

### DESCRIPTION

The TM25 series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 25 to 28 watts of continuous output power. They operate at 85 to 264VAC input voltage without the need of voltage selection. They are ideally suited for use in medical equipments, safety systems and monitoring equipments.

### FEATURES

- Low safety ground leakage current
- 100% burn-in
- 85 to 264VAC wide input range
- Input surge current protection
- Overvoltage protection
- Overcurrent protection
- Open PCB construction
- Compliant with RoHS requirements

### INPUT SPECIFICATIONS

Input voltage : 85 to 264VAC  
Input frequency : 47 to 63 Hz  
Input current : 0.7A ( rms ) for 115VAC  
0.4A ( rms ) for 230VAC  
Earth leakage current : 90 $\mu$ A max. @ 115VAC, 60Hz  
150 $\mu$ A max. @ 230VAC, 50Hz

### OUTPUT SPECIFICATIONS

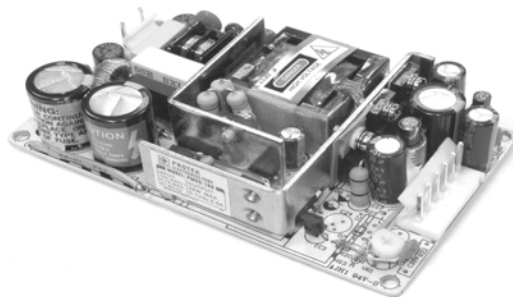
Output voltage/current : See Rating Chart  
Total output power : See Rating Chart  
Ripple and noise : 1% peak to peak max.  
Overvoltage protection : Provided on output #1 only; set at 112-132% of its nominal output voltage  
Overcurrent protection : All outputs protected to short circuit conditions  
Temperature coefficient : All outputs  $\pm 0.04\%/^{\circ}\text{C}$  maximum  
Transient response : Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change

### ENVIRONMENTAL SPECIFICATIONS

Operating temperature: 0 $^{\circ}\text{C}$  to +70 $^{\circ}\text{C}$   
Storage temperature : -40 $^{\circ}\text{C}$  to +85 $^{\circ}\text{C}$   
Relative humidity : 5% to 95% non-condensing  
Derating : Derate from 100% at +50 $^{\circ}\text{C}$  linearly to 50% at +70 $^{\circ}\text{C}$

### TM25 SERIES

CE (LVD)  
RoHS



### Safety Standard Approvals :



UL 2601-1  
CSA C22.2 No. 601.1



TÜV EN60601-1

### GENERAL SPECIFICATIONS

Switching frequency : 42KHz  $\pm 5\text{KHz}$   
Efficiency : 70% minimum on single output model with  $V_o \geq 12\text{V}$ , 68% minimum on the others  
Hold-up time : 10 msec minimum at 110VAC  
Line regulation :  $\pm 0.5\%$  maximum at full load  
Inrush current : 10 amps @ 115VAC or 25 amps @ 230VAC at 25 $^{\circ}\text{C}$  cold start  
Withstand voltage : 4000VAC from input to output  
1500VAC from input to ground  
500VAC from output to ground  
MTBF : 500,000 hours minimum at full load at 25 $^{\circ}\text{C}$  ambient, calculated per MIL- HDBK- 217F

### EMC Performance (EN60601-1-2:2001)

EN55011: Class B conducted, Class B radiated  
FCC: Class B conducted, Class B radiated  
VCCI: Class B conducted, Class B radiated  
EN61000-3-2: Harmonic distortion, Class A and D  
EN61000-3-3: Line flicker  
EN61000-4-2: ESD,  $\pm 8\text{KV}$  air and  $\pm 6\text{KV}$  contact  
EN61000-4-3: Radiated immunity, 3V/m for 80-2500 MHz  
EN61000-4-4: Fast transient/burst,  $\pm 2\text{KV}$   
EN61000-4-5: Surge,  $\pm 1\text{KV}$  diff,  $\pm 2\text{KV}$  com.  
EN61000-4-6: Conducted immunity, 3Vrms  
EN61000-4-8: Magnetic field immunity, 3A/m  
EN61000-4-11: Voltage dips, 30% reduction for 500ms, 60% reduction for 100ms and >95% reduction for 10ms

