

AC/DC Power Module

TMPS 05 Series, 5 Watt

- ◆ PCB Power module in 1" x 1" package
- ◆ Certified to EN60335-1 for household appliance.
- ◆ No load input power <300 mW to comply with ErP directive
- ◆ Operating temperature range -25°C to +70°C
- ◆ EMI meets EN 55022 class B and EN 55014-1
- ◆ Protection class II prepared
- ◆ 3-year product warranty



The TMPS-05 series comprises ultra compact AC/DC power supply modules in lightweight fully encapsulated plastic casing for PCB mount. Beside the safety approvals for industrial and IT solutions, they are also certified to EN 60335-1 for household appliance. These 5 Watt modules are the ideal solution for low power or segregated circuits when space is critical or for an efficient powering of a standby mode when compliance to ErP directive is required. A peak current of 130% facilitates the activation of main circuits.

Models					
Order code	Output power max.	Output Voltage	Output Current		Efficiency
			max.	peak ¹⁾	
TMPS 05-103	5 W	3.3 VDC	1515 mA	1970 mA	74 %
TMPS 05-105		5.0 VDC	1000 mA	1300 mA	80 %
TMPS 05-109		9.0 VDC	555 mA	721 mA	82 %
TMPS 05-112		12 VDC	416 mA	540 mA	82 %
TMPS 05-115		15 VDC	333 mA	433 mA	83 %
TMPS 05-124		24 VDC	208 mA	270 mA	83 %
TMPS 05-148		48 VDC	104 mA	135 mA	85 %

¹⁾ < 30 s with maximum duty cycle of 10%, average output power must not exceed 5 W

Input Specifications

Input voltage ranges	– AC input – DC Input	85 – 264 VAC 120 – 370 VDC
Input frequency		47 – 63 Hz
Input current at full load (115 VAC or 230 VAC nominal input)		110 mA typ.
Inrush current (115 VAC / 230 VAC nominal input)		20 A max. / 40 A max.
No-Load power consumption		300 mW max.

Output Specifications

Voltage set accuracy		±2 % max.
Minimum load		no minimum load required
Ripple and noise (20 MHz bandwidth)	3.3 and 5 VDC models: other models:	60 mVp-p max. 1 % max. of nominal Vout
Regulation	– Input variation – Load variation	1 % max. 1 % max.
Hold-up time		8 ms typ. (at 115 VAC and full load) 40 ms typ. (at 230 VAC and full load)
Over voltage protection		max. 190 % of nominal Vout
Current limitation (operation under over-load conditions may cause damage)		at 150 % typ. (autorecovery)
Short circuit protection		hiccup, automatic recovery
Max. capacitive load	3.3 VDC model: 5.0 VDC model: 9.0 VDC model: 12 VDC model: 15 VDC model: 24 VDC model: 48 VDC model:	2200 µF 1000 µF 300 µF 160 µF 100 µF 43 µF 10 µF

General Specifications

Temperature ranges	– Operating (20 LFM convection cooling) – Power derating above +50°C – Storage (non operating)	–25°C to +70°C 2.5 %/K –40°C to +85°C
Temperature coefficient		0.05 %/°C
Humidity (non condensing)		95 % rel max.
Switching frequency (pulse width modulation PWM)		65 kHz typ.
Isolation voltage (60 sec.)	– Input/Output	4*242 VDC
Isolation resistance (500 VDC)		>100 MOhm
Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		628'000 h
Electromagnetic compatibility (Conducted and radiated input suppression) (EMC), emissions		EN 55011/22, class B, FCC part 15, level B EN 55014-1,
Electromagnetic compatibility (EMC), immunity	– Electrostatic discharge ESD – RF field immunity – Electrical fast transients/burst immunity – Surge – Conducted RF – Magnetic field immunity – Voltage dip and interruptions	EN55014-2; EN55024 IEC / EN 61000-4-2, 8 kV / 4kV, criteria A IEC / EN 61000-4-3, 10 V/m, criteria A IEC / EN 61000-4-4, 2 kV, criteria A IEC / EN 61000-4-5, 1 kV, criteria A IEC / EN 61000-4-6, 10 Vrms, criteria A IEC / EN 61000-4-8, 30 A/m, criteria A IEC / EN 61000-4-11 >95 %, 250 periods, perf. criteria B 60 %, 10 periods, perf. criteria A 30 %, 25 periods, perf. criteria A

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

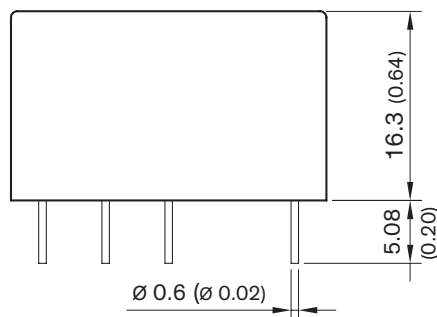
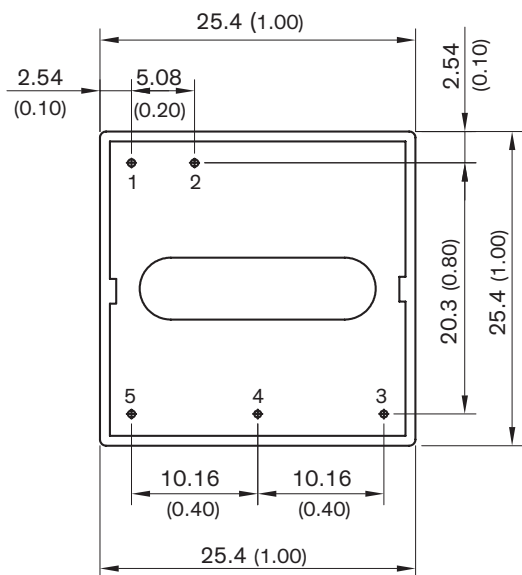
General Specifications (continued)

Protection class II	prepared according IEC/EN 60536
Safety standards	IEC/EN 60950-1, UL 60950-1 EN 60335-1
Safety approvals	as above
Environmental compliance – Reach (pending) – RoHS	RoHS directive 2011/65/EU

Physical Specifications

Casing material	plastic resin + fiberglass (UL 94V-0 rated)
Pin	tinned copper
Weight	19.7 g (0.69 oz)

Outline Dimensions



Pin-Out	
Pin	
1	AC(N)
2	AC(L)
3	NC*
4	-Vout
5	+Vout

*internally not connected but keep it isolated from primary circuit

Dimensions in [mm], () = Inches
Tolerances = 0.5mm (0.01)
Pin diameter \varnothing 0.6 mm (0.02 ± 0.004)