



## DESCRIPTION

The PUP230N3 series of AC/DC switching power supplies are for 230 watts of continuous output power. They are enclosed in a 94V-0 rated plastic case with an IEC320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet EN55032 and FCC class B emission limits, and comply with UL, CSA, IEC and CE requirements.

## FEATURES

- No load power consumption less than 0.15 W
- Compliant with DoE level VI requirements
- Meet Energy Star EPS2.0 /ErP EC No 278/2009 (Lot 7)
- Meet EU CoC EPS V5 Tier 2
- Operating altitude up to 5000 meters
- Overvoltage protection (latch)
- Short-circuit protection (auto-recovery)
- Overpower protection (auto-recovery)
- Over temperature protection (latch)
- High Efficiency  $\geq 89\%$
- With PFC circuit
- 100% burn-in at full rated load
- Compliant with RoHS requirements

## INPUT SPECIFICATIONS

|                        |                                   |
|------------------------|-----------------------------------|
| Input voltage:         | 90-264 VAC                        |
| Input frequency:       | 47-63 Hz                          |
| Input current:         | 2.3 A (rms) for 115 VAC           |
|                        | 1.2 A (rms) for 230 VAC           |
| Earth Leakage current: | 250 $\mu$ A max. @ 264 VAC, 60 Hz |

## OUTPUT SPECIFICATIONS

|                          |                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Output voltage /current: | See rating chart.                                                                                                                |
| Maximum output power:    | See rating chart.                                                                                                                |
| Ripple and noise:        | 350 mV peak to peak maximum                                                                                                      |
| Overvoltage protection:  | Set at 125-155% of its nominal output voltage                                                                                    |
| Overcurrent protection:  | All models protected to short circuit conditions (auto-recovery)                                                                 |
| Temperature coefficient: | All outputs $\pm 0.04\%$ / $^{\circ}$ C maximum                                                                                  |
| Transient response:      | Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change |

## ENVIRONMENTAL SPECIFICATIONS

|                        |                                                                          |
|------------------------|--------------------------------------------------------------------------|
| Operating temperature: | 0 $^{\circ}$ C to +40 $^{\circ}$ C                                       |
| Storage temperature:   | -20 $^{\circ}$ C to +80 $^{\circ}$ C                                     |
| Operating humidity:    | 20% to 80% non-condensing                                                |
| Storage humidity:      | 10% to 90% non-condensing                                                |
| Temperature derating:  | Derate from 100% at +40 $^{\circ}$ C linearly to 50% at +60 $^{\circ}$ C |

