

2500 LN series



www.martekpower.com

Dual Output DC/DC Converter



DESCRIPTIONS

The 2500LN, dual output power modules are 12 to 25 watt DC/DC converters available in a dual output configuration providing 5.0 VDC to 15 VDC outputs and are fully compatible to Tyco series LW020 and LW025 providing both positive and negative on/of logic. These 400kHz, switching converters are available 48 inputs with efficiencies up to 87%. Offering pin for pin and full functionality to the Tyco LW series these converters are the only true second source available in the market.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Set Point		±1		% Output voltage at nominal line & FL
Total Band Error	-2		+2	% Output voltage including line/load regulation setting
Line Regulation		±0.5		% Output voltage measured from min. input line to max.
Load Regulation		±0.5		% Output voltage measured from FL to no load
Temperature Coefficient		±0.01		% per degree C
Ripple/Noise		60	100	mV p-p measured at 20 MHz bandwidth with ext. 1 µf cap.
Output Voltage and Current				Refer to model selection chart
Load Transient Response		±2		% Deviation of output voltage for a 25% load change for 200µS
Output Voltage Trim	-10		+10	% Output Voltage
Short Circuit Protection				Indefinite, Automatic Recovery
Overvoltage Protection		135		%; Clamp type

FEATURES

- Second source to Tyco LW020 and LW025
- Positive and Negative Logic
- Up to 87% Efficiency
- Industry Standard 2.0" X 1.8" X 0.40" Package
- Remote On/Off, Output Over Voltage and Short Circuit Protection

INPUT CHARACTERISTICS

	Min	Typ	Max	Units/Comments
Input Voltage	36	48	75	VDC
Under Voltage Lock out	33		80	VDC
Minimum Input Current	0			mA
Full Load Input Current			0.59	A (0.33 for 2.0VDC model)
Input Fuse Requirements			2	Amps; Slow blow type
Efficiency by Model				
2505D48LN		84		%; FL Nominal Line
2512D48LN		86		%; FL Nominal Line
2515D48LN		87		%; FL Nominal Line
Switching Frequency	360	400	440	kHz; Factory set
Remote Shut Down (Optional)				
Positive Logic Off	0		0.80	VDC;Referenced to input
Positive Logic On	3.5			VDC or open;Referenced to input
Negative Logic On	0		0.80	VDC;Referenced to input
Negative Logic Off	3.5			VDC or open;Referenced to input
Input - Output Capacitance		1000		pF
Input Filter				LC type
Isolation Voltage		1500		VDC
Isolation Resistance		100		MOhms

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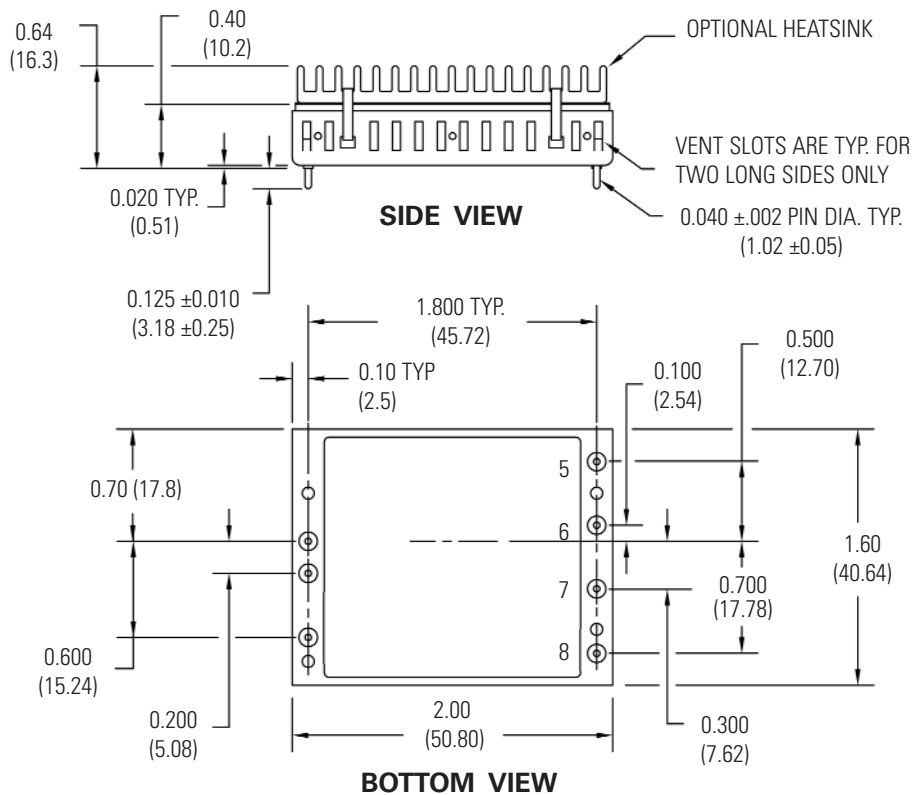
MODEL SELECTION CHART

