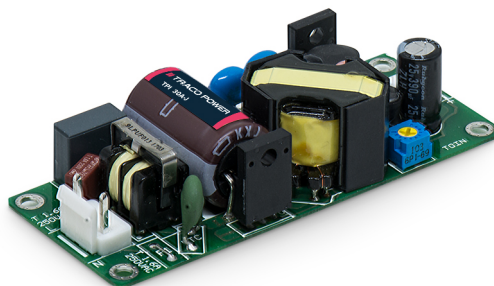


- 30 Watt open frame power supplies in a 3.34" x 1.36" package
- Compact and cost efficient design
- Peak power function up to 130%
- I/O reinforced isolation 3000 VAC
- Operating temperature range -40°C to +85°C
- No load input power <0.3W (acc. ErP directive)
- High efficiency up to 90%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty



UL 62368-1 IEC 62368-1

The TPI 30A-J is a 30 Watt AC/DC open frame power supplies series with a 3000 VAC reinforced isolation system. Our TPI line specifically focuses on providing cost efficient industrial power supplies in compact designs. This series offers a peak power function which enables the unit to deliver up to 130% of the rated power for up to 10 seconds. Excellent efficiency of up to 90% allows a compact design and an operating temperature range (natural convection) of -40°C to +60°C without derating, while going up to +85°C with either load derating or forced cooling. They are designed to meet the ErP directive (< 0.3 W no load power consumption) and come with an EMC characteristics dedicated for applications in industrial/automation and test & measurement fields. High reliability is provided by use of industrial high-quality grade components and an excellent thermal management. It makes the TPI 30A-J an ideal solution for any demanding industrial devices or space critical applications.

| Models         |                   |                                  |                     |                     |                 |
|----------------|-------------------|----------------------------------|---------------------|---------------------|-----------------|
| Order Code     | Output Power max. | Output Voltage nom. (adjustable) | Output Current max. | Output Current peak | Efficiency typ. |
| TPI 30-103A-JP | 20 W              | 3.3 VDC (2.97 - 3.63 VDC)        | 6'000 mA            | 7'576 mA            | 83 %            |
| TPI 30-105A-JP | 30 W              | 5 VDC (4.0 - 5.5 VDC)            | 6'000 mA            | 8'000 mA            | 86 %            |
| TPI 30-112A-JP |                   | 12 VDC (9.6 - 13.2 VDC)          | 2'500 mA            | 3'333 mA            | 89 %            |
| TPI 30-115A-JP |                   | 15 VDC (12.0 - 16.5 VDC)         | 2'000 mA            | 2'667 mA            | 89 %            |
| TPI 30-124A-JP |                   | 24 VDC (19.2 - 26.4 VDC)         | 1'250 mA            | 1'667 mA            | 88 %            |
| TPI 30-136A-JP |                   | 36 VDC (28.8 - 39.6 VDC)         | 840 mA              | 1'111 mA            | 89 %            |
| TPI 30-148A-JP |                   | 48 VDC (38.4 - 52.8 VDC)         | 630 mA              | 833 mA              | 91 %            |
| TPI 30-153A-JP |                   | 53 VDC (42.4 - 58.3 VDC)         | 580 mA              | 755 mA              | 90 %            |

## Input Specifications

|                        |                             |                                                                                                              |
|------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------|
| Input Voltage          | - AC Range                  | Operational Range: <b>85 - 264 VAC</b> (Full Range)<br>Rated Range: <b>100 - 240 VAC</b> (Full Range)        |
|                        | - DC Range                  | Operational Range: <b>120 - 370 VDC</b> (Designed for, no certification)<br>Polarity: <b>+DC: L / -DC: N</b> |
| Input Frequency        |                             | Operational Range: <b>47 - 440 Hz</b><br>Certified: <b>50/60 Hz</b>                                          |
|                        |                             |                                                                                                              |
| Input Current          | - Full Load & Vin = 230 VAC | <b>400 mA max.</b>                                                                                           |
|                        | - Full Load & Vin = 115 VAC | <b>800 mA max.</b>                                                                                           |
| Power Consumption      | - No load & Vin = 230 VAC   | <b>75 mW max.</b> (Ready to meet ErP directive)                                                              |
|                        | - No load & Vin = 115 VAC   | <b>75 mW max.</b>                                                                                            |
| Input Inrush Current   | - At 230 VAC                | <b>45 A max.</b>                                                                                             |
|                        | - At 115 VAC                | <b>26 A max.</b>                                                                                             |
| Input Protection       |                             | <b>T 1.6 A / 250 VAC</b> (Internal Fuse in L)                                                                |
| Recommended Input Fuse |                             | (The need of an external fuse has to be assessed in the final application.)                                  |

