KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-305VAC, 47-440 Hz
- Single and Dual Output
- Low Ripple and Noise
- Isolation Class II
- Maximum No-Load Watts < 0.3W
- CE , UL Approval
- 3-Year Product Warranty

LL08W SERIES

E199779 LEVEL3

ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Single Output)		FSP008L UVS3V3P	FSP008L UVS005P	FSP008L UVS008P	FSP008L UVS009P	FSP008L UVS012P	FSP008L UVS014P	FSP008L UVS3015P	FSP008L VS024P
Max Output Wattage (W)		6.6W	8W	8W	8W	8W	8W	8W	8W
Input	Voltage	90-305 VAC or 120-430 VDC							
	Frequency (Hz)	47-440 Hz							
	Current (Full load)	190 mA max. (115 VAC) / 120 mA max. (230 VAC)							
	Inrush Current (<500us)	25 A max. (115 VAC) / 45 A max. (230 VAC)							
	Leakage Current	0.25 mA max.							
	External Fuse (recommend)	2 A slow blow type							
Output	Voltage (V.DC.)	3.3V	5V	8V	9V	12V	14V	15V	24V
	Voltage Accuracy	±2%							
	Current (mA) max	2000	1600	1000	888	666	571	533	335
	Line Regulation (LL-HL) (typ.)	±0.2%							
	Load Regulation (0-100%) (typ.)	±3%.	±2%	±0.5%.					
	Minimum Load	0%							
	Maximum Capacitive Load (at 230VAC)	8000uF	8000uF	4000uF	4000uF	1300uF	820uF	820uF	270uF
	Ripple	3.3S~15S : <100mV max (Vp-p) 24S : <150mV max (Vp-p)							
	Noise	3.3S~15S : <150mV max (Vp-p) 24S : <200mV max (Vp-p)							
	Efficiency	69%	75%	78%	79%	79%	80%	80%	81%
	Hold-up Time	10 ms min.							
	Switching Frequency	132±8 KHz							
Protection	Over Power Protection	Hiccup technique, auto-recovery							
	Over Voltage Protection	Zener diode clamp							
	Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)							
Isolation	Input-Output (V.AC)	3000V							
Environment	Operating Temperature	-40°C…+70°C (with derating)							
	Storage Temperature	-40°C…+85°C							
	Temperature Coefficient	±0.02%/°C							
	Humidity	95% RH							
	MTBF	>500,000 h @ 25°C (MIL-HDBK-217F)							
Physical	Dimension (L x W x H)	1.48 x 1.11 x 1.08 Inches (37.66 x 28.16 x 27.5 mm) Tolerance ±0.5 mm							
	Case Material	Plastic resin (flammability to UL 94V-0)							
	Weight	45 g							
	Cooling Method	Free air convection							
Safety	Agency Approvals	CE, UL, cUL							
EMC	EMI (Conducted & Radiated Emission)	EN 55032 class B							
	EMS (Noise Immunity)	EN 55024							

