

### Features

- ◆ Standby power module to comply with ErP directive
- ◆ No load input power < 30mW
- ◆ Constant power characteristics at 2W (no current limitation)
- ◆ Suitable to drive relays, solenoids, capacitive loads and LED's
- ◆ Constant voltage auxiliary outputs 3.3 and 5 VDC
- ◆ Operating temperature range -30°C to +70°C
- ◆ EMI meets EN 55022, class B and FCC, level B
- ◆ Short circuit and overload protection
- ◆ 3-year product warranty



The TMSB-2 series are compact AC/DC power supplies in a fully encapsulated plastic casing with solder pins for direct PCB mounting. They feature regulated outputs and constant power characteristics which make them suitable to drive relays, solenoids, LED's and capacitive loads. Models with an additional regulated auxiliary output can be used to power a logic circuit in standby functions.

An universal input voltage 85–264 VAC, safety approvals including approvals for household applications (EN 60335-1) and an operating temp. range from -30°C to +70°C qualify them for worldwide markets.

### Models

Order code	Output power max.	Output 1	Output 2	Efficiency
TMSB 2-108	2 W	8.0 VDC / 250 mA	–	72 %
TMSB 2-114		14 VDC / 143 mA	–	74 %
TMSB 2-124		24 VDC / 83 mA	–	76 %
TMSB 2-283		8.0 VDC / 250 mA <sup>1)</sup>	3.3 VDC / 160 mA <sup>1)</sup>	69 %
TMSB 2-285		8.0 VDC / 250 mA <sup>1)</sup>	5.0 VDC / 250 mA <sup>1)</sup>	69 %
TMSB 2-2143		14 VDC / 143 mA <sup>2)</sup>	3.3 VDC / 70 mA <sup>2)</sup>	70 %
TMSB 2-2145		14 VDC / 143mA <sup>2)</sup>	5.0 VDC / 83 mA <sup>2)</sup>	70 %

<sup>1)</sup> Total output current must not exceed 250 mA

<sup>2)</sup> Total output current must not exceed 143 mA

### Input Specifications

Input voltage ranges	– AC input – DC Input	90 – 264 VAC 120 – 370 VDC
Input frequency		47 – 440 Hz
Input current at full load (115 VAC / 230 VAC nominal input)		41 mA typ.
No-Load power consumption		30 mW typ.
External fuse (required)		1 A slow blow type (recommendation)
Input surge voltage		305 VAC max.

### Output Specifications

Voltage set accuracy		Output 1: $\pm 5\%$ max. Output 2: $\pm 2\%$ max.
Minimum load		no minimum load required
Ripple and noise (20 MHz bandwidth)		Output 1: 1 % of Vout [Vp-p] typ. Output 2: 0.1 % of Vout [Vp-p] typ.
Regulation – Input variation		Output 1: 1 % Output 2: 0.3 %
Regulation – Load variation		Output 1: 1 % Output 2: 0.5 %
Short circuit protection		continuous

### General Specifications

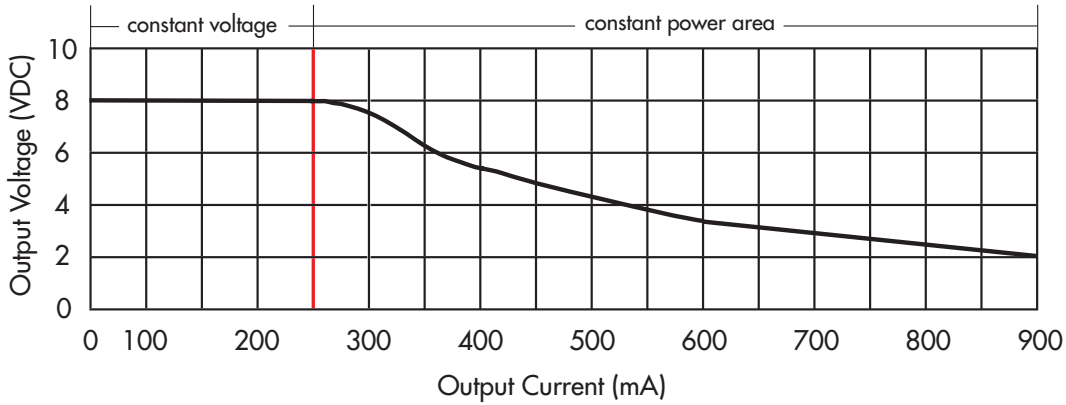
Temperature ranges	– Operating – Power derating above +60°C – Storage (non operating)	xxx models:	–30°C to +70°C 2.0 %/K –40°C to +85°C
Temperature coefficient			0.02 %/°C
Humidity (non condensing)			95 % rel max.
Switching frequency (pulse width modulation PWM)			45 kHz typ.
Isolation voltage	– Input/Output		3'000 VAC
Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)			>500'000 h
Electromagnetic compatibility (EMC), emissions	– Conducted input RI suppression – Radiated input suppression		EN 55022, class B, FCC part 15, level B EN 55014-1
Electromagnets compatibility (EMC), immunity	– Electrostatic discharge ESD – RF field immunity – Electrical fast transients/burst immunity – Surge – Conducted RF – Voltage dip		IEC / EN 61000-4-2, criteria A IEC / EN 61000-4-3, criteria A IEC / EN 61000-4-4, criteria A IEC / EN 61000-4-5, criteria A IEC / EN 61000-4-6, criteria A IEC / EN 61000-4-11
Protection class II			According IEC/EN 60536
Safety standards			IEC/EN 60950-1, UL 60950-1 EN 60335-1
Safety approvals	– CB certificate for IEC 60950-1 – UL/cUL 60950-1 / UL/cUL 60601-1		<a href="http://www.tracopower.com/products/tmsb2-cb60950.pdf">www.tracopower.com/products/tmsb2-cb60950.pdf</a> <a href="http://www.ul.com">www.ul.com</a> -> certifications -> File e188913
Casing material			plastic resin + fiberglass (UL 94V-0 rated)
Environmental compliance	– Reach – RoHS		<a href="http://www.tracopower.com/products/reach-declaration.pdf">www.tracopower.com/products/reach-declaration.pdf</a> RoHS directive 2011/65/EU