## Output Specifications

|                                        |                                 |                                                                                                                                                                                                                              |
|----------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage Adjustment              |                                 | <b>±10%</b> (3.3 VDC models)<br><b>-20% to +10%</b> (other models)<br>(By trim potentiometer)<br>Output power must not exceed rated power!                                                                                   |
| Voltage Set Accuracy                   |                                 | <b>±1% max.</b>                                                                                                                                                                                                              |
| Regulation                             | - Input Variation (Vmin - Vmax) | <b>0.2% max.</b>                                                                                                                                                                                                             |
|                                        | - Load Variation (0 - 100%)     | <b>0.7% max.</b> (3.3 and 5 VDC model)                                                                                                                                                                                       |
|                                        |                                 | <b>0.5% max.</b> (other output models)                                                                                                                                                                                       |
| Boost Power                            |                                 | Output Current peak: <b>See model table</b><br>Peak power time: <b>5 s max.</b><br>Peak power duty cycle: <b>20% max.</b><br>Average operation power: <b>70% of full load</b><br>(detailed description see application note) |
| Ripple and Noise<br>(20 MHz Bandwidth) | 3.3 VDC model:                  | <b>50 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)                                                                                                                                                                                  |
|                                        | 5 VDC model:                    | <b>50 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)                                                                                                                                                                                  |
|                                        | 12 VDC model:                   | <b>50 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)                                                                                                                                                                                   |
|                                        | 15 VDC model:                   | <b>50 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)                                                                                                                                                                                   |
|                                        | 24 VDC model:                   | <b>50 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)                                                                                                                                                                                   |
|                                        | 36 VDC model:                   | <b>50 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)                                                                                                                                                                                   |
|                                        | 48 VDC model:                   | <b>50 mVp-p typ.</b> (w/ 0.1 µF, 100 V, MLCC)                                                                                                                                                                                |
|                                        | 53 VDC model:                   | <b>50 mVp-p typ.</b> (w/ 0.1 µF, 100 V, MLCC)                                                                                                                                                                                |
| Capacitive Load                        | 3.3 VDC model:                  | <b>10'000 µF max.</b>                                                                                                                                                                                                        |
|                                        | 5 VDC model:                    | <b>12'000 µF max.</b>                                                                                                                                                                                                        |
|                                        | 12 VDC model:                   | <b>2'085 µF max.</b>                                                                                                                                                                                                         |
|                                        | 15 VDC model:                   | <b>1'350 µF max.</b>                                                                                                                                                                                                         |
|                                        | 24 VDC model:                   | <b>520 µF max.</b>                                                                                                                                                                                                           |
|                                        | 36 VDC model:                   | <b>235 µF max.</b>                                                                                                                                                                                                           |
|                                        | 48 VDC model:                   | <b>130 µF max.</b>                                                                                                                                                                                                           |
| Minimum Load                           |                                 | <b>Not required</b>                                                                                                                                                                                                          |
|                                        |                                 |                                                                                                                                                                                                                              |
| Temperature Coefficient                |                                 | <b>±0.02 %/K max.</b>                                                                                                                                                                                                        |
| Hold-up Time                           | - At 230 VAC                    | <b>80 ms min.</b>                                                                                                                                                                                                            |
|                                        | - At 115 VAC                    | <b>14 ms min.</b>                                                                                                                                                                                                            |
| Start-up Time                          | - At 230 VAC                    | <b>800 ms max.</b>                                                                                                                                                                                                           |
|                                        | - At 115 VAC                    | <b>900 ms max.</b>                                                                                                                                                                                                           |
| Short Circuit Protection               |                                 | <b>Continuous, Automatic recovery</b>                                                                                                                                                                                        |
| Output Current Limitation              |                                 | <b>165% typ.</b> of Iout max.                                                                                                                                                                                                |
| Overvoltage Protection                 |                                 | <b>125 - 140% of Vout nom.</b>                                                                                                                                                                                               |