ELECTRICAL SPECIFICATIONS

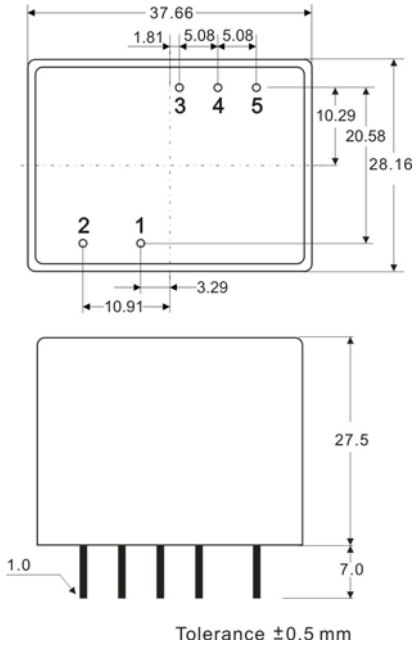
All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Dual Output)		FSP008LUVD005P	FSP008LUVD008P	FSP008LUVD012P
Max Output Wattage (W)		9W	8.5W	8.5W
Input	Voltage	90-305 VAC or 120-430 VDC		
	Frequency (Hz)	47-440 Hz		
	Current (Full load)	200 mA max. (115 VAC) / 125 mA max. (230 VAC)		
	Inrush Current (<500us)	25 A max. (115 VAC) / 45 A max. (230 VAC)		
	Leakage Current	0.25 mA max.		
	External Fuse (recommend)	2 A slow blow type		
Output	Voltage (V.DC.)	Vo : 5V Vr : 3.3V	Vo : 8V Vr : 5V	Vo : 12V Vr : 5V
	Voltage Accuracy	Vo : ±2% Vr : ±15%	Vo : ±2% Vr : ±10%	
	Current (mA) max	1600 / 310	1000 / 100	666 / 100
	Line Regulation (LL-HL) (typ.)	Vo : ±0.2% Vr : ±3%		
	Load Regulation (10-100%) (typ.)	Vo : ±0.5% Vr : ±5%		
	Minimum Load	25%		
	Maximum Capacitive Load (at 230VAC)	Vo : 4500uF Vr : 3800uF	Vo : 800uF Vr :3800uF	Vo : 260uF Vr : 3800uF
	Ripple	<100mV max (Vp-p)		
	Noise	<150mV max (Vp-p)		
	Efficiency	73%	78%	79%
	Hold-up Time	10 ms min.		
	Switching Frequency	132±8 KHz		
Protection	Over Power Protection	Hiccup technique, auto-recovery		
	Over Voltage Protection	Zener diode clamp		
	Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)		
Isolation	Input-Output (V.AC)	3000V		
Environment	Operating Temperature	-40°C…+70°C (with derating)		
	Storage Temperature	-40°C…+85°C		
	Temperature Coefficient	±0.02%/°C		
	Humidity	95% RH		
	MTBF	>500,000 h @ 25°C (MIL-HDBK-217F)		
Physical	Dimension (L x W x H)	1.48 x 1.11 x 1.08 Inches (37.66 x 28.16 x 27.5 mm) Tolerance ±0.5 mm		
	Case Material	Plastic resin (flammability to UL 94V-0)		
	Weight	45 g		
	Cooling Method	Free air convection		
Safety	Agency Approvals	CE, UL, cUL		
EMC	EMI (Conducted & Radiated Emission)	EN 55032 class B		
	EMS (Noise Immunity)	EN 55024		

NOTE

1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. It's necessary Varistor 14S561K at L / N input side in parallel.
3. It's necessary 10R / 15 φ thermistor at L input side in series connection.

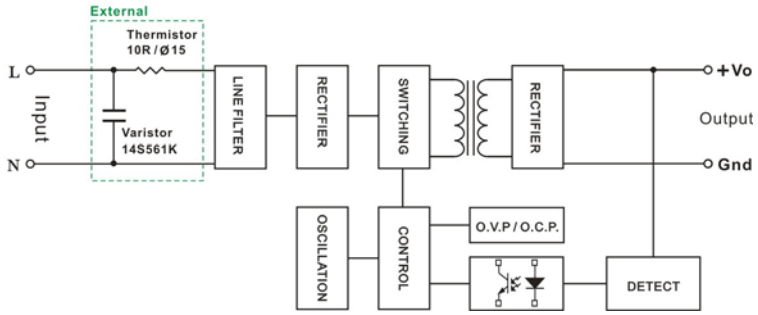
MECHANICAL DIMENSION (Top View)



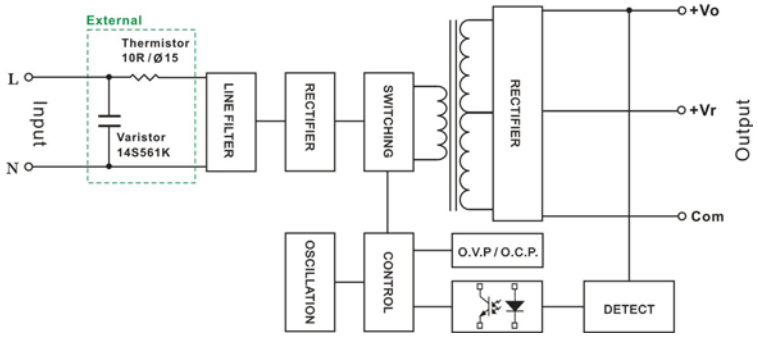
PIN#	Single	Dual
1	AC IN (N)	AC IN (N)
2	AC IN (L)	AC IN (L)
3	NC	+Vr
4	+VO	+VO
5	GND	GND

BLOCK DIAGRAM

Single Output



Dual Output



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