



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

- 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 Logic
- Adjustable Output Voltage
- Continuous Short-Circuit Protection
- Thermal Shutdown
- Case Ground Pin

TARGETED FOR OBSOLESCENCE

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

MODEL	INPUT VOLTAGE	VOUT (VDC)	IOUT (A)	PRODUCT SELECTION CHART	
				MIN	TYP
OBsolete	VKA100LS02C	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	5.0V	20.0	85	86
Targeted for Obsolescence	VKA100LS12C	12.0V	8.3	87	88
Targeted for Obsolescence	VKA100LS15C	(18-36)	15.0V	6.7	88
Targeted for Obsolescence	VKA100LS24C		24.0V	4.2	89
OBsolete	VKA100MS02C	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
Targeted for Obsolescence	VKA100MS05C	5.0V	20.0	86	87
OBsolete	VKA100MS12C		12.0V	8.3	88
OBsolete	VKA100MS15C	(33-75)	15.0V	6.7	89
OBsolete	VKA100MS24C		24.0V	4.2	89



For full details go to
www.murata-ps.com/rohs



SPECIFICATIONS, ALL MODELS

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

100 Watt Adjustable Output DC/DC Converter

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Voltage Range					
VKA100LS		18	24	36	VDC
VKA100MS		33	48	75	VDC
Maximum Input Current					
VKA100LS	$V_{IN} = 16\text{VDC}$			7.4	A
VKA100MS	$V_{IN} = 27\text{VDC}$			4.4	A
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	$V_{IN} = V_{IN} \text{ max.}$				
VKA100LS				0.520	mC
VKA100MS				0.360	mC
Quiescent Operating Current					
Primary On/Off Disabled			5	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		0.2	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				
Peak Deviation	$di/dt = 0.1\text{A}/\mu\text{Sec}$		2%		V_{OUT} Nom
Settling Time	V_{OUT} , 1% of Nominal Output		100		μSec
GENERAL					
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		$^{\circ}\text{C/W}$
Lead Solder Temperature	10 Seconds max			+300	$^{\circ}\text{C}$

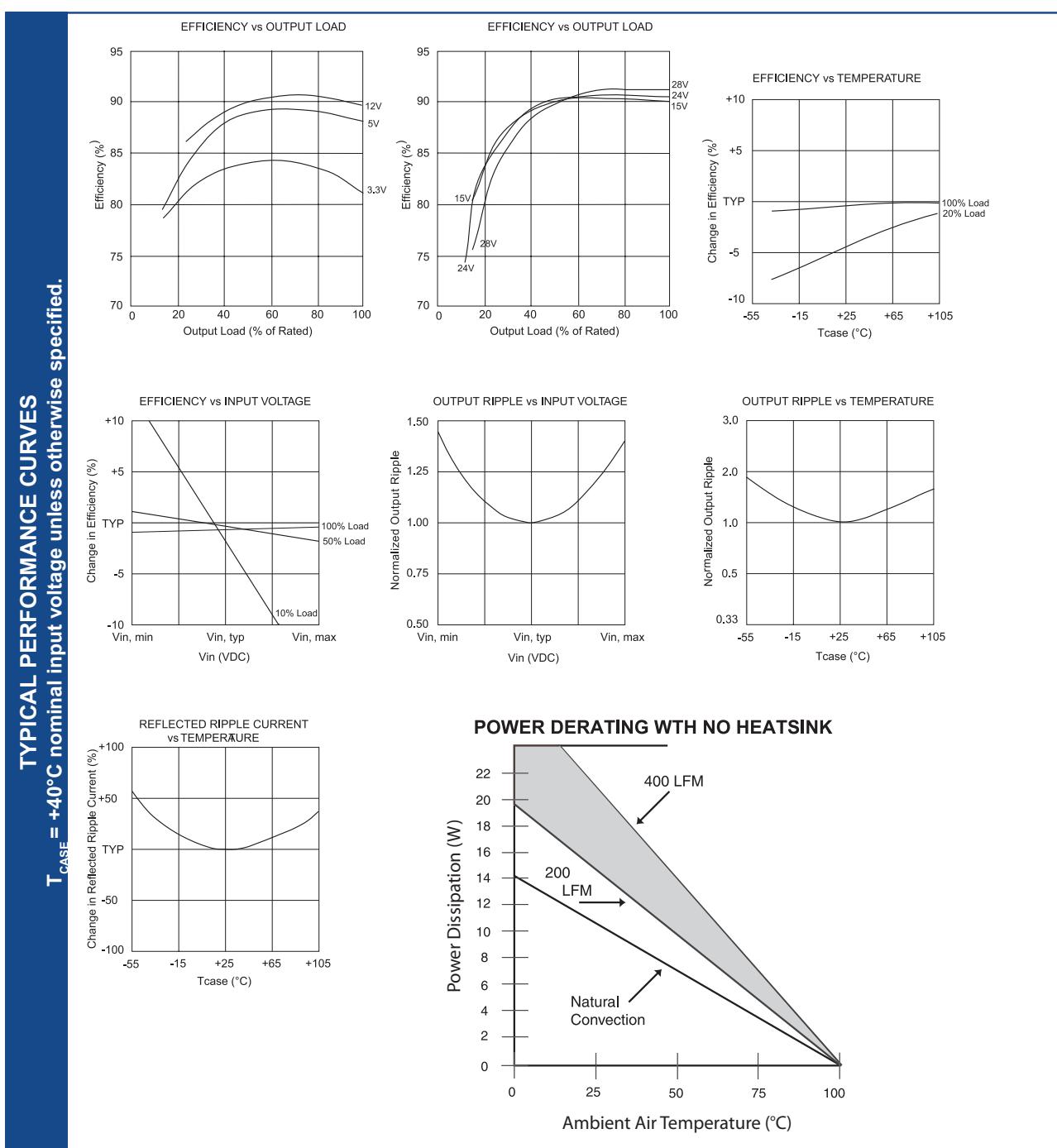
NOTES: (1) See Typical Performance Curves, page 3

