

100 WATT SINGLE OUTPUT DC/DC CONVERTER



VLP100xS Series



DESCRIPTION

The VLP100xS Series DC/DC converters present an economical and practical solution for distributed power system architectures which require high power density and efficiency while maintaining system modularity and upgradeability. With the ability to operate over wide input voltage ranges of 18 to 36 and 33 to 75 volts, these modules are ideal for use in battery backup applications common in today's telecommunication and electronic data processing applications. The output is fully isolated from the input, allowing for a variety of polarity and grounding configurations.

The VLP100xS's proprietary control circuitry responds to 50-100% load steps in 100µSeconds to within 1% nominal V_{OUT} .

The patented fixed frequency architecture combined with surface mount technology results in a compact, efficient and reliable solution for DC/DC conversion requirements.

FEATURES

- 18 - 36V & 33 - 75V INPUT RANGE
- SMALL SIZE: 2.3" X 2.4" X 0.5"
- HIGH EFFICIENCY: 87% TYPICAL AT 5V
- 100µs TRANSIENT RESPONSE 50-100% LOAD STEP
- 420kHz FIXED-FREQUENCY OPERATION
- OPERATION TO +100°C BASEPLATE TEMPERATURE
- PRIMARY REMOTE ON/OFF
- ADJUSTABLE OUTPUT VOLTAGE
- REMOTE SENSE
- CONTINUOUS SHORT-CIRCUIT PROTECTION
- THERMAL SHUTDOWN
- CONFORMS TO SAFETY PER UL1950, EN 60950 AND CSA 22.2 #234 BY DESIGN

APPLICATIONS

- DISTRIBUTED POWER ARCHITECTURES
- TELECOMMUNICATION & EDP SYSTEMS
- HUBS & ROUTERS
- NETWORKING SYSTEMS

AGENCY APPROVALS PENDING



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Electrical Specifications

Specifications typical at $T_{Case}=+40^{\circ}C$, nominal input voltage, rated output current unless otherwise stated.

Parameter	Conditions	Min	Typ	Max	Units
Input					
Voltage Range					
VLP100LS		18	24	40	V _{DC}
VLP100MS		33	48	75	V _{DC}
Maximum Input Current					
VLP100LS	V _{IN} = 16 V _{DC}			7.7	A
VLP100MS	V _{IN} = 27V _{DC}			4.1	A
Reflected Ripple Current	Peak-Peak		20		mA
Input Ripple Rejection	DC to 1KHz	50	60		dB
No Load Current LS/MS				.50/100	mA
Power Dissipation LS/MS					
No Load			3.6/4.8		W
Standby, Primary On/Off Disabled LS/MS			0.18/0.4		W
Inrush Charge					
VLP100LS	V _{IN} = V _{IN} Max.			0.520	mC
VLP100MS	V _{IN} = V _{IN} Max.			0.360	mC
Quiescent Operating Current					
Primary On/Off Disabled			8	12	mA
Output					
Rated Power		0		100	W
Set Point Accuracy				1	%
Line Regulation	High line to low line		0.02	0.05	%
Load Regulation	No load to rated load		0.02	0.05	%
Output Temperature Drift			±0.02		%/°C
Output Ripple, p-p	DC to 20 MHz BW		1%	100	V _{OUT} Nom
Output Current Limit Inception				130%	I _{OUT} Nom
Output Short Circuit Current (2)	Test			110%	I _{OUT} Nom
Output Overvoltage Limit	3.3V Output	4		5	V
	5V Output			6.6	V
	12V, 15V, 24V & 28V		125%	130%	V _{OUT} Nom
Transient Response	50 to 100% Load step				
Peak Deviation	di/dt = 75A/μSec			7%	V _{OUT} Nom
Settling Time	V _{OUT} 1% of Nominal Output		75	100	μSec
Isolation					
Input to Output	Peak test for 2 sec.	1500			V _{DC}
Input to Baseplate		1500			V _{DC}
Output to Baseplate		500			V _{DC}
Resistance		10			MΩ
Capacitance			2000		pF
Leakage Current	V _{ISO} =240V _{AC} , 60 Hz		180		μA rms
General					
Efficiency, Line, Load, Temp (3)					
Switching Frequency		400	420	440	KHz
Remote Sense Compensation				0.5	V
Output Voltage Adjust Range (4)			±10%		V _{OUT} Nom
Remote On/Off Control Inputs					
Primary	Open collector/drain				
Sink Current-Logic Low				2.5	mA
V _{LOW}				1	V
V _{HIGH}				6	V
Turn-on Time	Within 1% of rated output		10.0	12.5	mSec
Temperature					
Operation/Specification	Case Temperature	-40	+25	+100	°C
Storage	Case Temperature	-40	+25	+115	°C
Shutdown Temperature	Case Temperature	+100		+115	°C
Thermal Impedance, Case Ambient			8.2		°C/W
Lead Solder Temperature	10 Seconds max			+300	°C

For (), see "Notes" on page 3.