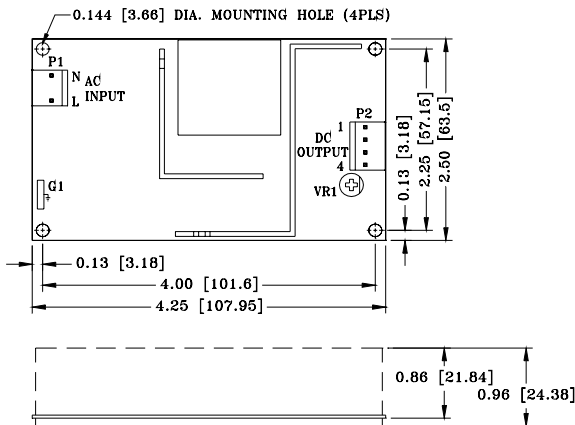
## OUTPUT VOLTAGE/CURRENT RATING CHART

Product No.	Output #1				Output #2				Output #3				Maximum Output Power
	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	
TM25-S5.1	5.1V	0A	5.5A	2%		(N/A)				(N/A)			28W
TM25-S12	12V	0A	2.3A	1%		(N/A)				(N/A)			28W
TM25-S15	15V	0A	1.9A	1%		(N/A)				(N/A)			28W
TM25-S24	24V	0A	1.2A	1%		(N/A)				(N/A)			28W
TM25-S28	28V	0A	1.0A	1%		(N/A)				(N/A)			28W
TM25-D23	+5.1V	0.4A	2.5A	3%	+12V	0.2A	1.5A	5%		(N/A)			25W
TM25-D25	+5.1V	0.4A	2.5A	3%	+24V	0.1A	0.8A	5%		(N/A)			25W
TM25-T31	+5.1V	0.4A	2.5A	3%	+12V	0.2A	1.5A	5%	-12V	0.05A	0.2A	4%	25W
TM25-T32	+5.1V	0.4A	2.5A	3%	+15V	0.1A	1.0A	5%	-15V	0.05A	0.2A	4%	25W
TM25-T39	+5.1V	0.4A	2.5A	3%	+24V	0.1A	0.8A	5%	-12V	0.05A	0.2A	4%	25W

- NOTES:
- All multiple output models may be operated at no-load without damage. At no-load, output voltage tolerance increases to 10%.
  - Ripple and noise: Peak-to-peak with 20MHz bandwidth and 10 $\mu$ F in parallel with a 0.1 $\mu$ F capacitor at rated line voltage and load ranges.
  - Safety agency approvals are for the above listed models in PCB format. Add suffix "B" for L-bracket format, or suffix "C" for enclosed format, e.g. TM25-T31C.

## MECHANICAL SPECIFICATIONS

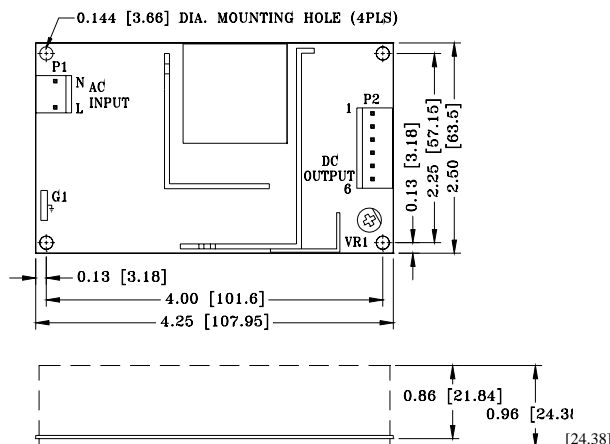
### Single Output Models



NOTES:

- Dimensions shown in inch [mm]
- Tolerance 0.03 [0.76] maximum
- Input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal.
- Output connector mates with Molex housing 09-50-3041 and Molex 2878 series crimp terminal.
- Weight : 163 grams

### Multiple Output Models



NOTES:

- Dimensions shown in inch [mm]
- Tolerance 0.03 [0.76] maximum
- Input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal.
- Output connector mates with Molex housing 09-50-3061 and Molex 2878 series crimp terminal.
- Weight : 175 grams

**PIN CHART**

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**Single Output Models**

<b>Product No.</b>	<b>PIN</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
TM25-S5.1 TM25-S15 TM25-S28	TM25-S12 TM25-S24	RETURN	RETURN	OUTPUT #1	OUTPUT #1

**Multiple Output Models**

<b>Product No.</b>	<b>PIN</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
TM25-D23	TM25-D25	OUTPUT #2	OUTPUT #1	OUTPUT #1	COMMON RETURN	COMMON RETURN	N.C.
TM25-T31 TM25-T39	TM25-T32	OUTPUT #2	OUTPUT #1	OUTPUT #1	COMMON RETURN	COMMON RETURN	OUTPUT #3