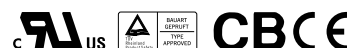


■ Features :

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Small and compact size
- Built-in remote ON-OFF control
- LED indicator for power on
- 100% full load burn-in test
- Low profile:23mm thickness
- 2 years warranty

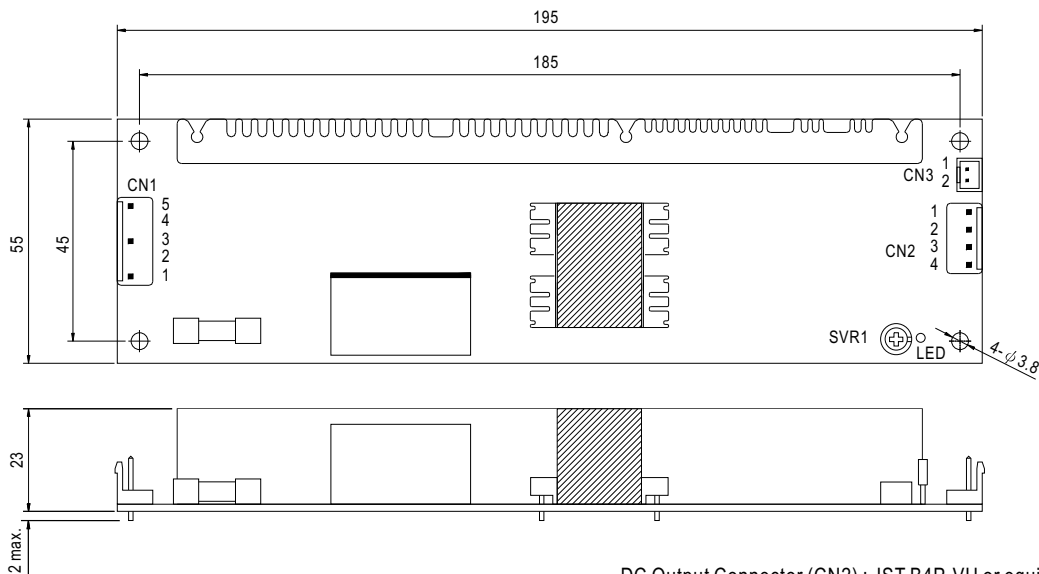


SPECIFICATION

MODEL		LPS-50-3.3	LPS-50-5	LPS-50-12	LPS-50-15	LPS-50-24	LPS-50-48	
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V	48V	
	RATED CURRENT	10A	10A	4.2A	3.4A	2.1A	1.1A	
	CURRENT RANGE	0 ~ 12A	0 ~ 12A	0 ~ 5A	0 ~ 4.1A	0 ~ 2.5A	0 ~ 1.3A	
	RATED POWER	33W	50W	50.4W	51W	50.4W	52.8W	
	PEAK LOAD(10sec.) <small>Note.4</small>	39.6W	60W	60W	61.5W	60W	62.4W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	50mVp-p	50mVp-p	80mVp-p	80mVp-p	80mVp-p	100mVp-p	
	VOLTAGE ADJ. RANGE	3 ~ 3.6V	4.5 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 27.2V	43.2 ~ 52.8V	
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±3.0%	±2.0%	±2.0%	±1.0%	±1.0%	
	LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LOAD REGULATION	±3.0%	±3.0%	±2.0%	±2.0%	±1.0%	±1.0%	
	SETUP, RISE TIME	100ms, 40ms/230VAC 100ms, 40ms/115VAC at full load						
HOLD UP TIME (Typ.)	70ms/230VAC 12ms/115VAC at full load							
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz						
	EFFICIENCY(Typ.)	75%	81%	82%	84%	85%	86%	
	AC CURRENT (Typ.)	115VAC	0.9A	1.2A				
		230VAC	0.6A	0.8A				
	INRUSH CURRENT (Typ.)	COLD START 18A/115VAC 35A/230VAC						
LEAKAGE CURRENT	<1mA / 240VAC							
PROTECTION	OVERLOAD	122 ~ 160% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed						
	OVER VOLTAGE	3.8 ~ 4.45V	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V	57.6 ~ 67.2V	
		Protection type : Hiccup mode, recovers automatically after fault condition is removed						
FUNCTION	REMOTE ON/OFF	RC+/RC- : 0 ~ 0.8V power on ; 4 ~ 10V power off						
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.04%/°C (0 ~ 50°C)						
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes						
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved						
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC						
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC						
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B						
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3						
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN61000-6-2 (EN50082-2), heavy industry level, criteria A						
OTHERS	MTBF	341.7Khrs min. MIL-HDBK-217F (25°C)						
	DIMENSION	195*55*23mm (L*W*H)						
	PACKING	0.24Kg; 48pcs/12.5Kg/0.84CUFT						
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. 33.3% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power. 5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 							

