

### Input Specifications

Input Current	- At no load	5 Vin models: <b>30 mA typ.</b> 12 Vin models: <b>12 mA typ.</b> 15 Vin models: <b>11 mA typ.</b> 24 Vin models: <b>7 mA typ.</b>
	- At full load	5 Vin models: <b>270 mA typ.</b> 12 Vin models: <b>110 mA typ.</b> 15 Vin models: <b>90 mA typ.</b> 24 Vin models: <b>55 mA typ.</b>
Surge Voltage		5 Vin models: <b>9 VDC max.</b> (1 s max.) 12 Vin models: <b>18 VDC max.</b> (1 s max.) 15 Vin models: <b>18 VDC max.</b> (1 s max.) 24 Vin models: <b>30 VDC max.</b> (1 s max.)
Recommended Input Fuse		(The need of an external fuse has to be assessed in the final application.)
Input Filter		Internal Capacitor

### Output Specifications

Voltage Set Accuracy		<b>±3% max.</b>
Regulation	- Input Variation (Vmin - Vmax)	single output models: <b>1.5% max.</b> dual output models: <b>1.5% max.</b>
	- Load Variation (20 - 100%)	single output models: <b>10% max.</b> dual output models: <b>10% max.</b> (Output 1) <b>10% max.</b> (Output 2)
	- Voltage Balance (symmetrical load)	dual output models: <b>1% max.</b>
Ripple and Noise	- 20 MHz Bandwidth	<b>50 mVp-p typ.</b> <b>75 mVp-p max.</b>
Capacitive Load	- single output	5 Vout models: <b>220 µF max.</b> 12 Vout models: <b>220 µF max.</b> 15 Vout models: <b>220 µF max.</b>
	- dual output	5 / -5 Vout models: <b>100 / 100 µF max.</b> 12 / -12 Vout models: <b>100 / 100 µF max.</b> 15 / -15 Vout models: <b>100 / 100 µF max.</b>
Minimum Load		Not required
Temperature Coefficient		<b>±0.02 %/K max.</b>
Short Circuit Protection		Limited 0.5 s max., Automatic recovery

### Safety Specifications

Safety Standards	- IT / Multimedia Equipment	Designed for EN 62368-1 (no certification)
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### General Specifications

Relative Humidity		<b>95% max.</b> (non condensing)
Temperature Ranges	- Operating Temperature	<b>-40°C to +85°C</b>
	- Case Temperature	<b>+105°C max.</b>
	- Storage Temperature	<b>-50°C to +125°C</b>
Power Derating	- High Temperature	<b>4 %/K above 75°C</b> (5 & ±5 Vout models) <b>4 %/K above 80°C</b> (other models)
Cooling System		Natural convection (20 LFM)
Switching Frequency		<b>70 - 120 kHz</b> (PFM)
		<b>100 kHz typ.</b> (PFM)
Insulation System		Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s	<b>1'000 VDC</b>
Isolation Resistance	- Input to Output, 500 VDC	<b>1'000 MΩ min.</b>

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

Isolation Capacitance	- Input to Output, 100 kHz, 1 V	60 pF typ. 100 pF max.
Reliability	- Calculated MTBF	2'000'000 h (MIL-HDBK-217F, ground benign)
Washing Process	See Cleaning Guideline:	Allowed (hermetical product) <a href="http://www.tracopower.com/info/cleaning.pdf">www.tracopower.com/info/cleaning.pdf</a>
Housing Material		Non-conductive Plastic (UL 94 V-0 rated)
Potting Material		Epoxy (UL 94 V-0 rated)
Pin Material		Nickel-Iron (Alloy 42)
Pin Foundation Plating		Nickel (1 µm min.)
Pin Surface Plating		Tin (3 - 5 µm), matte
Housing Type		Plastic Case
Mounting Type		PCB Mount
Connection Type		THD (Through-Hole Device)
Footprint Type		SIP7
Soldering Profile		Wave Soldering 260°C / 10 s max.
Weight	5 Vin models: 12 Vin models: 15 Vin models: 24 Vin models:	2.2 g 2.2 g 2.6 g 2.6 g
Environmental Compliance	- REACH Declaration  - RoHS Declaration	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> REACH SVHC list compliant REACH Annex XVII compliant <a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> Exemptions: No Exemptions

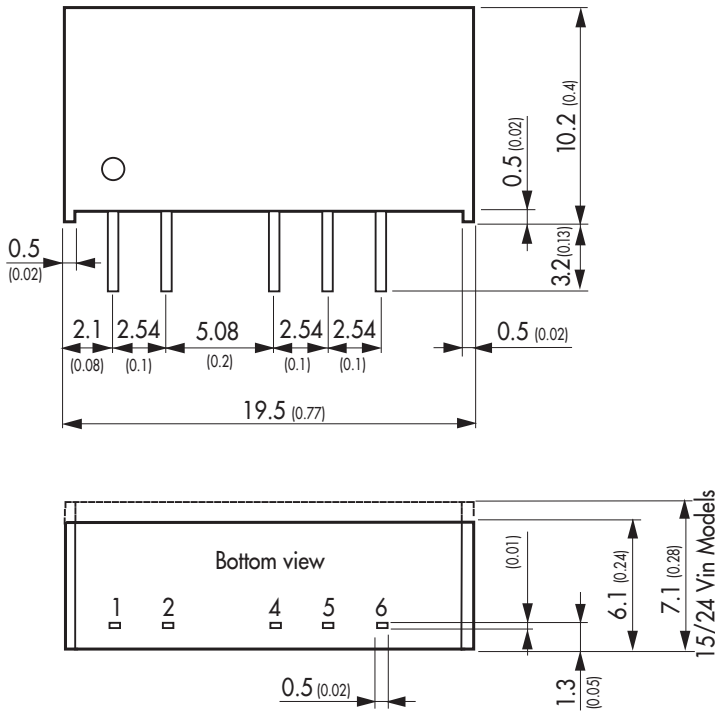
## Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/tma](http://www.tracopower.com/overview/tma)

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

**Outline Dimensions**



Pinout		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
4	-Vout	-Vout
5	No pin	Common
6	+Vout	+Vout

Tolerances  $\pm 0.25$  ( $\pm 0.01$ )  
 Pin pitch tolerances  $\pm 0.13$  ( $\pm 0.005$ )  
 Pins  $\pm 0.05$  ( $\pm 0.002$ )

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