

## APCN SERIES

**15 Watts**

### 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



### ELECTRICAL SPECIFICATIONS

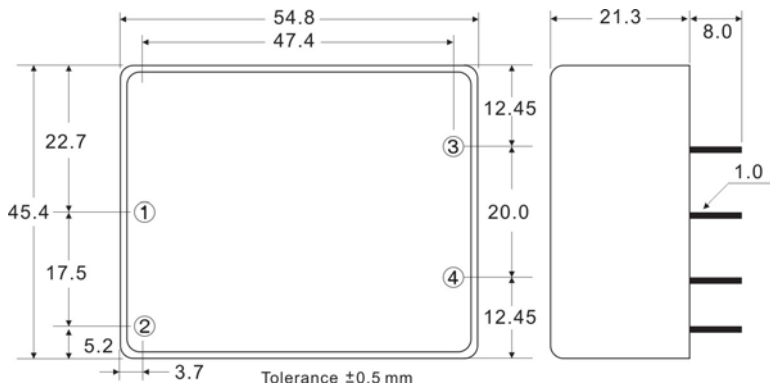
All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

| Model No. ( Single Output ) |                                          | APCN-5S                                                               | APCN-12S     | APCN-15S     | APCN-24S     |
|-----------------------------|------------------------------------------|-----------------------------------------------------------------------|--------------|--------------|--------------|
| 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 (automatic recovery)                                      |              |              |              |
| Isolation                   | Input-Output (V.AC)                      | 4000V                                                                 |              |              |              |
| Environment                 | Operating Temperature (Note 3)           | -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                    | Dimensions (L x W x H)                   | 2.16 x 1.79 x 0.84 Inches ( 54.8 x 45.4 x 21.3 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 / IEC / EN 60950-1, EN 62368-1                                     |              |              |              |
| EMC                         | EMI (Conducted & Radiated Emission)      | EN 55032 class B                                                      |              |              |              |
|                             | EMS (Noise Immunity)                     | EN 55024                                                              |              |              |              |

## NOTE

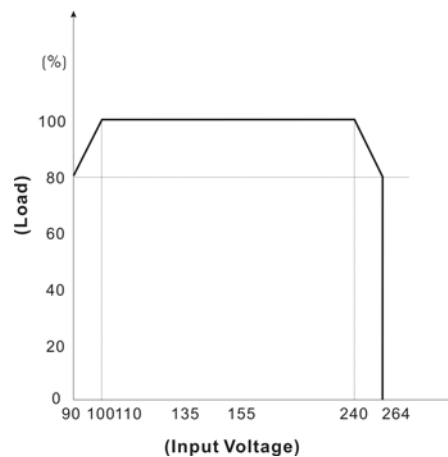
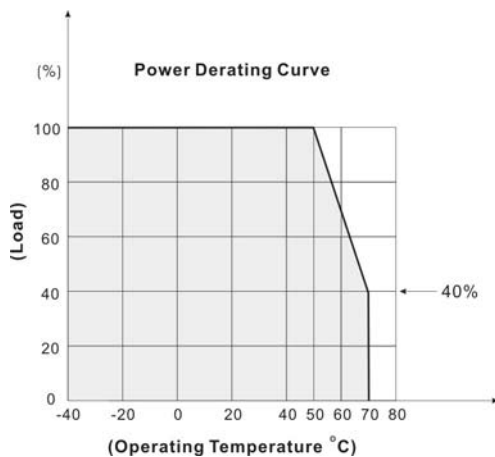
1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. It's necessary to add Varistor 14S471K at L / N input side in parallel.
3. Due to varying customer application conditions, the product is tested for maximum operating temperature under full load only. For other regulatory requirements, please contact ARCH.
4. Please refer to our PDF file "AC-DC Application" on our website: [www.archcorp.com.tw](http://www.archcorp.com.tw)

