









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



High Effi 100mS 1

100% Load Step

420 kHz Fixed-Frequency Operation

Remote Sense

• Continuous Short-Gircuit Protection

■ Thermal Shutdown

Case Ground Pin

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

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	PRODUCT SELECTION CHART								
MODEL	INPUT	VOUT	IOUT	EFFICIENCY					
	VOLTAGE	(VDC)	(A)	MIN	TYP				
VKA100LS02C		2.0V	20.0	75	76				
VKA100LS02FC		2.0V	30.0	73	74				
VKA100LS2V5FC		2.5V	30.0	75	76				
VKA100LS03C		3.3V	20.0	80	81				
VKA100LS03FC		3.3V	30.0	80	81				
VKA100LS05C	24VDC	5.0V	20.0	85	86				
VKA100LS12C		12.0V	8.3	87	88				
VKA100LS15C	(18-36)	15.0V	6.7	88	89				
VKA100LS24C		24.0V	4.2	89	90				
VKA100MS02C		2.0V	20.0	76	77				
VKA100MS02FC		2.0V	30.0	74	75				
VKA100MS2V5FC		2.5V	30.0	77	78				
VKA100MS03C		3.3V	20.0	81	82				
VKA100MS03FC		3.3V	30.0	81	82				
VKA100MS05C	48VDC	5.0V	20.0	86	87				
VKA100MS12C		12.0V	8.3	88	89				
VKA100MS15C	(33-75)	15.0V	6.7	89	90				
VKA100MS24C		24.0V	4.2	89	90				







100 Watt Adjustable Output DC/DC Converter

SPECIFICATIONS, ALL MODELS

Specifications are at T_{CASE} = +40°C nominal input voltage unless otherwise specified.

	PARAMETER PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
1	PARAMETER	CONDITIONS	IVIIIN	ITE	IVIAA	UNITS
	INPUT					
	Voltage Range					
	VKA100LS		18	24	36	VDC
	VKA100MS		33	48	75	VDC
	Maximum Input Current					
	VKA100LS	V _{IN} = 16VDC			7.4	Α
	VKA100MS	V _{IN} = 27VDC			4.4	A
\vdash	Reflected Ripple Current	Peak - Peak		20		mA
	Input Ripple Rejection	DC to 1KHz	50	60		dB
INPUT	No Load Input Current LS/MS			140/80		mA
Z						
	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	$V_{IN} = V_{IN} max.$				
	VKA100LS				0.520	mC
	VKA100MS				0.360	mC
	Quiescent Operating Current					
	Primary On/Off Disabled			5	12	mA
	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	%
5	Output Temperature Drift			±.02		%/°C
回	Output Ripple, p-p	DC to 20MHz BW		1%		V _{OUT} , Nom
	Output Current Limit Inception			130%	150%	I _{OUT} , Nom
OUTPUT	Output Short-Circuit Current (2)	test		120%	150%	I _{our} , Nom
O	Output Overvoltage Limit			125%	135%	V
	Transient Response	50 to 100% Load Step				
	Transient Response Peak Deviation	di/dt = 0.1A/μSec		2%		V _{OUT} , Nom
	•	·		2% 100		V _{ουτ} , Nom μSec
	Peak Deviation Settling Time	di/dt = 0.1A/μSec V _{OUT} , 1% of Nominal Output	MIN	100	MAX	μSec
	Peak Deviation Settling Time PARAMETER	di/dt = 0.1A/μSec	MIN		MAX	
	Peak Deviation Settling Time PARAMETER ISOLATION	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS		100	MAX	μSec UNITS
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output	di/dt = 0.1A/μSec V _{OUT} , 1% of Nominal Output	1500	100	MAX	μSec
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS	1500 1500	100	MAX	μSec UNITS VDC VDC
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS	1500 1500 500	100	MAX	μSec UNITS VDC VDC VDC
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS	1500 1500	100 TYP	MAX	μSec UNITS VDC VDC VDC MΩ
,	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds	1500 1500 500	100 TYP	MAX	μSec UNITS VDC VDC VDC MΩ pF
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS	1500 1500 500	100 TYP	MAX	μSec UNITS VDC VDC VDC MΩ
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds	1500 1500 500	100 TYP	MAX	μSec UNITS VDC VDC VDC MΩ pF
	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3)	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds	1500 1500 500	100 TYP	MAX 440	μSec UNITS VDC VDC VDC MΩ pF
٦٢	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds	1500 1500 500 10	100 TYP	440	μSec UNITS VDC VDC VDC MΩ pF μA, rms
SAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz	1500 1500 500 10	100 TYP		μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz
ERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds	1500 1500 500 10	2000 180	440	μSec UNITS VDC VDC VDC MΩ pF μA, rms
NERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation	di/dt = 0.1A/μSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz	1500 1500 500 10	2000 180	440	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz
ENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4)	1500 1500 500 10	2000 180	440	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4)	1500 1500 500 10	2000 180	440 0.5 1.0 0.4	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V Vour Nom
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4)	1500 1500 500 10	2000 180	440 0.5 1.0 0.4 Open Collector	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4)	1500 1500 500 10	2000 180	440 0.5 1.0 0.4	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time Weight	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain	1500 1500 500 10	2000 180 420 -50% / +25%	440 0.5 1.0 0.4 Open Collector	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V V _{OUT} Nom
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain	1500 1500 500 10	2000 180 420 -50% / +25%	1.0 0.4 Open Collector 12.5	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V V _{OUT} , Nom mA V
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time Weight TEMPERATURE Operation/Specification	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain Within 1% of Rated Output Case Temperature	1500 1500 500 10	2000 180 420 -50% / +25%	1.0 0.4 Open Collector 12.5	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom mA V mSec g (oz.)
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Resistance Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time Weight TEMPERATURE Operation/Specification Storage	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain Within 1% of Rated Output	1500 1500 500 10	100 TYP 2000 180 420 -50% / +25%	1.0 0.4 Open Collector 12.5 85 (3.0) +100 +125	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom mA V mSec g (oz.) °C °C
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time Weight TEMPERATURE Operation/Specification Storage Shutdown Temperature	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain Within 1% of Rated Output Case Temperature Case Temperature Case Temperature Case Temperature	1500 1500 500 10 400	100 TYP 2000 180 420 -50% / +25% 10.0 +25 +25	1.0 0.4 Open Collector 12.5 85 (3.0) +100	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom mA V mSec g (oz.) °C °C °C
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time Weight TEMPERATURE Operation/Specification Storage Shutdown Temperature Thermal Impedance, case-ambient	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain Within 1% of Rated Output Case Temperature Case Temperature Case Temperature	1500 1500 500 10 400 400	100 TYP 2000 180 420 -50% / +25% 10.0	440 0.5 1.0 0.4 Open Collector 12.5 85 (3.0) +100 +125 +115	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom mA V mSec g (oz.) °C °C °C °C/W
GENERAL	Peak Deviation Settling Time PARAMETER ISOLATION Input to Output Input to Baseplate Output to Baseplate Capacitance Leakage Current GENERAL Efficiency, Line, Load, Temp. (3) Switching Frequency Remote Sense Compensation Output Voltage Adjust Range Remote On/Off Control Inputs Primary Sink Current-Logic Low Vlow Vhigh0 Turn-on Time Weight TEMPERATURE Operation/Specification Storage Shutdown Temperature	di/dt = 0.1A/µSec V _{OUT} 1% of Nominal Output CONDITIONS Peak Test for 2 Seconds V _{ISO} = 240VAC, 60Hz 12 V & higher(4) Open Collector/Drain Within 1% of Rated Output Case Temperature Case Temperature Case Temperature Case Temperature	1500 1500 500 10 400 400	100 TYP 2000 180 420 -50% / +25% 10.0 +25 +25	1.0 0.4 Open Collector 12.5 85 (3.0) +100 +125	μSec UNITS VDC VDC VDC MΩ pF μA, rms KHz V V OUT Nom mA V mSec g (oz.) °C °C °C