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

|                    |                      |                                                           |
|--------------------|----------------------|-----------------------------------------------------------|
| Transient Response | - Response Deviation | 3% max. (50% to 75% Load Step at 2.5 A/ $\mu$ s)          |
|                    | - Response Time      | 500 $\mu$ s typ. (50% to 75% Load Step at 2.5 A/ $\mu$ s) |

## Safety Specifications

|                       |                             |                                                                                                |
|-----------------------|-----------------------------|------------------------------------------------------------------------------------------------|
| Safety Standards      | - IT / Multimedia Equipment | EN 62368-1<br>IEC 62368-1<br>UL 62368-1                                                        |
|                       | - Certification Documents   | <a href="http://www.tracopower.com/overview/tpi30a-j">www.tracopower.com/overview/tpi30a-j</a> |
| Protection Class      |                             | Class I & II (Prepared): Reinforced Insulation                                                 |
| Pollution Degree      |                             | PD 2                                                                                           |
| Over Voltage Category |                             | OVC II                                                                                         |

## EMC Specifications

|               |                                  |                                                                             |
|---------------|----------------------------------|-----------------------------------------------------------------------------|
| EMI Emissions | - Conducted Emissions            | EN 55032 class B (internal filter)<br>FCC Part 15 class B (internal filter) |
|               | - Radiated Emissions             | EN 55032 class B (internal filter)<br>FCC Part 15 class B (internal filter) |
|               | - Harmonic Current Emissions     | EN 61000-3-2, class A                                                       |
|               | - Voltage Fluctuations & Flicker | EN 61000-3-3                                                                |
| EMS Immunity  | - Electrostatic Discharge        | EN 55024 (IT Equipment)                                                     |
|               |                                  | Air: EN 61000-4-2, $\pm 15$ kV, perf. criteria A                            |
|               |                                  | Contact: EN 61000-4-2, $\pm 8$ kV, perf. criteria A                         |
|               |                                  | EN 61000-4-3, 20 V/m, perf. criteria A                                      |
|               | - RF Electromagnetic Field       | EN 61000-4-4, $\pm 2$ kV, perf. criteria A                                  |
|               |                                  | L to L: EN 61000-4-5, $\pm 1$ kV, perf. criteria A                          |
|               | - Conducted RF Disturbances      | EN 61000-4-6, 20 Vrms, perf. criteria A                                     |
|               |                                  | Continuous: EN 61000-4-8, 30 A/m, perf. criteria A                          |
|               |                                  | 230 VAC / 50 Hz: EN 61000-4-11                                              |
|               | - PF Magnetic Field              | 115 VAC / 60 Hz: EN 61000-4-11                                              |
|               | - Voltage Dips & Interruptions   |                                                                             |

