



Test Report: PSD-30C-12

30W Single Output Switching Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

DESIGN VERIFY TEST
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 120 mVp-p (Max)	I/P : 48VDC O/P : FULL LOAD Ta : 25°C	V1 : 50 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 11 V ~ 13.5 V	I/P : 48 VDC I/P : 36 VDC O/P : MIN LOAD Ta : 25°C	10.5 V ~ 14.1 V / 48 VDC 10.5 V ~ 14.1 V / 36 VDC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : -1 % ~ +1 % (Max)	I/P : 36 VDC / 72 VDC O/P : FULL / MIN LOAD Ta : 25°C	V1 : -0.03 % ~ +0.03 %	P
4	LINE REGULATION	V1 : -1 % ~ +1 % (Max)	I/P : 36 VDC ~ 72 VDC O/P : FULL LOAD Ta : 25°C	V1 : -0.02 % ~ +0.02 %	P
5	LOAD REGULATION	V1 : -1 % ~ +1 % (Max)	I/P : 48 VDC O/P : FULL ~ MIN LOAD Ta : 25°C	V1 : -0.03 % ~ +0.03 %	P
6	SET UP TIME	48VDC : 2000 ms (Max)	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	48VDC : 950 ms	P
7	RISE TIME	48VDC : 50 ms (Max)	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	48VDC : 2 ms	P
8	DYNAMIC LOAD	V1 : 1200 mVp-p	I/P : 48 VDC O/P : FULL / Min LOAD 90%DUTY/ 1KHZ Ta : 25°C	870 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	36 VDC ~ 72 VDC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	36 V ~ 72 V	P
			I/P : LOW-LINE= 36 V HIGH-LINE=72 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 : 36VAC ~72VAC O/P : FULL -MIN LOAD Ta : 25°C	TEST : OK	P
3	EFFICIENCY	82 % (TYP)	I/P : 48 VAC O/P : FULL LOAD Ta : 25°C	84.1 %	P
4	INPUT CURRENT	48V/ 1.1 A (TYP)	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	I = 0.74 A/ 48 VDC	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 % ~ 150 %	I/P : 48 VDC I/P : 36 VDC O/P : TESTING Ta : 25°C	144 %/ 48VDC 140 %/ 36VDC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1 : 14.4 V ~ 17 V	I/P : 48 VDC I/P : 36 VDC O/P : MIN LOAD Ta : 25°C	15.5 V/ 48 VDC 15.5 V/ 36 VDC Hiccup Mode	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 72 VDC O/P : FULL LOAD Ta : 25°C	NO DAMAGE Hiccup Mode	P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : IRF640 18A/200V	I/P : High-Line +3V = 75 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C	(1) 119 V (2) 146 V (3) 119 V	P
2	Diode Peak Voltage	D100 Rated : FMX-12SL 10A/200V	I/P : High-Line +3V = 75 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 154 V (2) 102 V (3) 154 V	P
3	Clamp Diode Peak Voltage	D6 Rated : US1D 1A/200V	I/P : High-Line +3V =75 V O/P : (1) Dynamic Load 90%Duty/1KHz (2)Full load continue Ta : 25°C	(1) 107 V (2) 105 V	P
4	Input Capacitor Voltage	C5 Rated : 330u/100V / 105 °C	I/P : High-Line +3V =75 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) 74.1 V (2) 74.6 V (3) 73.8 V	P
5	Control IC Voltage Test	U1 Rated : TL3845P 30 V	I/P : High-Line +3V =75 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) 14.5 V (2) 9.5 V (3) 14.5 V	P

■ SAFETY & E.M.C. TEST
SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P : 1.5 KVAC/min I/P-FG : 1.5 KVAC/min O/P-FG : 0.5 KVAC/min	I/P-O/P : 1.8KVAC/min I/P-FG : 1.8 KVAC/min O/P-FG : 0.6 KVAC/min Ta : 25°C	I/P-O/P : 0.11 mA I/P-FG : 0.64 mA O/P-FG : 3.13 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 : >9.99 GΩ I/P-FG : >9.99 GΩ O/P-FG : 3.99 GΩ NO DAMAGE	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN55022 CLASS B	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	OK	P
2	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	OK	P
3	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT : 1KV	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	OK	P
4	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N : 1KV L,N-PE : 2KV	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	OK	P
5	Test by certified Lab & Test Report Prepare				

RELIABILITY TEST
ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : PSD-30C-12 1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 48VDC O/P : FULL LOAD Ta= 28. 2 °C 2. HIGH AMBIENT BURN-IN : 1HRS I/P : 48VDC O/P : FULL LOAD Ta= 44. 0 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 48 VDC O/P: 132% LOAD Ta : 25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 72VDC/36VDC O/P : 100 % LOAD Ta= -20. 0°C	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45°C NO DAMAGE	I/P : 72 VDC O/P : FULL LOAD Ta= 45 °C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0. 03%(0-45°C)	I/P : 48 VDC O/P : FULL LOAD	±0. 021%(0-45°C)	P
7	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 : 60min in each axis (X.Y.Z) (6) Ta : 25°C		TEST : OK	P
8	CAPACITOR LIFE CYCLE	PSD-30C-12:SUPPOSE 105C IS THE MOST CRITICAL COMPONENT (1) I/P : 48VDC O/P : FULL LOAD Ta=25°C LIFE TIME (2) I/P : 48VDC O/P : FULL LOAD Ta=45°C LIFE TIME		(1) 312567HRS (2) 78141HRS	P
9	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 902. 4KHRS			P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/9/8	RD SAMPLE	PASS	何马超、葛双根	王德昭