Mechanical Specification

Unit:mm



AC Input Connector (CN1) : JST B5P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/L	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2,4	No Pin		
3	AC/N		
5	FG \perp		

DC Output Connector (CN2) : JST B4P-VH or equivalent

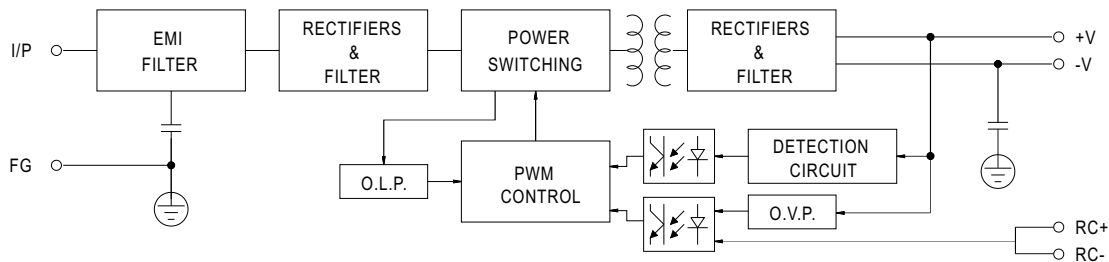
Pin No.	Assignment	Mating Housing	Terminal
1,2	-V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
3,4	+V		

Remote ON/OFF Connector(CN3):JST B2B-XH or equivalent

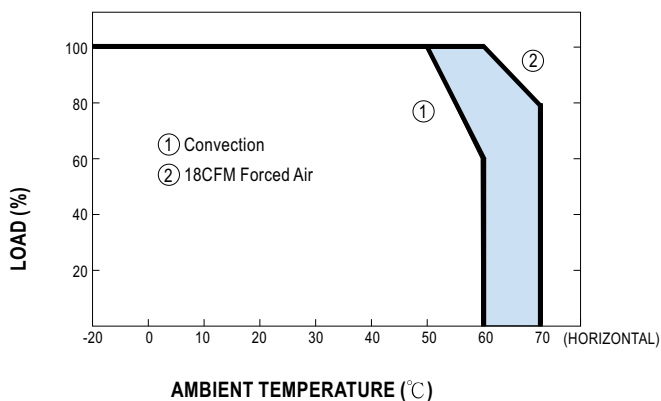
Pin No.	Assignment	Mating Housing	Terminal
1	RC+	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	RC-		

Block Diagram

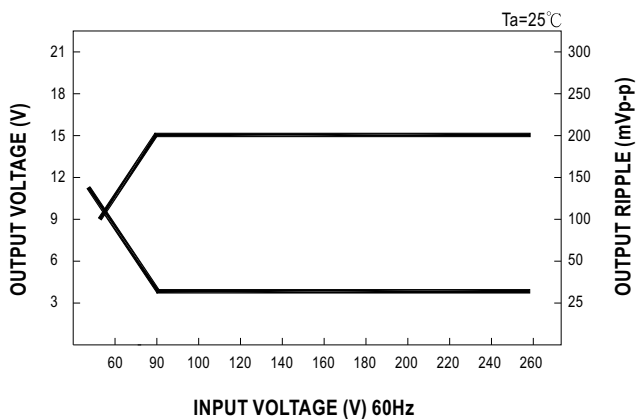
fosc : 60KHz



Derating Curve



Static Characteristics (15V)



