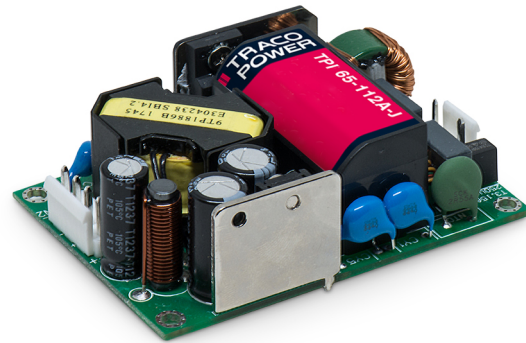


- 65 Watt open frame power supplies in a 3" x 2" package
- Compact and cost efficient design
- Peak power function up to 140%
- I/O reinforced isolation 3000 VAC
- Operating temperature range -40°C to +85°C
- No load input power <0.3W (acc. ErP directive)
- High efficiency up to 93%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty



The TPI 65A-J is a 65 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 140% of the rated power for up to 10 seconds. Excellent efficiency of up to 93% allows a compact design and an operating temperature range (natural convection) of -40°C to +70°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 65A-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 65-105A-JP	50 W	5 VDC (4.0 - 5.5 VDC)	10'000 mA	13'000 mA	90 %
TPI 65-112A-JP	65 W	12 VDC (9.6 - 13.2 VDC)	5'420 mA	7'500 mA	93 %
TPI 65-115A-JP		15 VDC (12.0 - 16.5 VDC)	4'340 mA	6'000 mA	94 %
TPI 65-124A-JP		24 VDC (19.2 - 26.4 VDC)	2'710 mA	3'750 mA	94 %
TPI 65-136A-JP		36 VDC (28.8 - 39.6 VDC)	1'810 mA	2'500 mA	93 %
TPI 65-148A-JP		48 VDC (38.4 - 52.8 VDC)	1'360 mA	1'875 mA	93 %
TPI 65-153A-JP		53 VDC (42.4 - 58.3 VDC)	1'240 mA	1'698 mA	93 %

### Input Specifications

Input Voltage	- AC Range	Operational Range: <b>85 - 264 VAC</b> (Full Range) Rated Range: <b>100 - 240 VAC</b> (Full Range)
	- DC Range	Operational Range: <b>120 - 370 VDC</b> (Designed for, no certification) Polarity: <b>+DC: L / -DC: N</b>
Input Frequency		Operational Range: <b>47 - 440 Hz</b> Certified: <b>50/60 Hz</b>
Input Current	- Full Load & Vin = 230 VAC	<b>900 mA max.</b>
	- Full Load & Vin = 115 VAC	<b>1'600 mA max.</b>
Power Consumption	- No load & Vin = 230 VAC	<b>180 mW max.</b> (Ready to meet ErP directive)
	- No load & Vin = 115 VAC	<b>180 mW max.</b>
Input Inrush Current	- At 230 VAC	<b>75 A max.</b>
	- At 115 VAC	<b>40 A max.</b>
Input Protection		<b>T 3.15 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>-20% to +10%</b> (By trim potentiometer) 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> (5 VDC model) <b>0.5% max.</b> (other output models)
Boost Power		<b>Output Current peak: See model table</b> <b>Peak power time: 5 s max.</b> <b>Peak power duty cycle: 20% max.</b> <b>Average operation power: 70% of full load</b> (detailed description see application note)
Ripple and Noise (20 MHz Bandwidth)	5 VDC model:	<b>75 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)
	12 VDC model:	<b>75 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)
	15 VDC model:	<b>75 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)
	24 VDC model:	<b>75 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)
	36 VDC model:	<b>75 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)
	48 VDC model:	<b>150 mVp-p typ.</b> (w/ 0.1 µF, 100 V, MLCC)
Capacitive Load	5 VDC model:	<b>20'000 µF max.</b>
	12 VDC model:	<b>4'520 µF max.</b>
	15 VDC model:	<b>2'900 µF max.</b>
	24 VDC model:	<b>1'130 µF max.</b>
	36 VDC model:	<b>520 µF max.</b>
48 VDC model:	<b>285 µF max.</b>	
53 VDC model:	<b>235 µF max.</b>	
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.02 %/K max.</b>
Hold-up Time	- At 230 VAC	<b>90 ms min.</b>
	- At 115 VAC	<b>15 ms min.</b>
Start-up Time	- At 230 VAC	<b>800 ms max.</b>
	- At 115 VAC	<b>950 ms max.</b>
Short Circuit Protection		<b>Continuous, Automatic recovery</b>
Output Current Limitation		<b>165% typ. of Iout max.</b>
Overvoltage Protection		<b>125 - 140% of Vout nom.</b>
Transient Response	- Response Deviation	<b>3% max.</b> (50% to 75% Load Step at 2.5 A/µs)
	- Response Time	<b>600 µs typ.</b> (50% to 75% Load Step at 2.5 A/µs)