NOTES:

- (1) See Typical Performance Curves, page 3
- (2) Continuous Mode
- (3) See graphs for Efficiency vs. Output Load, V_{IN} , T_{CASE}
- (4) 3.3, 5V Models Limited in Trim Down Range

ORDERING INFORMATION

VLP100

xSzz

B

Device Family _____

Indicates 100 Watt Regulated Unit

Model Number _____

Selected from Table of Electrical Characteristics

Where:

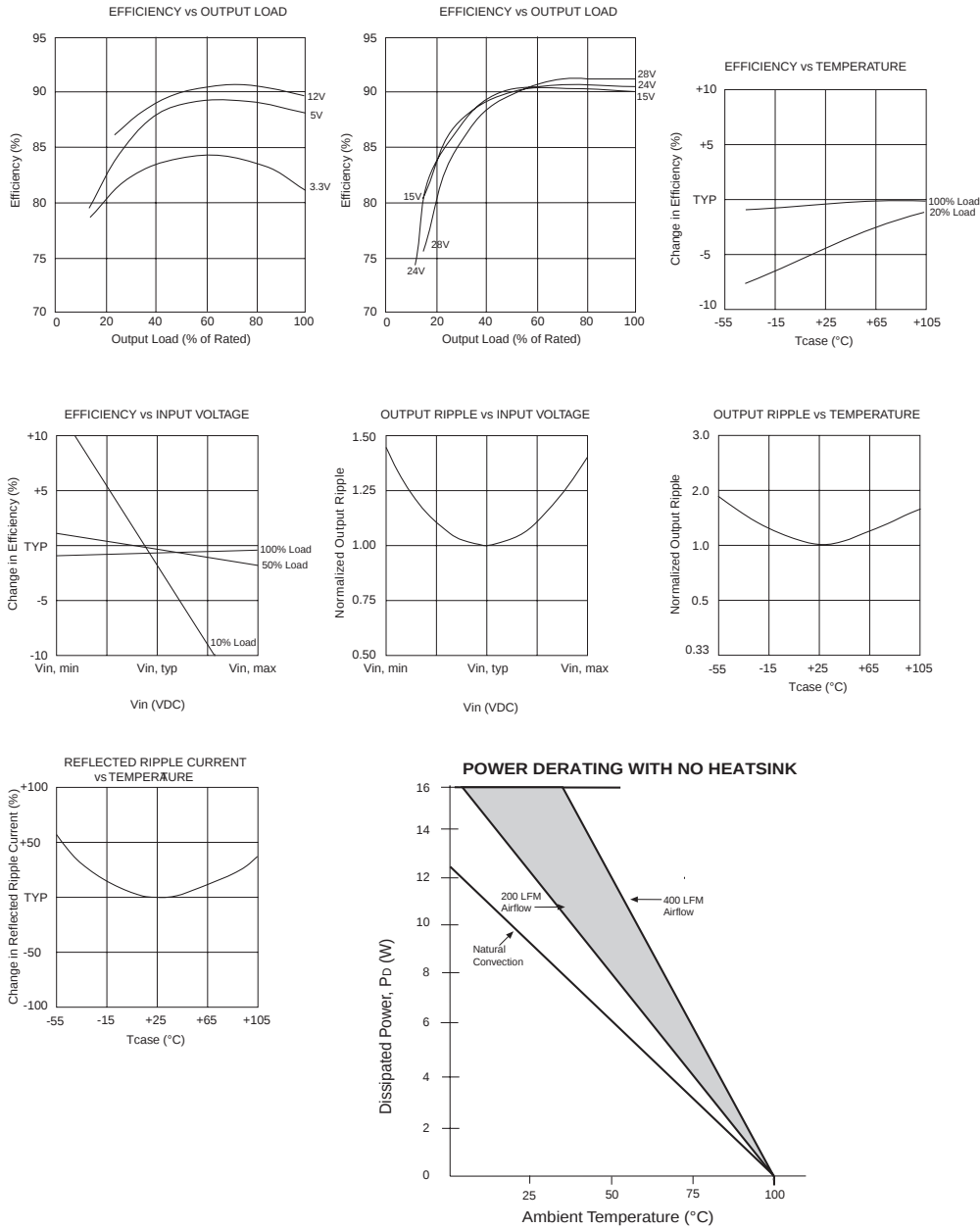
x = Input Voltage (L = 24VDC; M = 48VDC)

