

KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC
- <0.3W No Load Input Power
- High Average Efficiency (25%, 50%, 75%, 100% Load Points)
- Ultra Compact Size: 2.15" x 1.77" x 0.82" Inches
- Isolation Class II
- Isolation 4KV AC
- CE, UL Approval
- 3-Year Product Warranty



LP15W SERIES



ELECTRICAL SPECIFICATIONS

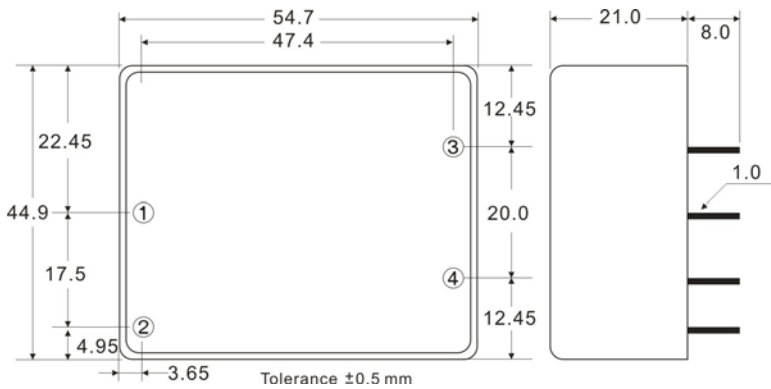
All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

| Model No. (Single Output) | FSP015LWVS005P | FSP015LWVS012P | FSP015LWVS015P | FSP015LWVS024P | | | | |
|-----------------------------|--|----------------|---|----------------|--|--------------|--|--|
| Max Output Wattage (W) | 15W | | | | | | | |
| Input | Voltage | | | | 90-264 VAC or 120-370 VDC | | | |
| | Frequency (Hz) | | | | 50 / 60 Hz | | | |
| | Current (Full load) | | | | 315 mA max. (115 VAC) / 195 mA max. (230 VAC) | | | |
| | Inrush Current | | | | 15 A max. (115 VAC) / 30 A max. (230 VAC) (cold start) | | | |
| | Leakage Current | | | | 0.25 mA max. (at <240 VAC) | | | |
| | External Fuse (mandatory) | | | | 1.5 A slow blow type | | | |
| Output | Voltage (V.DC.) | | 5V | 12V | 15V | 24V | | |
| | Voltage Accuracy | | ±2% | | | | | |
| | Current (mA) max | | 3000 | 1250 | 1000 | 625 | | |
| | Line Regulation (LL-HL) (typ.) | | ±0.5% | | | | | |
| | Load Regulation (10-100%) (typ.) | | ±1% | | | | | |
| | Maximum Capacitive Load (at 100-240 VAC) | | 1100uF | 200uF | 200uF | 47uF | | |
| | Ripple & Noise (typ.) | | 100mV (Vp-p) | 120mV (Vp-p) | 200mV (Vp-p) | 240mV (Vp-p) | | |
| Efficiency (at 230 VAC) | | 78% | 82% | 81% | 82% | | | |
| 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) | | 4000V | | | | | |
| 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) | | 2.15 x 1.77 x 0.82 Inches (54.7 x 44.9 x 21.0 mm) Tolerance ±0.5 mm | | | | | |
| | Case Material | | Plastic resin (flammability to UL 94V-0) | | | | | |
| | Weight | | 80 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