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

### Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	<a href="http://www.tracopower.com/overview/tpi65a-j">www.tracopower.com/overview/tpi65a-j</a>
Protection Class		Class I & II (Prepared): Reinforced Insulation

### EMC Specifications

EMI Emissions	- Conducted Emissions	EN 55011 class B (internal filter) EN 55032 class B (internal filter) FCC Part 15 class B (internal filter)
	- Radiated Emissions	EN 55011 class B (internal filter) EN 55032 class B (internal filter) 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		EN 55024 (IT Equipment)
	- Electrostatic Discharge	Air: EN 61000-4-2, ±15 kV, perf. criteria A Contact: EN 61000-4-2, ±6 kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 20 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, ±4 kV, perf. criteria A
		L to L: EN 61000-4-5, ±2 kV, perf. criteria A
		L to PE: EN 61000-4-5, ±4 kV, perf. criteria A
	- Conducted RF Disturbances	EN 61000-4-6, 20 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous: EN 61000-4-8, 100 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz: EN 61000-4-11 115 VAC / 60 Hz: EN 61000-4-11

### 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	See application note: <a href="http://www.tracopower.com/overview/tpi65a-j">www.tracopower.com/overview/tpi65a-j</a>
	- Low Input Voltage	4 %/V below 90 VAC
Cooling System		Natural convection (20 LFM)
Altitude During Operation		5'000 m max.
Switching Frequency		60 kHz typ. (PWM QR) (5 VDC models)
		120 kHz typ. (PWM QR) (other models)
Insulation System		Reinforced Insulation
Working Voltage (rated)		273 VAC
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC
Creepage	- Input to Output	8 mm min.
Clearance	- Input to Output	8 mm min.
Isolation Resistance	- Input to Output, 500 VDC	100 MΩ min.
Leakage Current	- Earth Leakage Current	75 μA max.
Reliability	- Calculated MTBF	1'490'000 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		117 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

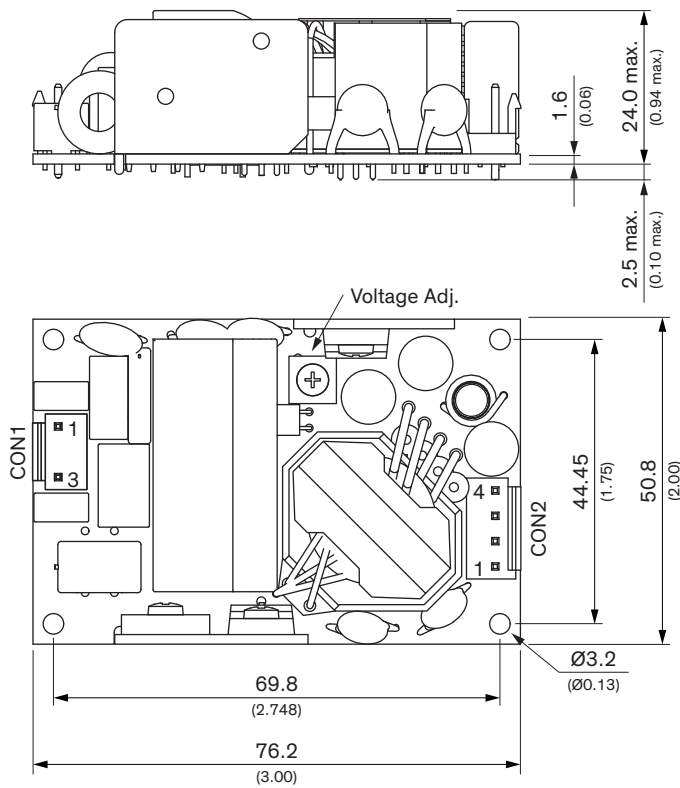
(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

### Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/tpi65a-j](http://www.tracopower.com/overview/tpi65a-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	1,2*	-Vout
3	Neutral	3,4*	+Vout

\*Terminal rated for 10 A max per pin.  
 (at higher current connection has to be split)

**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-4N