



AC/DC Power Modules

TMLM Series

4 to 20 Watt

Features

- ◆ AC/DC power modules for PCB mounting
- ◆ Highest power density
- ◆ Fully encapsulated plastic case
- ◆ Universal input 90-264 VAC, 47-440 Hz
- ◆ High efficiency
- ◆ EMI meets EN 55022, class B and FCC, level B
- ◆ low ripple and noise
- ◆ Short circuit and overload protection
- ◆ 3-year product warranty



The TMLM Series switching power supplies, offer highest power density in a fully encapsulated module which can be soldered directly on to PCBs. This feature makes these modules an ideal solution for all space critical applications in commercial and industrial electronic equipment, International safety approvals qualify the product for worldwide markets. SMD-technology and high efficiency guarantees a high reliability of these Power Supplies.

Models

Order code	Output Power max.	Output 1	Output 2
TMLM04105	4.0Watt	5.0VDC/800mA	+3.3 VDC / 150 mA +5.0 VDC / 120 mA

Input Specifications

Input voltage	-Nominal		100-240 VAC
	-Range		90-264 VAC (UNIVERSAL INPUT)
	-DC range (TMLM 04& TMLM 05 models only)		120-370 VDC
Input frequency			47-440 Hz
Input current at full load (115VAC/230VAC)	TMLM04 models:		75 mA / 55 mA typ.
Inrush current (<2 ms)(115 VAC/230 VAC)	TMLM04 models:		15 A max / 25A max.
External Input Fuse Required (recommended value)			1.5 A slow blow type

Output Specifications

Voltage set accuracy			±2%
Regulation	- Input variation		0.3% max.(0.5% max.for TMLM 20 models, 3.0% max for output 2)
		TMLM 04 other models output 1:	0.5% max.(0-100% load)
	- Load variation	TMLM 04 output 2:	5.0% max.(1-100% load)



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Minimum load	TMLM 04 models:	0% (1% for output 2)
	other models:	5%,operation at 0-load condition will not
		damage these power supplies,however,they
		may not meet all listed specifications.
Ripple and noise (20 Mhz bandwidth)	3.3-9.0 VDC models:	<100 mV
	12& 15 VDC models:	<150 mV
	24VDC models:	<220 mV
Current limitation		120-180% fold back
Short circuit protection		indefinite (automatic recovery)
Overvoltage protection by Zehner diode (main output only)		120% of Vout typ.

Max. Capacitive load [μ F]

Output:		Model series
		TMLM 04
Single output models:	3.3 VDC	1200
	5.0 VDC	800
	9.0 VDC	440
	12 VDC	330
	15 VDC	260
	24 VDC	160
Dual output	5.0 VDC/3.3VDC	5600/4700
models:	12 VDC/5.0 VDC	330/4700

General Specifications

Temperature ranges	-Operating	-25℃ to +60℃
	-Storage (non operating)	-40℃ to +85℃
Derating		3.75℃/K above +80℃
		TMLM 20 models: 2.5%/K above 40℃
Temperature coefficient		0.02 %/K
Humidity (non condensing)		92% rel max.
Efficiency		75% typ.(depending on model)



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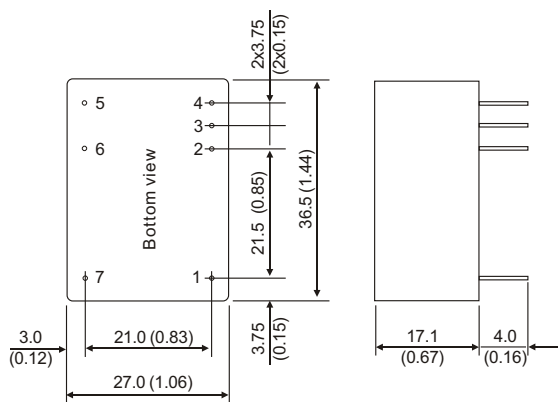
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Switching frequency		130 kHz typ. (Pulse width modulation PWM)
Hold-up time		15 ms min.
Isolation voltage (60 secretary)	-Input / Output	3'000 VAC
Leakage current	TMLM 04 models:	0.30 mA max.
Reliability / calculated MTBF (MIL-HDBK-217F,at 25°C,ground benign)		>330'000 h
Electromagnetic compatibility (EMC),emissions		EN 55022,class B,FCC part 15, level B
Electromagnetic compatibility (EMC),immunity		EN 61000-6-2:2005
Degree of protection		class II to IEC/EN 60536
Safety standards		UL 60950-1,IEC/EN 60950-1
Safety approval		CUL/UL File E188913 (TMLM 20 pending)
		www.ul.com>certifications
Environment	-Vibration acc.IEC 60068-2-6;	3 axis,sine sweep,10-55Hz,1g,1oct/min
	-Shock acc, IEC 60068-2-27	3 axis,15g half sine,11msShock
		20 G (3 directions each 3 times)
Casing material		Plastic resin + fiberglass
		(flammability UL 94V-0 rated)

Outline Dimensions

TMLM 04 Models:



Pin diameter:0.5(0.02)

Weight: 26g (0.92 oz)

Pin - Out		
Pin	Single	Dual
1	No con	No con
2	+Vout	Vout 1
3	-Vout	Common
4	No com.	Vout 2
5	AC (L)	AC (L)
6	AC (N)	AC (N)
7	No con.	No con.

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