

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



LON04W SERIES



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)		FSP004L UVS3V3P	FSP004L UVS005P	FSP004L UVS008P	FSP004L UVS009P	FSP004L UVS012P	FSP004L UVS014P	FSP004L UVS015P	FSP004L UVS024P	
Max Output Wattage (W)		3.96W	4W	4W	4W	4W	4W	4W	4W	
Input	Voltage	90-305 VAC or 120-430 VDC								
	Frequency (Hz)	47-440 Hz								
	Current (Full load)	110 mA max. (115 VAC) / 70 mA max. (230 VAC)								
	Inrush Current (<500us)	15 A max. (115 VAC) / 25 A max. (230 VAC)								
	Leakage Current	0.25 mA max.								
	External Fuse (recommend)	3.15 A slow blow type								
Output	Voltage (V.DC.)	3.3V	5V	8V	9V	12V	14V	15V	24V	
	Voltage Accuracy	±2%								
	Current (mA) max	1200	800	500	444	333	286	267	167	
	Line Regulation (LL-HL) (typ.)	±0.5%					±0.2%			
	Load Regulation (0-100%) (typ.)	±1.5%					±0.5%			
	Minimum Load	0%								
	Maximum Capacitive Load	5000uF	4200uF	1470uF	1330uF	680uF	470uF	330uF	120uF	
	Ripple & Noise (Vp-p) max	<250mV			<200mV		<150mV		<100mV	
	Efficiency	68%	72%	74%	75%	76%	76%	76%	77%	
	Hold-up Time	15 ms min.								
Protection	Over Power Protection	Hiccup technique, auto-recovery								
	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	>450,000 h @ 25°C (MIL-HDBK-217F)								
Physical	Dimension (L x W x H)	1.46 x 1.08 x 0.69 Inches (37.0 x 27.5 x 17.5 mm) Tolerance ±0.5 mm								
	Case Material	Plastic resin (flammability to UL 94V-0)								
	Weight	26 g								
	Cooling Method	Free air convection								
Safety	Agency Approvals	UL , cUL , CE								
EMC	EMI (Conducted & Radiated Emission)	EN 55032 class B								
	EMS (Noise Immunity)	EN 55024								

