



The VKA100xSC 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 a wide input voltage range 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 VKA100xSC's proprietary control circuitry responds to 50-100% load steps in 100mSeconds to within 1% nominal Vout.

The patented fixed frequency architecture combined with surface mount technology results in a compact, efficient and reliable solution to DC/DC conversion requirements. Safety Per UL1950, EN 60950 and CSA 22.2 #234

TARGETED FOR OBSOLESCENCE

- RoHS Compliant
- 33 - 75V Input Range
- High Efficiency: 87% Typical at 5V
- 100mS Transient Response to 100% Load Step
- 420 kHz Fixed-Frequency Operation
- Remote Sense
- Operation to +100°C Base Plate Temperature
- Primary Remote On/Off, Choice of Pos/Neg Load
- Adjustable Output Voltage
- Continuous Short-Circuit Protection
- Thermal Shutdown
- Case Ground Pin

PRODUCT SELECTION CHART

MODEL	INPUT VOLTAGE	VOUT (VDC)	IOUT (A)	EFFICIENCY	
				MIN	TYP
OBSOLETE VKA100LS02C	24VDC	2.0V	20.0	75	76
OBSOLETE VKA100LS02FC		2.0V	30.0	73	74
OBSOLETE VKA100LS2V5FC		2.5V	30.0	75	76
OBSOLETE VKA100LS03C		3.3V	20.0	80	81
OBSOLETE VKA100LS03FC		3.3V	30.0	80	81
TARGETED FOR OBSOLESCENCE VKA100LS05C	(18-36)	5.0V	20.0	85	86
TARGETED FOR OBSOLESCENCE VKA100LS12C		12.0V	8.3	87	88
TARGETED FOR OBSOLESCENCE VKA100LS15C		15.0V	6.7	88	89
TARGETED FOR OBSOLESCENCE VKA100LS24C		24.0V	4.2	89	90
OBSOLETE VKA100MS02C	48VDC	2.0V	20.0	76	77
OBSOLETE VKA100MS02FC		2.0V	30.0	74	75
OBSOLETE VKA100MS2V5FC		2.5V	30.0	77	78
OBSOLETE VKA100MS03C		3.3V	20.0	81	82
OBSOLETE VKA100MS03FC		3.3V	30.0	81	82
OBSOLETE VKA100MS05C		5.0V	20.0	86	87
TARGETED FOR OBSOLESCENCE VKA100MS12C		12.0V	8.3	88	89
OBSOLETE VKA100MS15C		15.0V	6.7	89	90
OBSOLETE VKA100MS24C		24.0V	4.2	89	90



