

MODEL : PLC-100-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 150 mVp-p (Max)	I/P : 230VAC O/P : FULL LOAD Ta : 25°C	V1 : 12.8 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 20.4 V~ 24 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	19.30 V~ 24.70 V/ 230 VAC 19.29 V~ 24.70 V/ 115 VAC	P
3	OUTPUT CURRENT ADJUST RANGE	CH1 : 3 A~ 4 A	I/P : 230 VAC I/P : 115 VAC Ta : 25°C	2.79 A~ 4.48 A/230V 2.75 A~ 4.45 A/115V	P
4	CONSTANT CURRENT REGION	CH1 : 18 V~ 24 V	I/P : 230VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	11.5 V~ 24 V/230V 11.5 V~ 24 V/115V	P
5	OUTPUT VOLTAGE TOLERANCE	V1 : 3 % ~ -3 % (Max)	I/P : 100VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 2.1 % ~ -2.1 %	P
6	LINE REGULATION	V1 : 1 % ~ -1 % (Max)	I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0.05 % ~ -0.05 %	P
7	LOAD REGULATION	V1 : 2 % ~ -2 % (Max)	I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C	V1 : 0.5 % ~ -0.5 %	P
8	SET UP TIME	230VAC : 500 ms (Max) 115 VAC : 1200 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 364.159 ms 115VAC/ 356.568 ms	P
9	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/ 16 ms 115VAC/ 19 ms	P
10	HOLD UP TIME	230VAC : 60 ms 115VAC : 16 ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 113 ms 115VAC/ 34 ms	P
11	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : < 5 %	P
12	DYNAMIC LOAD	V1 : 2400 mVp-p	I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/1KHZ Ta : 25°C	456 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	53V~264V	P
			I/P : LOW-LINE-3V= 87 V (PLEASE CHECK DERATING CURVE) 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	I/P : 100VAC ~ 264 VAC O/P : FULL~MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.95 / 230 VAC 0.95 / 115 VAC	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.977 / 230 VAC PF= 0.990 / 115 VAC	P
4	EFFICIENCY	88.5% (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	90.3 %	P
5	INPUT CURRENT	230V/ 0.55 A (TYP) 115V/ 1.1 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 0.45 A/ 230 VAC I = 0.88 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 40 A (TYP) COLD START	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I = 33.9 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 0.75 mA/ 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.4 mA N-FG : 0.36 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 %~ 102 %	I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C	100.7%/ 230 VAC 99.2%/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 27 V~ 34 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	31.04V/ 230 VAC 31.04V/ 115 VAC Constant current limiting, recovers automatically after fault condition is removed	P
3	OVER TEMPERATURE PROTECTION	SPEC : RTH2 : $90 \pm 10^{\circ}\text{C}$ O.T.P. NO DAMAGE	I/P : 230 VAC O/P : FULL LOAD	O.T.P. Active Shut down Re-power ON	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