(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



ORDERING INFORMATION

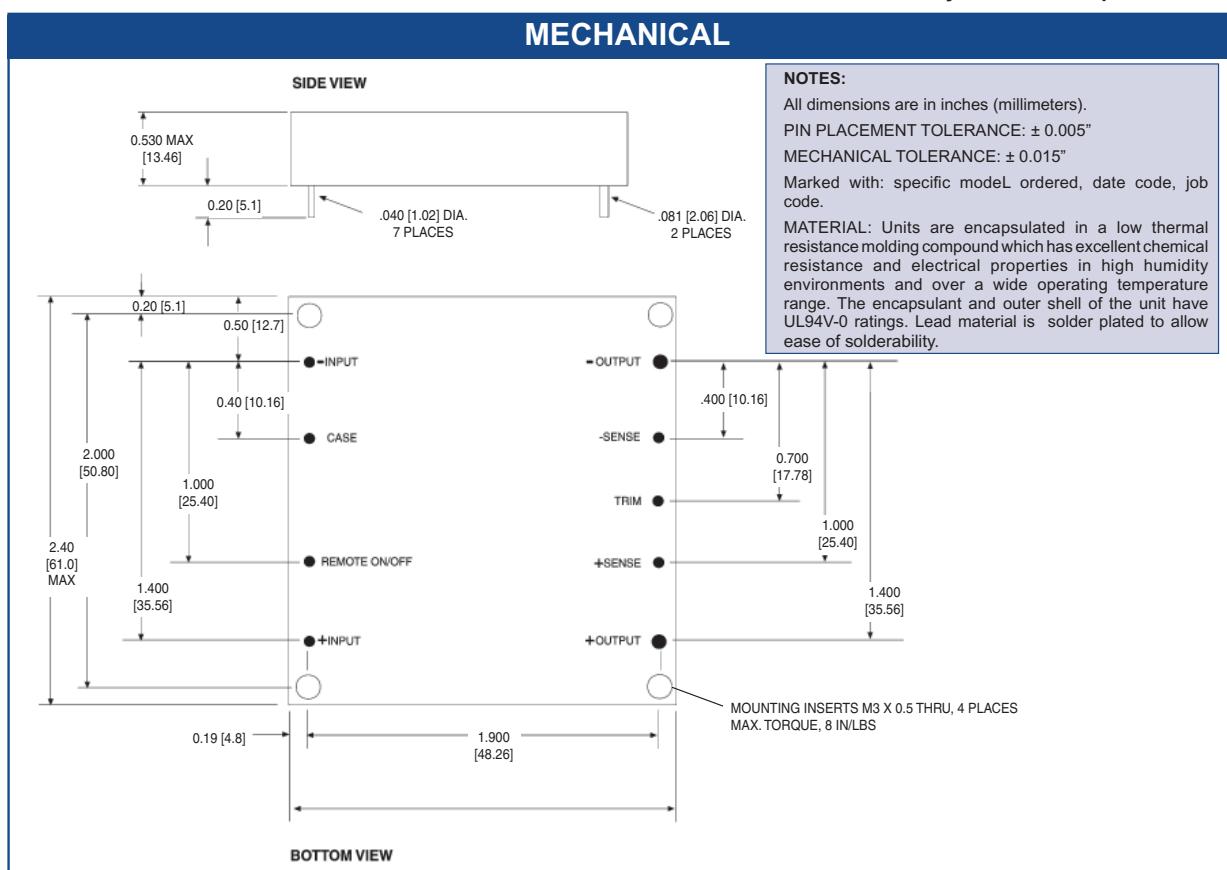
Device Family _____
 Indicates 100 Watt Regulated Unit

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)

VKA100_xSzz - _____



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 $\Delta\%$. Vo is output voltage prior to adjustment (3.3V, 5V, 12V, 15V, or 24V).

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

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

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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