM	48.2°C	64.1°C	15	TSW1	220KΩ 3Φ 1%	67.1°C	83.6°C		
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 109.4% LOAD Ta:25°C	TEST : OK	PASS																																																																																
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 277 VAC/100 VAC O/P: 100% LOAD Ta= -30 °C	TEST : OK	PASS																																																																																
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 285 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	PASS																																																																																
5	TEMPERATURE COEFFICIENT	± 0.06 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(0-50°C)	PASS																																																																																
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -40°C~ +80°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		TEST : OK	PASS																																																																																
7.	THERMAL SHOCK TEST	1. Thermal shock Temperature : -35 °C~ +55 °C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load 58SEC ON/2SEC OFF		TEST : OK	PASS																																																																																

8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Sweep Time:12min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C	TEST : OK	PASS
9	CAPACITOR LIFE CYCLE	SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 707252 HRS (2) I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 120756 HRS		PASS
10	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 643.6K HRS		PASS
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Ta 50°C		PASS

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75 KVAC/min EN 60950	I/P-O/P: 4.2 KVAC/min Ta:25°C	I/P-O/P: 0.996 mA NO DAMAGE	PASS
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C	I/P-O/P: >9999 MΩ NO DAMAGE	PASS
3	LEAKAGE CURRENT	< 0.5 mA / 240VAC EN 60950	I/P: 277 VAC O/P:NO LOAD Ta:25°C	L-FG: 0.005 mA N-FG: 0.010 mA	PASS

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 220/230/240/277 VAC/50HZ O/P:100%/75%/ LOAD Ta:25°C	PASS	PASS
2	CONDUCTION	EN55015	I/P:230 VAC (50HZ) /115V(60HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	PASS
3	RADIATION	EN55015	I/P: 230 VAC (50HZ)/115V(60HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	PASS
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	PASS
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	PASS
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	PASS
7	Test by certified Lab & Test Report Prepare				



COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 1 Rated 2SK3532 : 900 V 6 A	I/P:High-Line +3V = 280 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 576 V (2) 676 V (3) 584 V (4) 596 V	PASS
2	Diode Peak Voltage	D 100 Rated YG865C10R : 100 V 20 A	I/P:High-Line +3V = 280 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 73.2 V (2) 66.8 V (3) 70.8 V (4) 71.2 V	PASS
3	Clamp Diode Peak Voltage	D 1 Rated BYV26EGP : 1000 V 1 A	I/P:High-Line +3V = 280 V O/P: (1)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (2)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 448 V (2) 454 V	PASS
4	Control IC Voltage Test	U 1 Rated L6561D : 18 V U 100 Rated AP4310 : 40 V	I/P:High-Line +3V =280 V O/P: (1) Output Short (2)O.L.P (3)O.V.P (4)NO LOAD VR 下限 LOW LINE Ta:25°C	U1 U100 (1) 12.4 V (1) 8.0 V (2) 12.4 V (2) 8.4 V (3) 13.4 V (3) 9.8 V (4) 14.5 V (4) 9.8 V	PASS

2007/11/26 A50-G058

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/7/18	RD SAMPLE	PASS	ZOULF	HOWAY
2010/2/5	PRODUCT SAMPLE (W1001C471)	PASS	ZOULF	HOWAY
2010/3/30	PRODUCT SAMPLE (W1003B331)	PASS	ZOULF	HOWAY