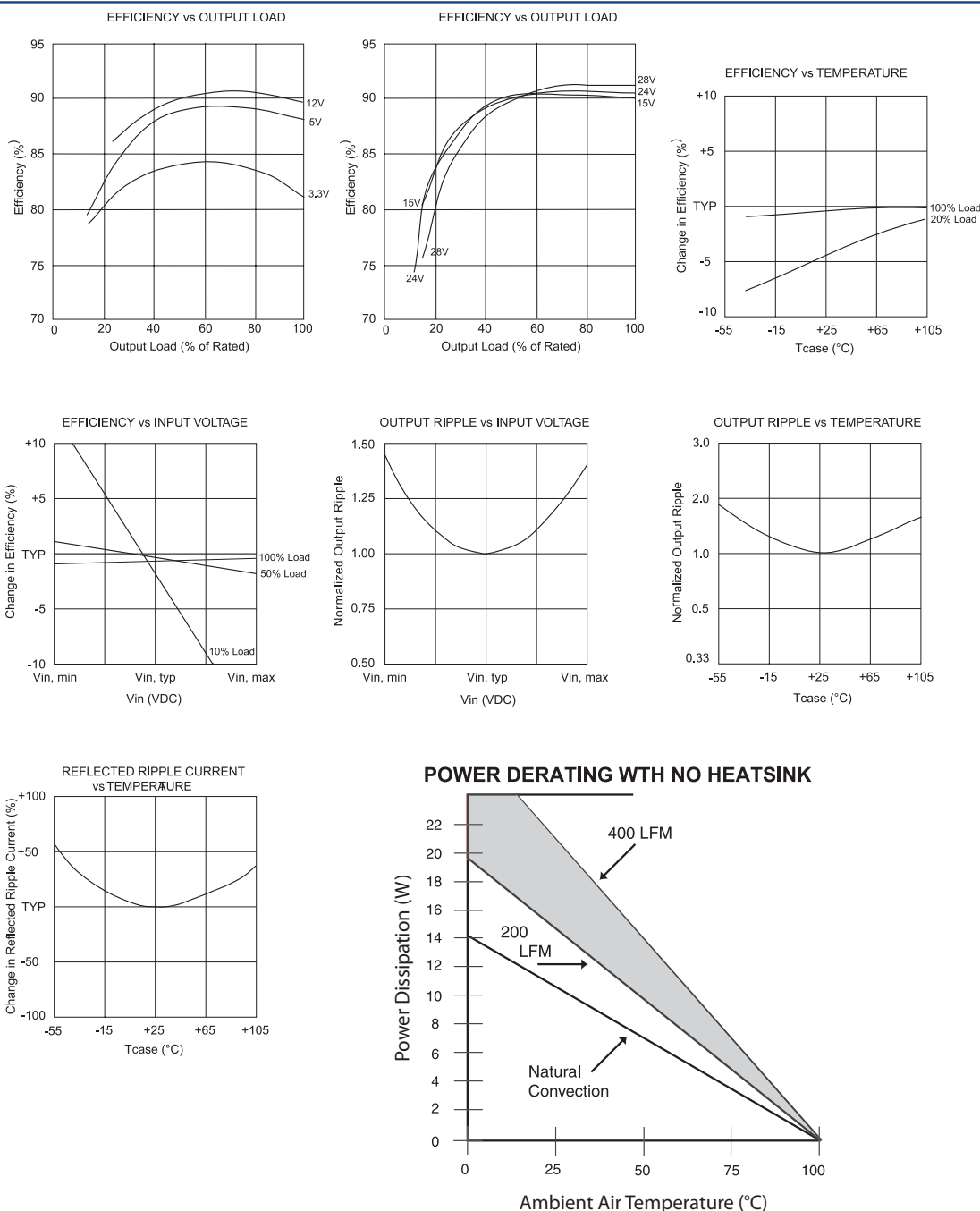
SPECIFICATIONS, ALL MODELS

Specifications are at $T_{CASE} = +40^{\circ}\text{C}$ nominal input voltage unless otherwise specified.

	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT	INPUT					
	Voltage Range					VDC
	VKA100LS		18	24	36	
	VKA100MS		33	48	75	
	Maximum Input Current					A
	VKA100LS	$V_{IN} = 16\text{VDC}$			7.4	
	VKA100MS	$V_{IN} = 27\text{VDC}$			4.4	
	Reflected Ripple Current	Peak - Peak		20		mA
	Input Ripple Rejection	DC to 1KHz	50	60		dB
	No Load Input Current LS/MS			140/80		mA
	No Load	Power Dissipation LS/MS		3.4/3.8		W
	Standby, Primary On/Off Disabled LS/MS			0.12/0.24		W
	Inrush Charge	$V_{IN} = V_{IN\text{max}}$				mC
	VKA100LS				0.520	
OUTPUT	VKA100MS				0.360	
	Quiescent Operating Current			5	12	mA
	Primary On/Off Disabled					
	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
	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		0.2	0.5	%
	Output Temperature Drift			± 0.2		$^{\circ}\text{C}$
	Output Ripple, p-p	DC to 20MHz BW		1%		V_{OUT} Nom
	Output Current Limit Inception			130%	150%	I_{OUT} Nom
	Output Short-Circuit Current (2)	test		120%	150%	I_{OUT} Nom
	Output Overvoltage Limit			125%	135%	V
	Transient Response	50 to 100% Load Step				V_{OUT} Nom
GENERAL	Peak Deviation	$di/dt = 0.1\text{A}/\mu\text{Sec}$		2%		
	Settling Time	V_{OUT} 1% of Nominal Output		100		μSec
	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
	ISOLATION					
	Input to Output	Peak Test for 2 Seconds	1500			VDC
	Input to Baseplate		1500			VDC
	Output to Baseplate		500			VDC
	Resistance		10			$\text{M}\Omega$
	Capacitance			2000		pF
	Leakage Current	$V_{ISO} = 240\text{VAC}, 60\text{Hz}$		180		$\mu\text{A}, \text{rms}$
	GENERAL					
	Efficiency, Line, Load, Temp. (3)					
	Switching Frequency		400	420	440	KHz
	Remote Sense Compensation				0.5	V
	Output Voltage Adjust Range	12 V & higher(4)		-50% / +25%		V_{OUT} Nom
	Remote On/Off Control Inputs					
	Primary	Open Collector/Drain				
	Sink Current-Logic Low				1.0	mA
	Vlow				0.4	V
	Vhigh0				Open Collector	
	Turn-on Time	Within 1% of Rated Output		10.0	12.5	mSec
	Weight				85 (3.0)	g (oz.)
	TEMPERATURE					
	Operation/Specification	Case Temperature	-40	+25	+100	$^{\circ}\text{C}$
	Storage	Case Temperature	-55	+25	+125	$^{\circ}\text{C}$
	Shutdown Temperature	Case Temperature	+100		+115	$^{\circ}\text{C}$
	Thermal Impedance, case-ambient			7.1		$^{\circ}\text{C}/\text{W}$
	Lead Solder Temperature	10 Seconds max			+300	$^{\circ}\text{C}$

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

TYPICAL PERFORMANCE CURVES
T_{CASE} = +40°C nominal input voltage unless otherwise specified.



