

### DESCRIPTION

The 3H & 3RH series of AC/DC desktop power adapters are capable of delivering 180 to 220 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC320/C14 or IEC320/C6 AC inlet to mate with interchangeable cord for world-wide use. All models meet CISPR 22 and FCC class B emission limits, and comply with UL, TUV and CE requirements.

### FEATURES

- High Efficiency
- Overvoltage protection
- Short-circuit protection
- Overpower protection
- Over temperature protection
- Compliant with CEC and Energy Star Efficiency level V requirements
- No load power consumption < 0.5W
- Average active efficiency  $\geq 87\%$
- Compliant with RoHS requirements

### INPUT SPECIFICATIONS

|                  |  |
|------------------|--|
| Input voltage:   | 90-264 VAC                                       |
| Input frequency: | 50-60 Hz   |
| Input current:   | 3 A (rms) for 100 VAC<br>1.3 A (rms) for 240 VAC |
| Touch current:   | 250 $\mu$ A max. @ 264 VAC, 60 Hz                |

### OUTPUT SPECIFICATIONS

|                          |  |
|--------------------------|--|
| Output voltage/current:  | See rating chart.  |
| Total output power:      | See rating chart.  |
| Ripple and noise:        | 380 mV peak to peak maximum  |
| Overvoltage protection:  | set at 112-145% of its nominal output voltage.   |
| Overcurrent protection:  | All models protected to short circuit conditions   |
| 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 |
| Relative humidity:     | 10% to 90% non-condensing            |

### 3H & 3RH Series



CE (LVD)  
RoHS



### SAFETY STANDARD APPROVALS



UL 60950-1, CSA C22.2 No. 60950-1

TUV EN60950-1

### GENERAL SPECIFICATIONS

|                     |   |
|---------------------|---|
| Hold-up time:       | 5 ms minimum at 110 VAC or 240 VAC  |
| Efficiency:         | 87% minimum at full load  |
| Turn on delay time: | 3 seconds maximum at 110 VAC  |
| Inrush current:     | No damage   |
| Withstand voltage:  | 1500 VAC from input to output and ground  |
| MTBF:               | 100,000 hours at full load at 25 $^{\circ}$ C ambient, calculated per MIL-HDBK-217F |

### EMC Performance (EN55022)

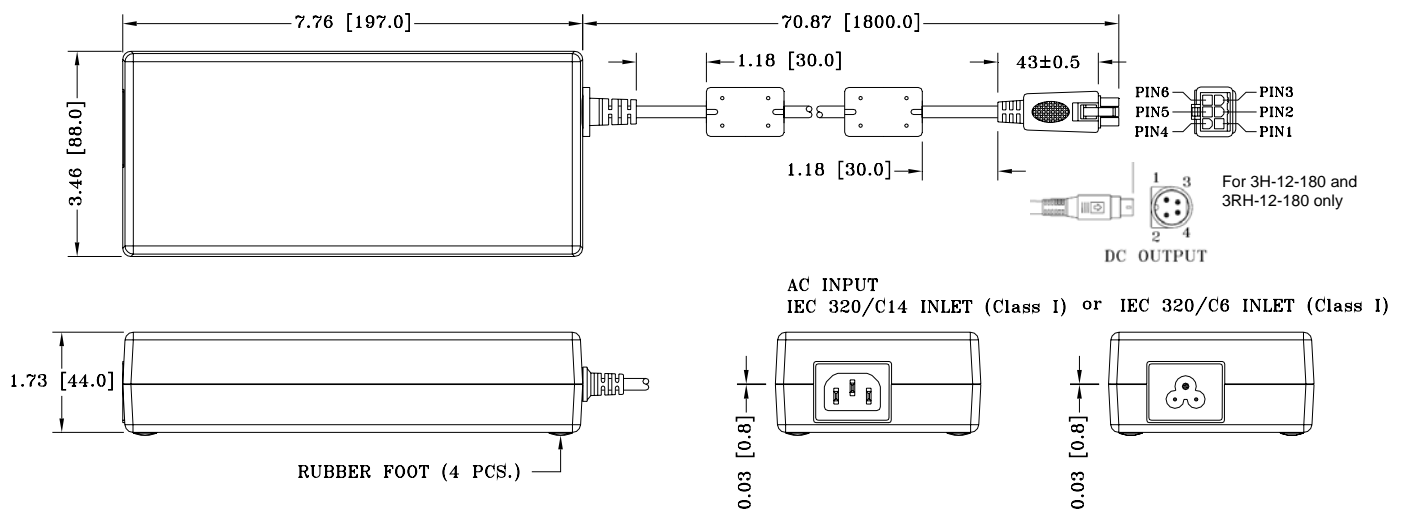
|               |   |
|---------------|---|
| EN55022:      | Class B conducted, class B radiated   |
| FCC:          | Class B conducted, class B radiated   |
| VCCI:         | Class B conducted, class B radiated   |
| EN61000-3-2:  | Harmonic distortion, class D  |
| EN61000-3-3:  | Line flicker  |
| EN61000-4-2:  | ESD, $\pm 15$ KV air and $\pm 8$ 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,<br>30% reduction for 500 ms<br>>95% reduction for 10 ms |