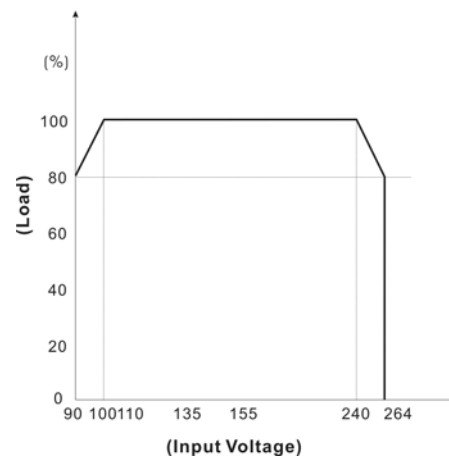
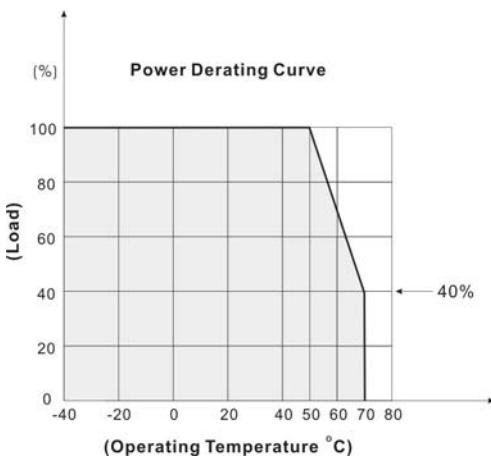
1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. It's necessary to add Varistor 14S471K at L / N input side in parallel.

MECHANICAL DIMENSION (Top View)



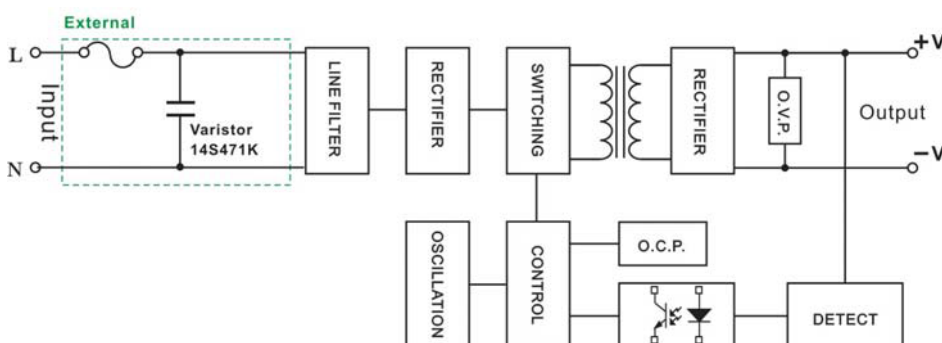
| PIN# | Single |
|------|-----------|
| 1 | AC IN (N) |
| 2 | AC IN (L) |
| 3 | -DC OUT |
| 4 | +DC OUT |