## MECHANICAL DIMENSIONS ( Top View )



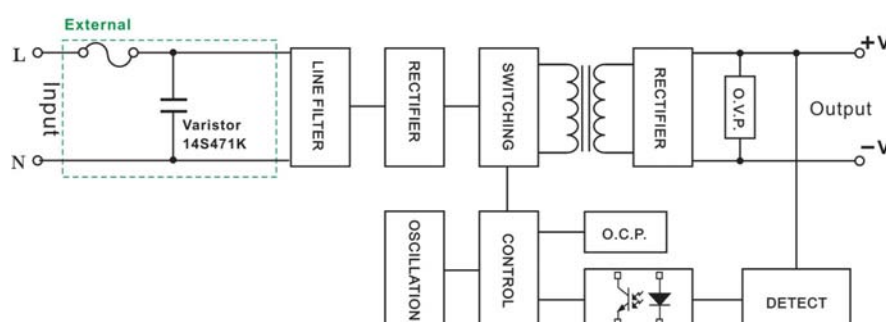
| PIN# | Single    |
|------|-----------|
| 1    | AC IN (N) |
| 2    | AC IN (L) |
| 3    | -DC OUT   |
| 4    | +DC OUT   |

## DERATING



## BLOCK DIAGRAM

Single Output

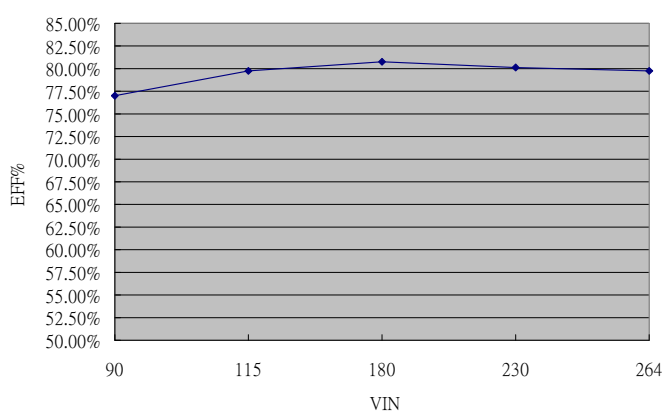


# EFFICIENCY VERSUS LOAD

## APCN-5S

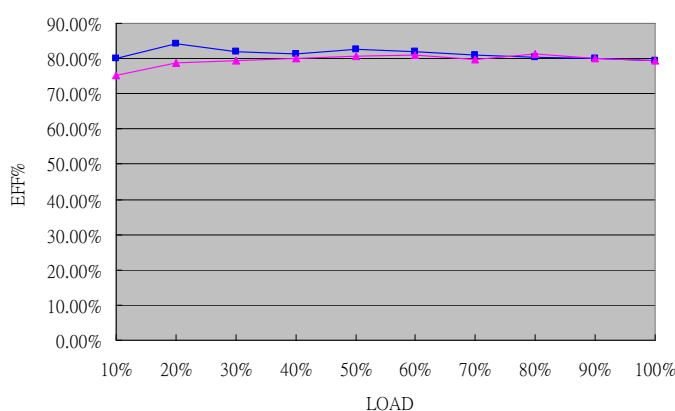
VIN VS Efficiency

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



LOAD VS Efficiency

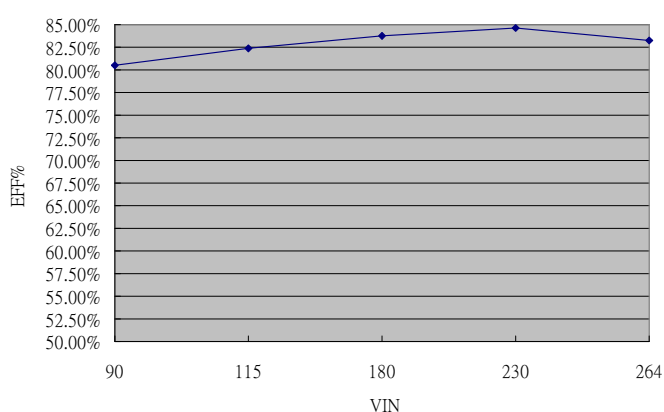
| Load (%) | 10   | 20   | 30   | 40   | 50   |
|----------|------|------|------|------|------|
| 115V (%) | 80.0 | 84.2 | 81.9 | 81.4 | 82.7 |
| 230V (%) | 75.1 | 78.8 | 79.6 | 79.9 | 80.8 |
| Load (%) | 60   | 70   | 80   | 90   | 100  |
| 115V (%) | 82.1 | 80.9 | 80.3 | 80.2 | 79.4 |
| 230V (%) |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