## General Specifications

|                              |                             |                                            |
|------------------------------|-----------------------------|--------------------------------------------|
| Relative Humidity            |                             | 95% max. (non condensing)                  |
| Temperature Ranges           | - Operating Temperature     | -40°C to +85°C                             |
|                              | - Storage Temperature       | -40°C to +85°C                             |
| Power Derating               | - High Temperature          | 2.2 %/K above 60°C                         |
|                              | - Low Input Voltage         | 4 %/V below 90 VAC                         |
| Cooling System               |                             | Natural convection (20 LFM)                |
| Altitude During Operation    |                             | 5'000 m max.                               |
| Switching Frequency          |                             | 30 - 60 kHz (PWM QR)                       |
|                              |                             | 45 kHz typ. (PWM QR)                       |
| Insulation System            |                             | Reinforced Insulation                      |
| Working Voltage (rated)      |                             | 272 VAC                                    |
| Isolation Test Voltage       | - Input to Output, 60 s     | 4'000 VDC                                  |
|                              | - Input to Case or PE, 60 s | 2'500 VDC                                  |
| Isolation Resistance         | - Input to Output, 500 VDC  | 100 M $\Omega$ min.                        |
| Leakage Current (at 264 VAC) | - Touch Current             | 100 $\mu$ A max.                           |
| Reliability                  | - Calculated MTBF           | 3'340'000 h (MIL-HDBK-217F, ground benign) |
| Environment                  | - Vibration                 | IEC 60068-2-6                              |
|                              | - Mechanical Shock          | IEC 60068-2-27                             |
| Housing Type                 |                             | Open Frame                                 |
| Mounting Type                |                             | Chassis Mount                              |
| Connection Type              |                             | Pin Connector                              |
| Weight                       |                             | 60.5 g                                     |

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

Environmental Compliance - REACH Declaration

- RoHS Declaration

[www.tracopower.com/info/reach-declaration.pdf](http://www.tracopower.com/info/reach-declaration.pdf)

REACH SVHC list compliant

REACH Annex XVII compliant

[www.tracopower.com/info/rohs-declaration.pdf](http://www.tracopower.com/info/rohs-declaration.pdf)

Exemptions: 7a, 7c-I

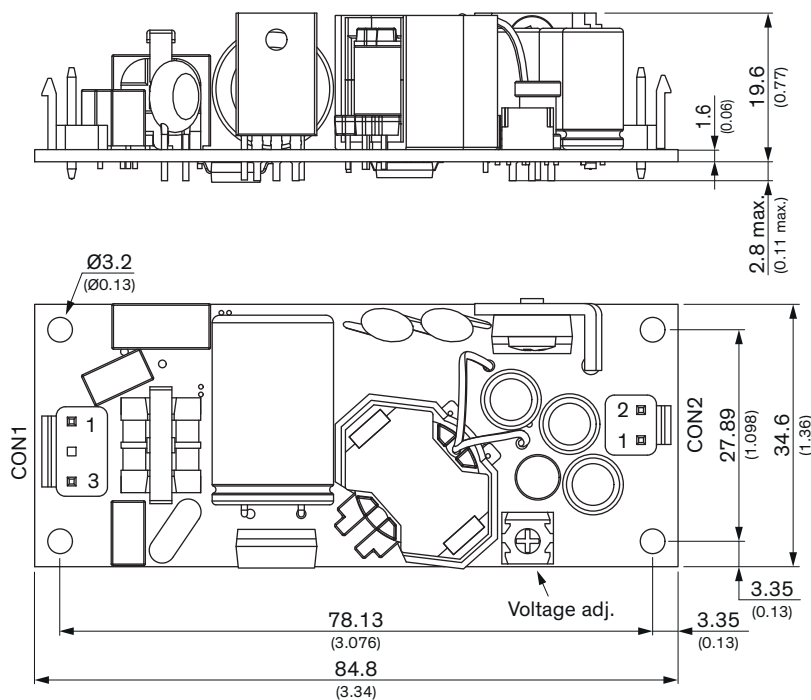
(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).  
The SCIP number is provided on request.)

### Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/tpi30a-j](http://www.tracopower.com/overview/tpi30a-j)

### Outline Dimensions



Dimensions in mm (inch)  
Tolerances: x.x ±0.5 (x.xx ±0.02)  
Tolerances: x.xx±0.25 (x.xxx ±0.01)  
Screw lock torque: Max. 0.49 Nm (5 kgfcm)

### Pin connectors

| Input (CON1) |          | Output (CON2) |          |
|--------------|----------|---------------|----------|
| Pin          | Function | Pin           | Function |
| 1            | Line     | 1             | +Vout    |
| 3            | Neutral  | 2             | -Vout    |

**Input:** JST series  
mates with JST crimp terminal: SVH-21T-P1.1  
and terminal housing: VHR-3N

**Output:** JST series  
mates with JST crimp terminal: SVH-21T-P1.1  
and terminal housing: VHR-2N