## OUTPUT VOLTAGE/CURRENT RATING CHART

| Model <sup>(2)</sup> | Output |              |              |      |                               |            | Average Active Efficiency (Typical) @ 115 / 230 Vac |
|----------------------|--------|--------------|--------------|------|-------------------------------|------------|---|
|                      | V1     | Min. Current | Max. Current | Tol. | Ripple & Noise <sup>(1)</sup> | Max. Power |   |
| 3H-12-180            | 12 V   | 0 A          | 15.00 A      | 5%   | 380 mV                        | 180 W      | 88 / 90 %   |
| 3RH-12-180           | 12 V   | 0 A          | 15.00 A      | 5%   | 380 mV                        | 180 W      | 88 / 90 %   |
| 3H-19-220            | 19 V   | 0 A          | 11.57 A      | 5%   | 380 mV                        | 220 W      | 90 / 92 %   |
| 3H-24-220            | 24 V   | 0 A          | 9.16 A       | 5%   | 380 mV                        | 220 W      | 88 / 90 %   |
| 3H-48-220            | 48 V   | 0 A          | 4.58 A       | 5%   | 480 mV                        | 220 W      | 92 / 93 %   |

- NOTES:
- 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 electrolytic capacitor in parallel with a 0.1 µF ceramic capacitor across the output.
  - 3H models are equipped with IEC320/C14 inlet, and 3RH models with IEC320/C6 inlet.

## MECHANICAL SPECIFICATIONS



### NOTES:

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Weight: 1.0 Kg (2.2 lbs.) approx.
- The length of output cable for 3H-19-220 is 37.4 [950.0]
- Output connector for 3H-12-180 and 3RH-12-180 is 4-pin plug without lock (molding type), mating with 4-pin socket, Kycon P/N KPJX-4S-S or equivalent.
- Output connector for 3H-19-220, 3H-24-220 and 3H-48-220 is Molex Mini - Fit receptacle, P/N: 39-01-2060 with female terminal #5556 or equivalent, mating with Molex plug 39-01-2066 and male terminal #5558 or equivalent. It also mates with Molex headers #5566, #5569, or equivalent.
- Please contact us for other output connector options.

## PIN CHART

| MODEL \ PIN             | PIN |   |   |                       | SHELL OF CONNECTOR |
|-------------------------|-----|---|---|-----------------------|--------------------|
|                         | 1   | 2 | 3 | 4                     |                    |
| 3H-12-180<br>3RH-12-180 | +V1 |   |   | V1 Return & AC Ground |                    |

| MODEL \ PIN                         | PIN |                       |   |   |     |   |
|-------------------------------------|-----|-----------------------|---|---|-----|---|
|                                     | 1   | 2                     | 3 | 4 | 5   | 6 |
| 3H-19-220<br>3H-24-220<br>3H-48-220 |     | V1 Return & AC Ground |   |   | +V1 |   |