zz = Output Voltage

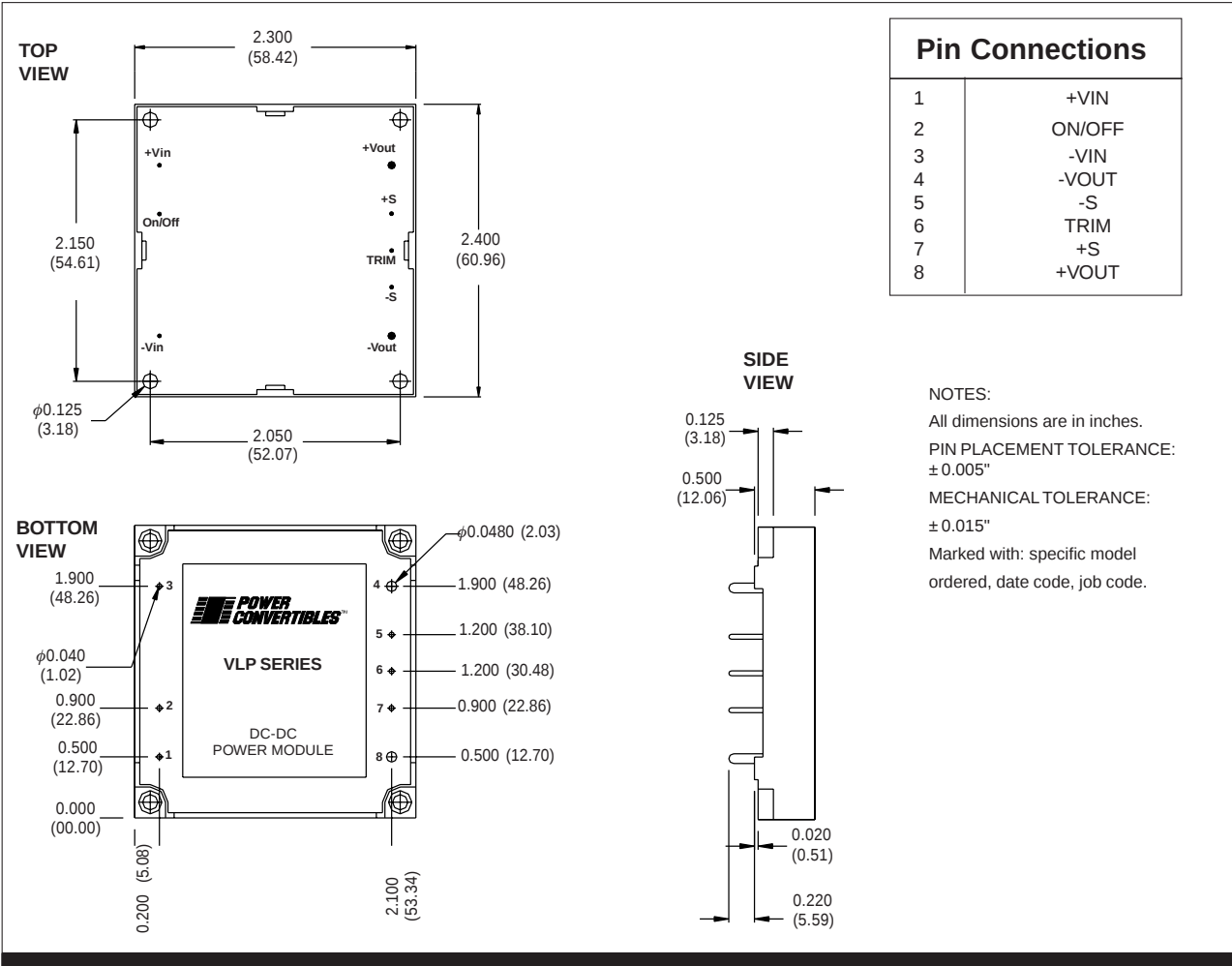
Package Designator (Standard Pkg.) _____

TYPICAL PERFORMANCE CURVES

$T_A = +40^{\circ}\text{C}$, nominal input voltage, rated load, recommended external components applied, unless otherwise specified.



MECHANICAL PACKAGE



Model	Input Voltage	Vout (Vdc)	Iout (A)	Efficiency(%) (see Note 1 pg. 3)	
				Min	Typ
VLP100LS03	24VDC (18-36)	3.3V	30.0	80	81
VLP100LS05		5.0V	20.0	85	86
VLP100LS12		12.0V	8.3	87	88
VLP100LS15		15.0V	6.7	88	89
VLP100LS24		24.0V	4.2	88	90

Model	Input Voltage	Vout (Vdc)	Iout (A)	Efficiency(%) (see Note 1 pg. 3)	
				Min	Typ
VLP100MS03	48VDC (33-75)	3.3V	30.0	80	81
VLP100MS05		5.0V	20.0	86	87
VLP100MS12		12.0V	8.3	88	89
VLP100MS15		15.0V	6.7	89	90
VLP100MS24		24.0V	4.2	89	90

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