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																									
1	TEMPERATURE RISE TEST	MODEL : PLC-100-24 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 31 °C 2. HIGH AMBIENT BURN-IN : 13.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 56.6 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 31 °C</th><th>HIGH AMBIENT Ta= 56.6 °C</th></tr><tr><td>1</td><td>LF3</td><td>TR689</td><td>68.4°C</td><td>89.4°C</td></tr><tr><td>2</td><td>BD1</td><td>4A/800V US4KB80R-7000</td><td>73.3°C</td><td>93.7°C</td></tr><tr><td>3</td><td>L1</td><td>TR623</td><td>74.4°C</td><td>94.5°C</td></tr><tr><td>4</td><td>L2</td><td>TF1356-R1 155°C</td><td>60.6°C</td><td>70.8°C</td></tr><tr><td>5</td><td>C5</td><td>150u/400V 105°C 18*35.5 KMG</td><td>77.7°C</td><td>97.8°C</td></tr><tr><td>6</td><td>D2</td><td>RD 1A/1KV 1N4007GP</td><td>96.7°C</td><td>117.3°C</td></tr><tr><td>7</td><td>T1</td><td>MT TF1492-R9</td><td>85.7°C</td><td>106.2°C</td></tr><tr><td>8</td><td>Q1</td><td>SPA11N65C3 11A/650V TO220F</td><td>65.3°C</td><td>105.0°C</td></tr><tr><td>9</td><td>U1</td><td>TDA4863G PG</td><td>79.3°C</td><td>98.9°C</td></tr><tr><td>10</td><td>C42</td><td>47u/63V L7Kh 8*11.5 YXF</td><td>76.8°C</td><td>96.5°C</td></tr><tr><td>11</td><td>Q2</td><td>2SK3683-01MR 19A/500V</td><td>78.8°C</td><td>99.0°C</td></tr><tr><td>12</td><td>U2</td><td>TEA1552 SOT108-1</td><td>75.1°C</td><td>94.3°C</td></tr><tr><td>13</td><td>RTH2</td><td>NTC 220KΩ 3Φ 1%</td><td>70.2°C</td><td>90.0°C</td></tr><tr><td>14</td><td>C55</td><td>22u/50V L5Kh 5*11 KY</td><td>76.8°C</td><td>96.6°C</td></tr><tr><td>15</td><td>C120</td><td>22u/50V L5Kh 5*11 KY</td><td>80.1°C</td><td>101.1°C</td></tr><tr><td>16</td><td>L100</td><td>TR624</td><td>87.4°C</td><td>110.0°C</td></tr><tr><td>17</td><td>Q101</td><td>IRF3415 43A/150V TO220</td><td>84.8°C</td><td>109.6°C</td></tr><tr><td>18</td><td>C105</td><td>680u/35V UL10Kh 12.5*20 KY</td><td>78.5°C</td><td>100.2°C</td></tr><tr><td>19</td><td>C106</td><td>470u/35V UL7Kh 10*20 KY</td><td>79.2°C</td><td>101.3°C</td></tr><tr><td>20</td><td>CASE</td><td>UP CASE</td><td>58.7°C</td><td>80.1°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 31 °C	HIGH AMBIENT Ta= 56.6 °C	1	LF3	TR689	68.4°C	89.4°C	2	BD1	4A/800V US4KB80R-7000	73.3°C	93.7°C	3	L1	TR623	74.4°C	94.5°C	4	L2	TF1356-R1 155°C	60.6°C	70.8°C	5	C5	150u/400V 105°C 18*35.5 KMG	77.7°C	97.8°C	6	D2	RD 1A/1KV 1N4007GP	96.7°C	117.3°C	7	T1	MT TF1492-R9	85.7°C	106.2°C	8	Q1	SPA11N65C3 11A/650V TO220F	65.3°C	105.0°C	9	U1	TDA4863G PG	79.3°C	98.9°C	10	C42	47u/63V L7Kh 8*11.5 YXF	76.8°C	96.5°C	11	Q2	2SK3683-01MR 19A/500V	78.8°C	99.0°C	12	U2	TEA1552 SOT108-1	75.1°C	94.3°C	13	RTH2	NTC 220KΩ 3Φ 1%	70.2°C	90.0°C	14	C55	22u/50V L5Kh 5*11 KY	76.8°C	96.6°C	15	C120	22u/50V L5Kh 5*11 KY	80.1°C	101.1°C	16	L100	TR624	87.4°C	110.0°C	17	Q101	IRF3415 43A/150V TO220	84.8°C	109.6°C	18	C105	680u/35V UL10Kh 12.5*20 KY	78.5°C	100.2°C	19	C106	470u/35V UL7Kh 10*20 KY	79.2°C	101.3°C	20	CASE	UP CASE	58.7°C	80.1°C	P
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230 VAC O/P : CV=23 V LOAD Ta= -30 °C	TEST : OK	P																																																																																																									
3	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																																																																																																									
4	TEMPERATURE COEFFICIENT	± 0.03 %(0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.004 %(0~50°C)	P																																																																																																									
5	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	P																																																																																																									

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P : 3.75 KVAC/min I/P-FG : 2 KVAC/min O/P-FG : 0.5 KVAC/min	I/P-O/P : 4.5 KVAC/min I/P-FG : 2.4KVAC/min O/P-FG : 0.6 KVAC/min Ta : 25°C	I/P-O/P : 6.05 mA I/P-FG : 4.90 mA O/P-FG : 2.526 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 / 70%RH	I/P-O/P : 30 GΩ I/P-FG : 30 GΩ O/P-FG : 30 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	36 mΩ	P
4	APPROVAL	TUV : Certificate NO : UL : File NO :			N/A

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS C	I/P : 230 /240/220VAC/50HZ O/P : 100%75% 50%LOAD Ta : 25°C	PASS	P
2	CONDUCTION	EN55022 EN55015 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 EN55015 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab	P
4	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	PLC-100-24 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME= 104610 HRS I/P : 230VAC O/P : FULL LOAD Ta= 40 °C LIFE TIME=48510 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 297.9K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Tcase 65°C; 50,000 hours @ Tcase 50°C			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 1 Rated SPA11N65C3 11A/650V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short Ta : 25°C	(1) 568 V (2) 524 V	P
2	Diode Peak Voltage	Q100 Rated IRF3415 43A/150V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short Ta : 25°C	(1) 127 V (2) 106 V	P
3	Clamp Diode Peak Voltage	D2 Rated 1A/1KV 1N4007GP	I/P : High-Line +3V = 267 V O/P : (1) Dynamic Load 90%Duty/1KHz Ta : 25°C	(1) 494 V	P
4	Input Capacitor Voltage	C5 Rated 150u/400V 105°C 1 KMG	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) 384.1 V (2) 384.4 V (3) 384.4 V	P
5	Control IC Voltage Test	U2 Rated TEA1552: 9.3V ~20V	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) 17.075 V (2) 13.12 V (3) 13.13 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/11/27	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/3/31	PRODUCT SAMPLE W0901D33	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023