## PUP230N3 SERIES



## SAFETY STANDARD APPROVALS



UL 62368-1, CSA C22.2 No. 62368-1  
File No. E190414



TÜV EN 62368-1

## GENERAL SPECIFICATIONS

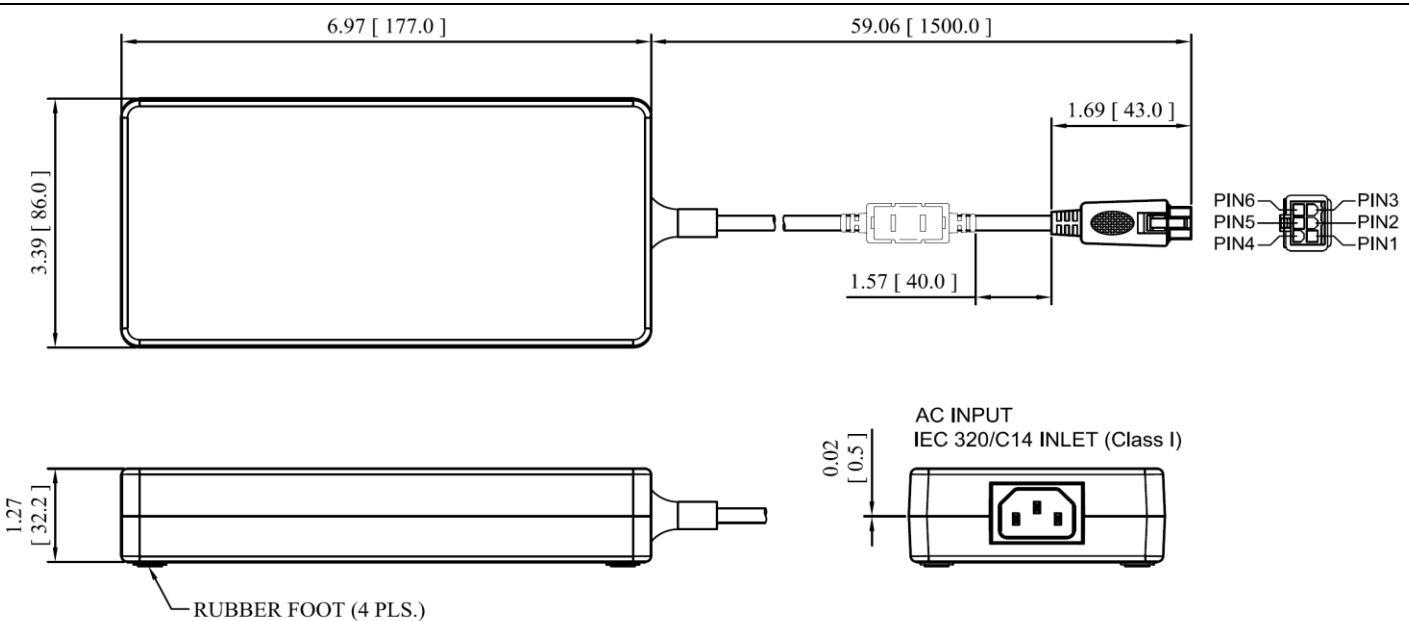
|                     |                                                                              |
|---------------------|------------------------------------------------------------------------------|
| Hold-up time:       | 10 ms minimum at 100 VAC                                                     |
| Turn on delay time: | 3 s maximum at 100 VAC                                                       |
| Power factor:       | 0.95 typical                                                                 |
| Efficiency:         | 89% minimum at 110 VAC or 240 VAC.                                           |
| Line regulation:    | $\pm 0.5\%$ maximum at full load                                             |
| Inrush current:     | 100 A @ 115 Vac or 200 A @ 230 Vac at 25 $^{\circ}$ C cold start             |
| Withstand voltage:  | 4242 VDC from input to output<br>2500 VDC from input to ground               |
| MTBF:               | 200,000 hours at full load at 25 $^{\circ}$ C ambient, calculated per SR332  |
| EMC Performance     |                                                                              |
| EN55032:            | Class B conducted, Class B radiated                                          |
| EN61000-3-2:        | Harmonic distortion, Class D                                                 |
| EN61000-3-3:        | Line flicker                                                                 |
| EN55024             |                                                                              |
| EN61000-4-2:        | ESD, $\pm 8$ KV air and $\pm 4$ KV contact                                   |
| EN61000-4-3:        | Radiated immunity, 3 V/m                                                     |
| EN61000-4-4:        | Fast transient/burst, $\pm 1$ KV                                             |
| EN61000-4-5:        | Surge, $\pm 1$ KV diff., $\pm 2$ KV com.                                     |
| EN61000-4-6:        | Conducted immunity, 3 Vrms                                                   |
| EN61000-4-8:        | Magnetic field immunity, 1 A/m                                               |
| EN61000-4-11:       | Voltage dip immunity, 30% reduction for 500 ms, and >95% reduction for 10 ms |

OUTPUT VOLTAGE/CURRENT RATING CHART

| Model <sup>(1)</sup> | Output |              |              |      |                               |            | Average Active efficiency (typical)<br>@ 115 / 230 Vac |
|----------------------|--------|--------------|--------------|------|-------------------------------|------------|--------------------------------------------------------|
|                      | V1     | Min. Current | Max. Current | Tol. | Ripple & Noise <sup>(2)</sup> | Max. Power |                                                        |
| PUP230N3-13-2-1      | 19.5 V | 0 A          | 11.79 A      | ±5%  | 350 mV                        | 230 W      | 89 /91%                                                |
| PUP230N3-14          | 24 V   | 0 A          | 9.58 A       | ±5%  | 350 mV                        | 230 W      | 91 /93%                                                |
| PUP230N3-19          | 54 V   | 0 A          | 4.26 A       | ±5%  | 350 mV                        | 230 W      | 90 /92%                                                |

- NOTES:
- PUP230N3 models are equipped with IEC320/C14 inlet.
  - Ripple and noise is maximum peak-to-peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 47 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS



- NOTES:
- Dimensions shown in inches [mm]
  - Tolerance 0.02 [0.5] maximum
  - Weight: 600 grams (1.33 lbs.) approx.
  - V1 return (-) is electrically connected to incoming Earth Ground through a 1K ohm resistor as standard.

PIN CHART

| PIN NO.  | 1         | 2         | 3         | 4   | 5   | 6   |
|----------|-----------|-----------|-----------|-----|-----|-----|
| Polarity | V1 Return | V1 Return | V1 Return | +V1 | +V1 | +V1 |