MODEL: LPS-50-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 8 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 10.8V~ 13.2 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	10.15V~ 13.73 V/ 230VAC 10.15V~13.73 V/ 115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: -2%~ 2% (Max)	I/P: 90 VAC / 264 VAC O/P:FULL/ 0% LOAD Ta:25°C	V1: 0.03%~ -0.03%	P
4	LINE REGULATION	V1: -1%~ 1% (Max)	I/P: 90 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0%~ -0.05%	P
5	LOAD REGULATION	V1: -2%~ 2% (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0%~ 0%	P
6	SET UP TIME	230 VAC/ 100 ms (Max) 115 VAC/ 100 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 18 ms 115 VAC/ 17 ms	P
7	RISE TIME	230 VAC/ 40 ms (Max) 115 VAC/ 40 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 11 ms 115 VAC/ 11 ms	P
8	HOLD UP TIME	230VAC/ 50 ms (TYP) 115VAC/ 12 ms(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 81 ms 115 VAC/ 17 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5%	P
10	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	103 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90 VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	56V~ 264 V	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	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 90 VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	82 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	83.4 %	P
4	INPUT CURRENT	230 V/ 0.8 A(TYP) 115 V/ 1.2 A(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.56 A/ 230 VAC I = 0.92 A/ 115VAC	P
5	INRUSH CURRENT	230 V/ 35 A(TYP) 115 V/ 25 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 33.2 A/ 230 VAC I = 18 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 1 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.42 mA N-FG: 0.42 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	122 %~ 160 %	I/P: 230 VAC I/P: 115VAC O/P: TESTING Ta:25°C	142%/230VA 131%/115VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 13.8 V~ 16.2 V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25°C	14.8V/230VAC 14.8V/115VAC Hiccup Model	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: Full LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	Rc+ / Rc- 0 V~ 0.8 V POWER ON 4 V~ 10 V POWER OFF	I/P: 230 VAC O/P: FULL LOAD Ta:25°C	0V ~ 3 V POWER ON 3.6V ~ 10 V POWER OFF	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : LPS-50-5V 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 27 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 53.2 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 146% Ta:25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100 % LOAD Ta= -20 °C	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50°C NO DAMAGE	I/P: 272 VAC O/P: FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.04 % (0-50°C)	I/P: 230 VAC O/P: FULL LOAD	0.01 % (0-50°C)	P
6	VIBRATION TEST	1 Carton & 1 Set Operating at I/P: 230 VAC NO LOAD (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°C		TEST : OK	P

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	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°C	I/P-O/P: 3.82 mA I/P-FG: 4.29 mA O/P-FG: 2.35 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	I/P-O/P: 30G Ω I/P-FG: 27G Ω O/P-FG: 30G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	16 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50033909 UL: File NO : E183223			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	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°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	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°C	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 C 52 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta=25°C LIFE TIME= 119659 HRS I/P:230VAC O/P:FULL LOAD Ta=50°C LIFE TIME= 28706 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 341.7K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 1 Rated K2645: 600 V 9 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 440 V (2) 464 V (3) 480 V	P
2	Diode Peak Voltage	D51 Rated BYQ28X-200 : 200 V 10 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 69 V (2) 80 V (3) 70 V	P
3	Clamp Diode Peak Voltage	D1 Rated EGP20J : 600 V 2 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 464 V (2) 464 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2003/9/24	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2003/11/21	PRODUCT SAMPLE A310B03	PASS	VINCENT TSENG	MAX LIN
2004/3/12	PRODUCT SAMPLE A402B03	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023