	Input Voltage (VDC)	Output Voltage (VDC)	Full Load Output Current(A)
2505D48LN	48	±5.0	± 3.0
2512D48LN	48	±12.0	± 1.0
2515D48LN	48	±15.0	± 8.0

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-40		+105	°C; measured at baseplate
Storage Temp. Range	-55		+125	°C; measured at baseplate
Material Flammability				UL94V-0
MTBF	500,000			Hours, at 40°C
Altitude: Operating			10,000	Feet
Non-Operating			40,000	Feet
Relative Humidity	5		95	% Humidity, non-condensing
Weight			22	Grams
Size				1.0" X2.0 X0.375"
Case Material				Black coated aluminum
Agency Approvals				UL/CUL1950, TUV, EN60950

OUTLINE DRAWING



PIN OUT CHART

PINS	FUNCTION
1	+ VIN
2	- VIN
3	+ VOUT
4	COMMON
5	- VOUT
6	*REMOTE ON/OFF

Notes:

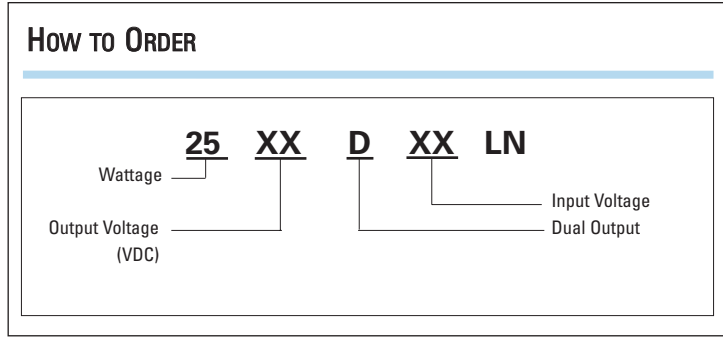
- Unless otherwise specified dimensions are in inches (mm).
Tolerances: X.XX = ±0.020 (0.5)
X.XXX = ±0.010 (0.25)
- Controlling dimension in inch.
- Case is vented on 2" long sides only.

* = Optional feature

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified.
External, low ESR, 10 microfarad (minimum) capacitor across input is recommended for operation.

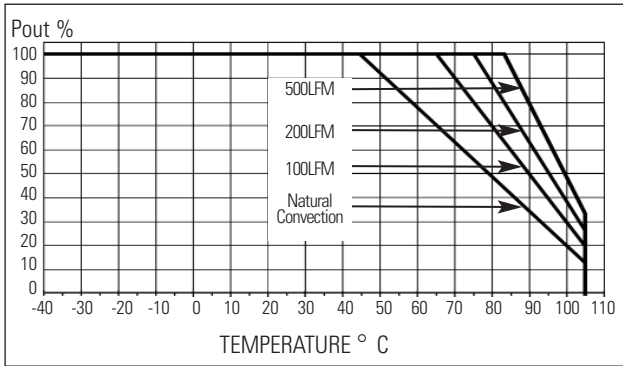
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How To ORDER