## APCN-12S

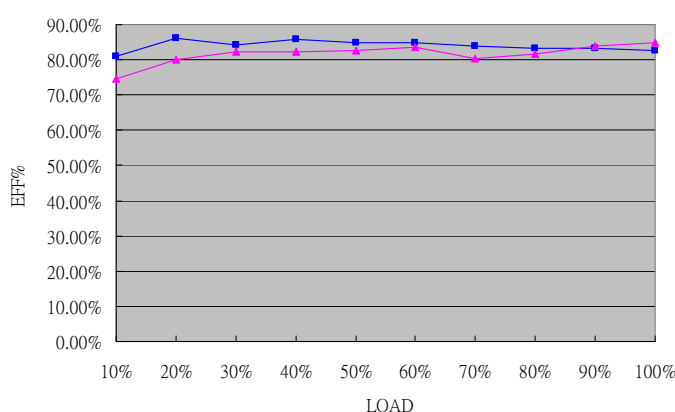
VIN VS Efficiency

| 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 |

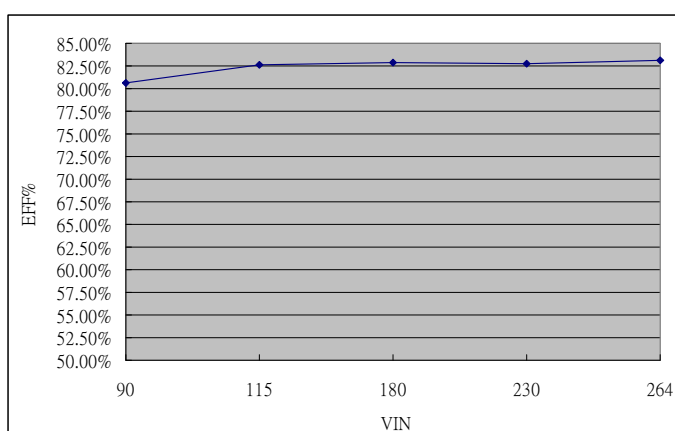


# EFFICIENCY VERSUS LOAD

## APCN-15S

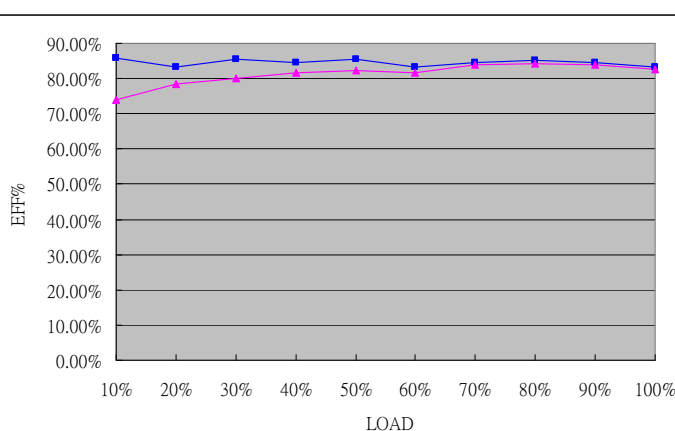
VIN VS Efficiency

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



LOAD VS Efficiency

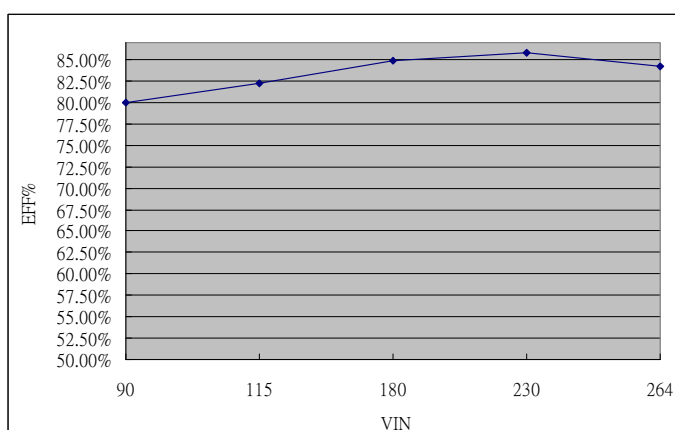
| Load (%) | 10   | 20   | 30   | 40   | 50   |
|----------|------|------|------|------|------|
| 115V (%) | 85.9 | 83.3 | 85.7 | 84.7 | 85.4 |
| 230V (%) | 74.0 | 78.5 | 79.9 | 81.7 | 82.3 |
| Load (%) | 60   | 70   | 80   | 90   | 100  |
| 115V (%) | 83.4 | 84.5 | 85.1 | 84.6 | 83.2 |
| 230V (%) |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



## APCN-24S

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 |

