



Test Report: PSD-30C-5

30W Single Output Switching Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection 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 : 100 mVp-p (Max)	I/P : 48VDC O/P : FULL LOAD Ta : 25°C	V1 : 60 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 4.5 V ~ 5.5 V	I/P : 48 VDC I/P : 36 VDC O/P : MIN LOAD Ta : 25°C	4.4 V ~ 6.1 V / 48 VDC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : -2% ~ +2% (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 : -0.005 % ~ +0.005 %	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 : 1000 ms	P
7	RISE TIME	48VDC : 50 ms (Max)	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	48VDC : 1.31 ms	P
8	DYNAMIC LOAD	V1 : 1000 mVp-p	I/P : 48 VDC O/P : FULL / Min LOAD 90%DUTY/ 1KHZ Ta : 25°C	800 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	EFFICIENCY	80 % (TYP)	I/P : 48 VAC O/P : FULL LOAD Ta : 25°C	83 %	P
3	INPUT CURRENT	48V/ 1.1 A (TYP)	I/P : 48 VDC O/P : FULL LOAD Ta : 25°C	I = 0.63 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	136 %/ 48VDC 126 %/ 36VDC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1 : 6 V ~ 7.5 V	I/P : 48 VDC I/P : 36 VDC O/P : MIN LOAD Ta : 25°C	7.12 V/ 48 VDC 7.12 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 : 200 V 18 A	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) 115 V (2) 163 V (3) 115 V	P
2	Diode Peak Voltage	D100 Rated : 45 V 30 A	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) 43.2 V (2) 52.4 V (3) 43.2 V	P
3	Clamp Diode Peak Voltage	D6 Rated : 200 V 1 A	I/P : High-Line +3V =75 V O/P : (1) Dynamic Load 90%Duty/1KHz (2)Full load continue Ta : 25°C	(1) 52.8 V (2) 50 V	P
4	Input Capacitor Voltage	C5 Rated : 100 u / 330 V / 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) 74.6 V (2) 75.2 V (3) 74.2 V	P
5	Control IC Voltage Test	U1 Rated : 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) 16.2 V (2) 9.6 V (3) 16.1 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 : 0.15 mA I/P-FG : 0.62 mA O/P-FG : 3.16 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 : 3.78 GΩ NO DAMAGE	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN55022 CLASS B	I/P : 12VDC O/P : FULL LOAD Ta : 25°C	ok	p
2	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P : 12VDC O/P : FULL LOAD Ta : 25°C	ok	p
3	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT : 1KV	I/P : 12VDC 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 : 12VDC 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-5 1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 12VDC O/P : FULL LOAD Ta=25.4°C 2. HIGH AMBIENT BURN-IN : 1 HRS I/P : 12VDC O/P : FULL LOAD Ta=43°C			p
3	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 12VDC O/P : 136% LOAD Ta : 25°C	TEST : ok	p
4	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 18VDCAC/100VAC O/P : 100 % LOAD Ta= -20°C	TEST : ok	p

5	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
6	TEMPERATURE COEFFICIENT	±0.03%(0~50°C)	I/P : 12VDC O/P : FULL LOAD	±0.02%(0~50°C)	p
7	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -20°C~ +85°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		ok	p
8.	THERMAL SHOCK TEST	1. Thermal shock Temperature : -20°C~ +60°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 : 12VDC/Full Load		ok	p
9	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
10	CAPACITOR LIFE CYCLE	SUPPOSE C100 IS THE MOST CRITICAL COMPONENT (1) I/P : 12VDC O/P : FULL LOAD Ta=25°C LIFE TIME (2) I/P : 12VDC O/P : FULL LOAD Ta=40°C LIFE TIME		(2) 303149HRS (3) 117294HRS	p
11	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 902.4 HRS			p

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

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