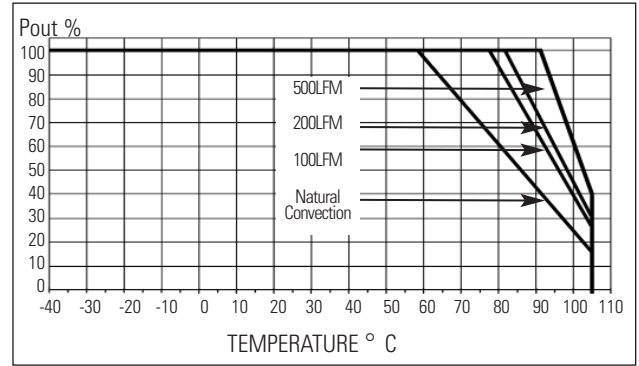


DERATING CURVES

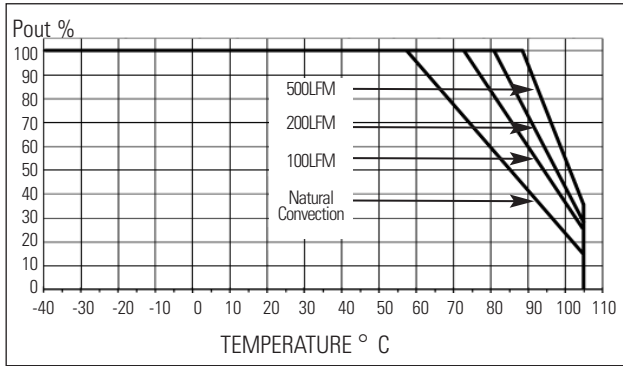
MODEL 2500LN Dual ±5V (Without heatsink)



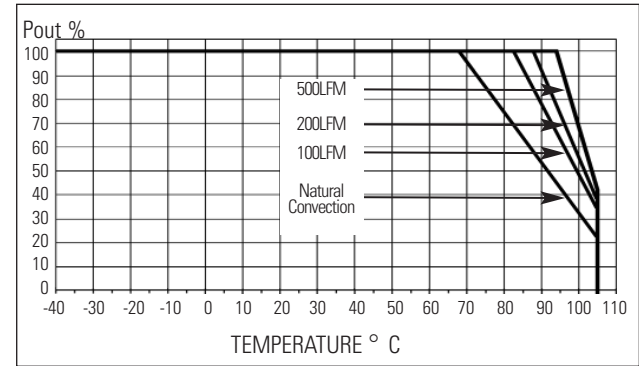
MODEL 2500LN-H Dual ±5V (With heatsink)



MODEL 2500LN Dual ±12 & ±15V (Without heatsink)



MODEL 2500LN-H Dual ±12 & ±15V (With heatsink)



OUTPUT VOLTAGE ADJUSTMENT (2500LN DUAL SERIES)

Output voltage trim allows the user to increase or decrease the output voltage set point of a module. This is accomplished by connecting an external resistor between the TRIM pin and either the Vo(+) or Vo(-) pins. With an external resistor between the TRIM and Vo(+) pins (Radj-down), the output voltage set point (Vo, adj) decreases. With an external resistor between the TRIM pin and Vo(-) pin (Radj-up), Vo, adj increases.

The following equations determine the required external resistor value to obtain an output voltage change of $\Delta\%$:

$$\text{Radj-down} = \left[\frac{A - C}{\Delta\%} - (A + B) \right] \text{K}\Omega$$

$$\text{Radj-up} = \left[\frac{C}{\Delta\%} - B \right] \text{K}\Omega$$

EXAMPLE

Device	A	B	C	- 5% Vo Radj-down	+ 5% Vo Radj-up
+5Vo	4.75	3.65	1.19	62.8 K Ω	20.15 K Ω
+12Vo	15.40	14.70	1.60	245.9 K Ω	17.3 K Ω
+15Vo	16.90	14.70	1.41	278.2 K Ω	13.5 K Ω

NOTE:

THE ADJUSTED OUTPUT VOLTAGE CANNOT EXCEED +/- 10% OF THE NOMINAL OUTPUT VOLTAGE.
TRIM FUNCTION MATCHES THAT OF TYCO™ LW020 SERIES.