ELECTRICAL SPECIFICATIONS

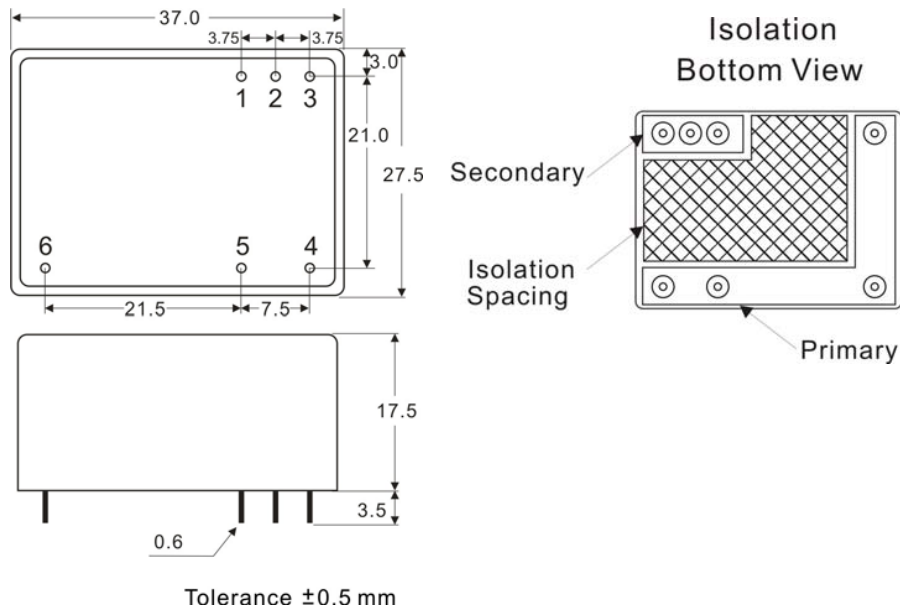
All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Dual Output)		FSP004LUV005P	FSP004LUV008P	FSP004LUV012P
Max Output Wattage (W)		3.5W	3.6W	3.6W
Input	Voltage	90-305 VAC or 120-430 VDC		
	Frequency (Hz)	47-440 Hz		
	Current (Full load)	110 mA max. (115 VAC) / 70 mA max. (230 VAC)		
	Inrush Current (<500us)	15 A max. (115 VAC) / 25 A max. (230 VAC)		
	Leakage Current	0.25 mA max.		
	External Fuse (recommend)	3.15 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 : ±5%		
	Current (mA) max	600 / 150	375 / 120	250 / 120
	Line Regulation (LL-HL) (typ.)	Vo : ±0.2% Vr : ±3%		
	Load Regulation (25-100%) (typ.)	Vo : ±0.5% Vr : ±5%		
	Minimum Load	25%		
	Maximum Capacitive Load	Vo : 2500uF Vr : 1800uF	Vo : 470uF Vr : 1800uF	Vo : 180uF Vr : 1800uF
	Ripple & Noise (Vp-p) max	<200mV	<150mV	<100mV
	Efficiency	72%	74%	75%
	Hold-up Time	15 ms min.		
Protection	Over Power Protection	Hiccup technique, auto-recovery		
	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	>450,000 h @ 25°C (MIL-HDBK-217F)		
Physical	Dimension (L x W x H)	1.46 x 1.08 x 0.69 Inches (37.0 x 27.5 x 17.5 mm) Tolerance ± 0.5 mm		
	Case Material	Plastic resin (flammability to UL 94V-0)		
	Weight	26 g		
	Cooling Method	Free air convection		
Safety	Agency Approvals	UL , cUL , CE		
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 / 15φ thermistor at L input side in series connection.

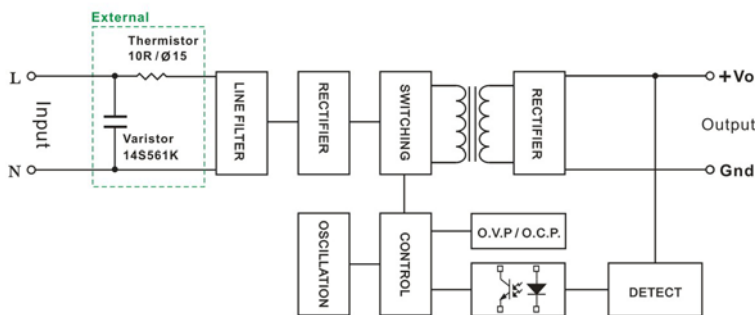
MECHANICAL DIMENSION (Top View)



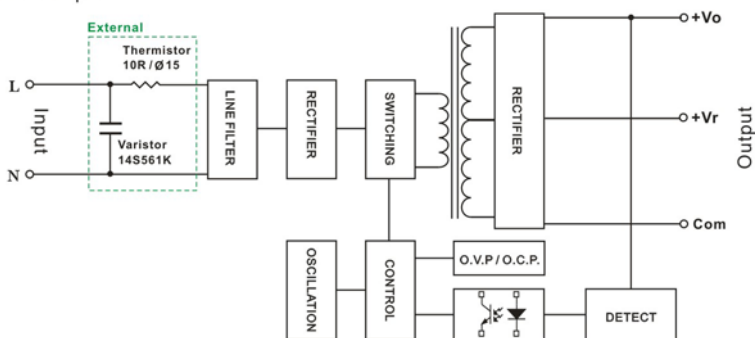
PIN#	Single	Dual
1	+Vo	+Vo
2	GND	COM
3	NC	+Vr
4	AC IN (L)	AC IN (L)
5	AC IN (N)	AC IN (N)
6	NC	NC

BLOCK DIAGRAM

Single Output



Dual Output



DERATING