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

**Output characteristics**

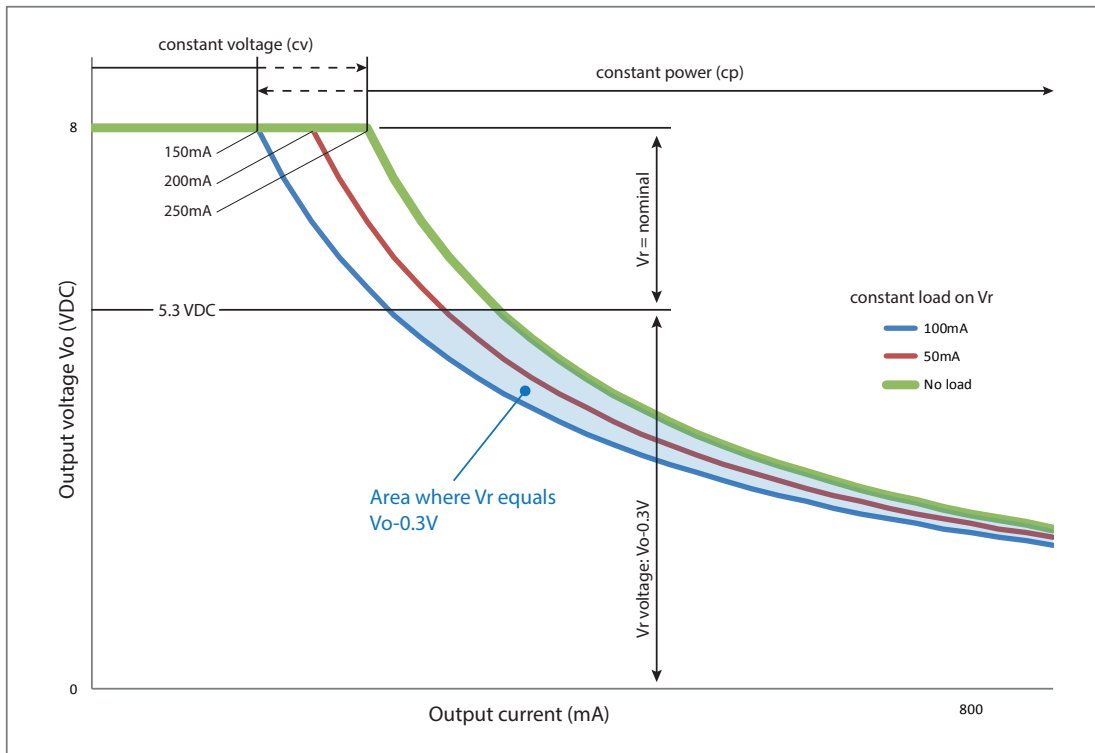
**Single output models:**

(e.g. TMSB 2-108)



**Dual output models:**

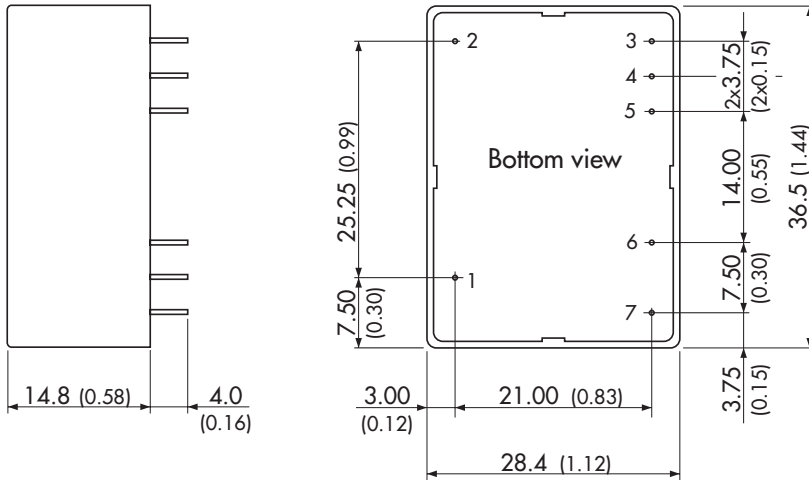
(e.g. TMSB 2-285)



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

**Outline Dimensions**

TMSB 2:



Pinout / Connection		
Pin/con.	Single	Dual
1	NC	NC
2	NC	NC
3	+Vout	+Vout1
4	-Vout	Common
5	No Pin	+Vout2
6	AC(N)	AC(N)
7	AC(L)	AC(L)

NC = not to connect

Pin diameter  $\varnothing$  0.8 mm (0.03 ± 0.004)

**Weight:** 50 g (3.9 oz)

Dimensions in [mm], ( ) = Inches  
Tolerances = 0.5mm (0.02)