DERATING



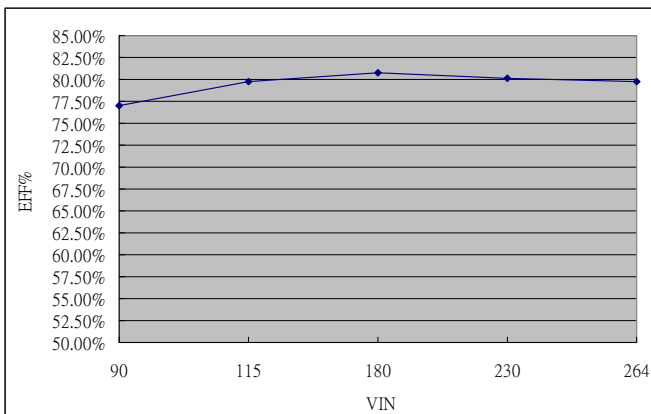
BLOCK DIAGRAM

Single Output

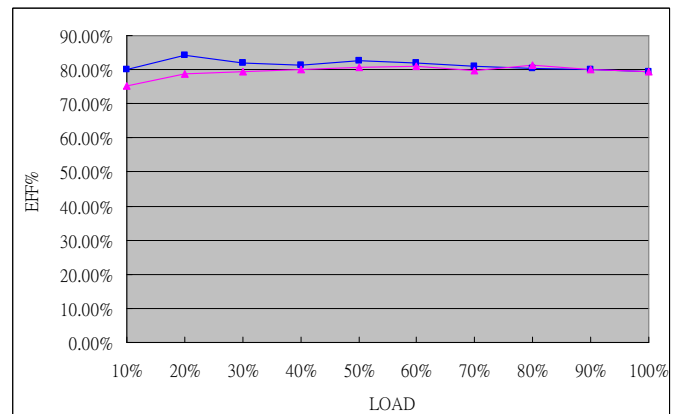


EFFICIENCY VERSUS LOAD
FSP015LWVS005P
VIN VS Efficiency

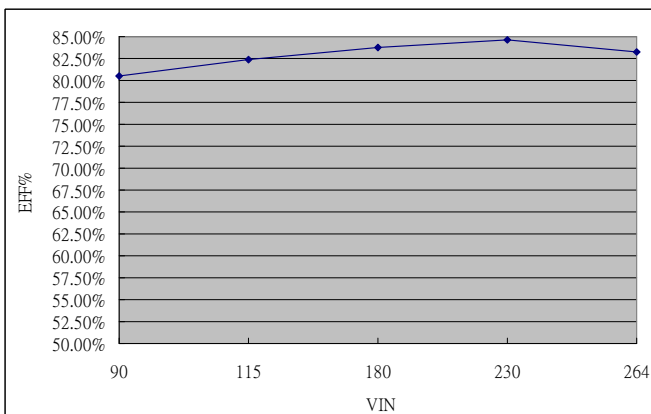
| Input Voltage (V) | 90 | 115 | 180 | 230 | 264 |
|-------------------|------|------|------|------|------|
| Efficiency (%) | 77.0 | 79.8 | 80.8 | 80.1 | 79.8 |


LOAD VS Efficiency

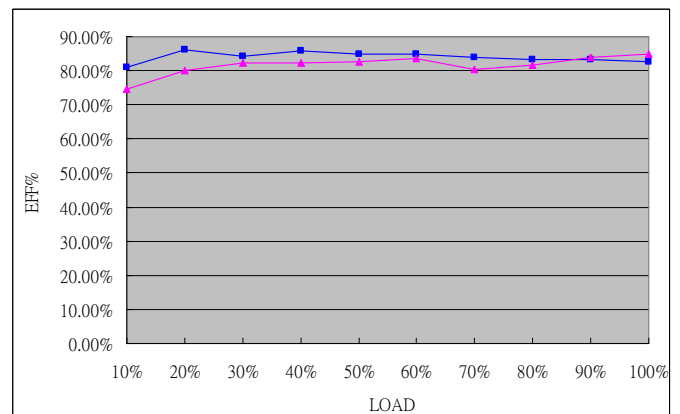
| Load (%) | 10 | 20 | 30 | 40 | 50 |
|----------|------|------|------|------|------|
| 115V (%) | 80.0 | 84.2 | 81.9 | 81.4 | 82.7 |
| 230V (%) | 75.1 | 78.8 | 79.6 | 79.9 | 80.8 |
| Load (%) | 60 | 70 | 80 | 90 | 100 |
| 115V (%) | 82.1 | 80.9 | 80.3 | 80.2 | 79.4 |
| 230V (%) | 81.1 | 79.7 | 81.4 | 80.1 | 79.3 |


FSP015LWVS012P
VIN VS Efficiency

| Input Voltage (V) | 90 | 115 | 180 | 230 | 264 |
|-------------------|------|------|------|------|------|
| Efficiency (%) | 80.5 | 82.4 | 83.7 | 84.6 | 83.3 |


LOAD VS Efficiency

| Load (%) | 10 | 20 | 30 | 40 | 50 |
|----------|------|------|------|------|------|
| 115V (%) | 81.1 | 86.1 | 84.2 | 85.9 | 85.0 |
| 230V (%) | 74.5 | 80.0 | 82.4 | 82.3 | 82.6 |
| Load (%) | 60 | 70 | 80 | 90 | 100 |
| 115V (%) | 85.0 | 83.9 | 83.1 | 83.3 | 82.6 |
| 230V (%) | 83.6 | 80.2 | 81.7 | 83.8 | 84.8 |