ORDERING INFORMATION

VKA100 xSzz -

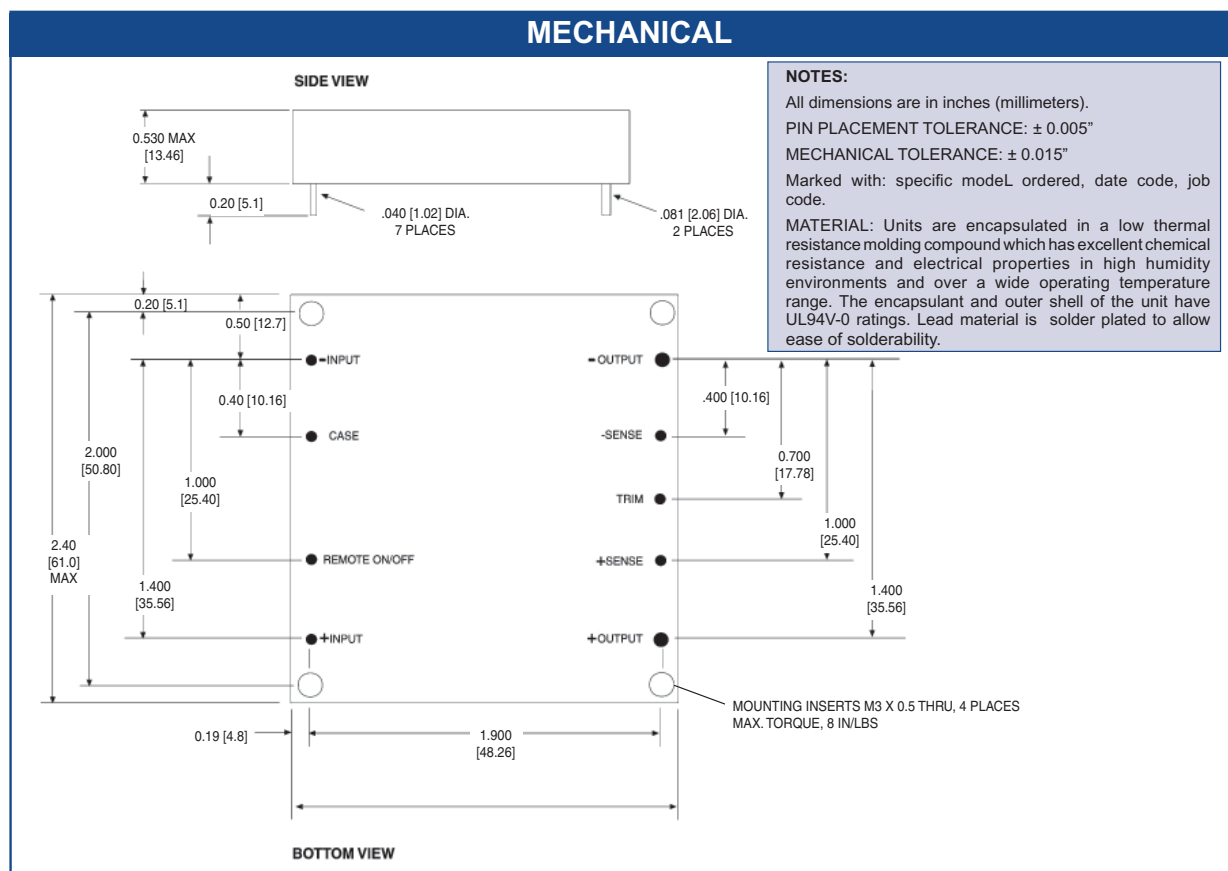
Device Family _____
Indicates 100 Watt Regulated Unit

Model Number _____
Selected from Table of Electrical Characteristics

Where:
x = Input Voltage (L = 24VDC; M = 48VDC)
zz = Output Voltage (03=3.3V, 05=5V, etc.)

Lead Length _____
0.200" - No Number
0.145" - (6)
0.110" - (8)

Remote On-Off Logic: _____
Positive - No Number
Negative - (1)



OUTPUT ADJUST VOLTAGE

This feature allows the user to accurately adjust the module's output voltage set point to a specified level. This is achieved by connecting a resistor or potentiometer from the TRIM terminal to either the +Vout terminal (for increased Vout) or the -Vout terminal (for decreased Vout). The formulae below describe the trim resistor value to obtain a Vout change of Δ%. Vo is output voltage prior to adjustment (3.3V, 5V, 12V, 15V, or 24V).

$$\text{Radj - up} = \left(\frac{V_o(100 + \Delta\%)}{1.225\Delta\%} - \frac{(100 + 2\Delta\%)}{\Delta\%} \right) \text{ k}\Omega$$

$$\text{Radj - down} = \left(\frac{100}{\Delta\%} - 2 \right) \text{ k}\Omega$$

OVP NOTE

Special attention should be given to the peak voltage deviation during a dynamic load step when trimming the output above the original set point to avoid tripping the overvoltage protection circuit. Should an OVP condition occur, the converter will go into a latch condition and must be externally reset before it will return to normal operation.

Mouser Electronics

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