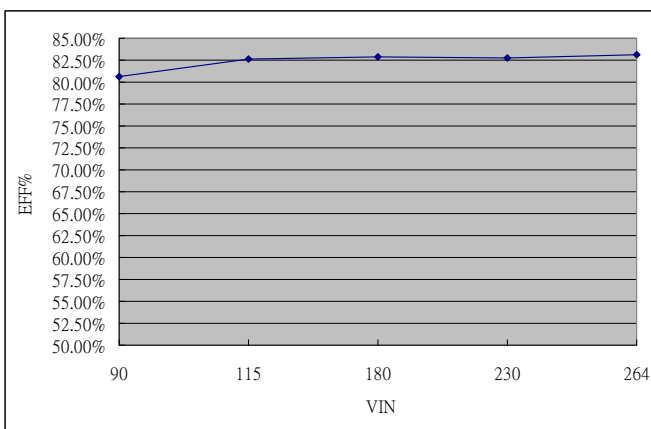


EFFICIENCY VERSUS LOAD

FSP015LWVS015P

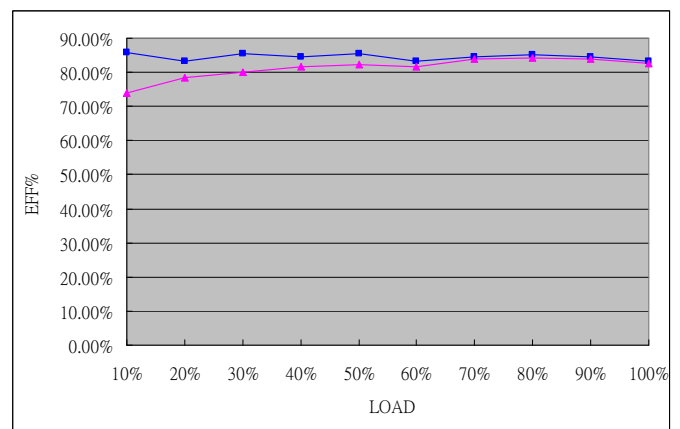
VIN VS Efficiency

| Input Voltage (V) | 90 | 115 | 180 | 230 | 264 |
|-------------------|------|------|------|------|------|
| Efficiency (%) | 80.6 | 82.6 | 82.9 | 82.7 | 83.1 |



LOAD VS Efficiency

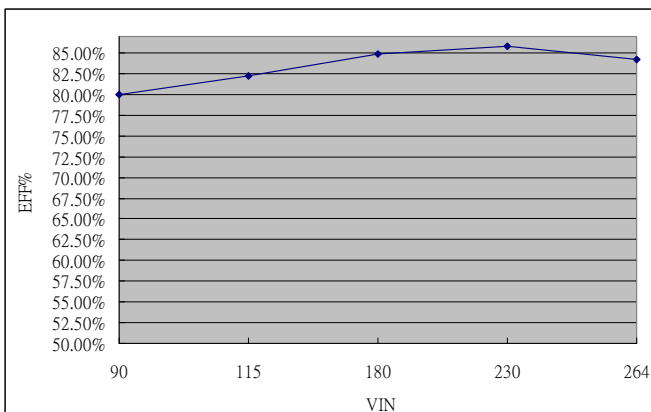
| Load (%) | 10 | 20 | 30 | 40 | 50 |
|----------|------|------|------|------|------|
| 115V (%) | 85.9 | 83.3 | 85.7 | 84.7 | 85.4 |
| 230V (%) | 74.0 | 78.5 | 79.9 | 81.7 | 82.3 |
| Load (%) | 60 | 70 | 80 | 90 | 100 |
| 115V (%) | 83.4 | 84.5 | 85.1 | 84.6 | 83.2 |
| 230V (%) | 81.7 | 84.0 | 84.3 | 84.0 | 82.6 |



FSP015LWVS024P

VIN VS Efficiency

| Input Voltage (V) | 90 | 115 | 180 | 230 | 264 |
|-------------------|------|------|------|------|------|
| Efficiency (%) | 79.9 | 82.3 | 84.9 | 85.8 | 84.2 |



LOAD VS Efficiency

| Load (%) | 10 | 20 | 30 | 40 | 50 |
|----------|------|------|------|------|------|
| 115V (%) | 79.5 | 86.3 | 84.6 | 86.5 | 85.4 |
| 230V (%) | 70.1 | 80.0 | 79.5 | 80.7 | 81.7 |
| Load (%) | 60 | 70 | 80 | 90 | 100 |
| 115V (%) | 87.3 | 84.6 | 83.8 | 83.0 | 82.7 |
| 230V (%) | 83.2 | 80.0 | 81.6 | 83.7 | 86.3 |