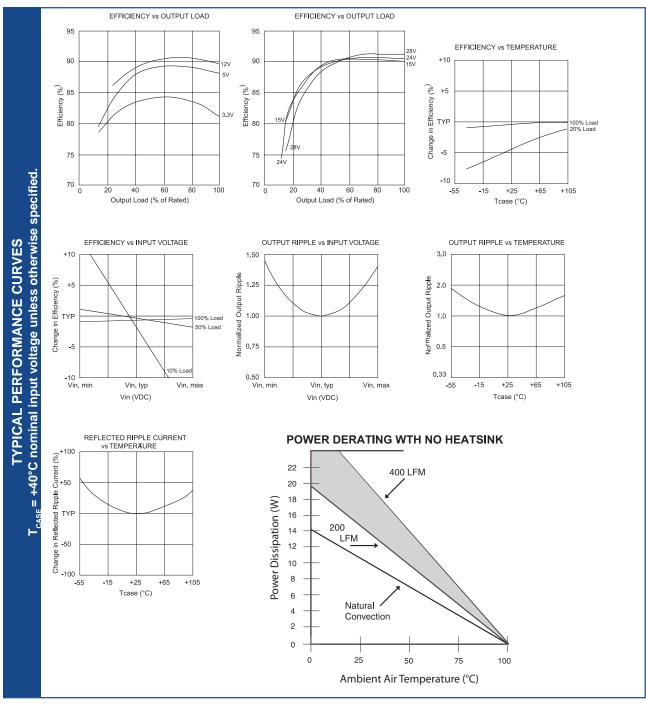
NOTES: (1) See Typical Performance Curves, page 3

(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

100 Watt Adjustable Output DC/DC Converter



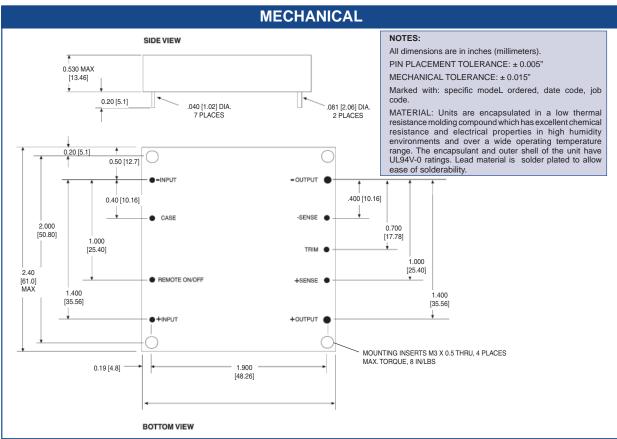
Device Family
Indicates 100 Watt Regulated Unit
Model Number
Selected from Table of Electrical Characteristics
Where:

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)

100 Watt Adjustable Output DC/DC Converter



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).

$$Radj - up = \left(\begin{array}{c} Vo(100 + \Delta\%) \\ \hline 1.225\Delta\% \end{array} \right) \ \underline{ \left(\begin{array}{c} (100 + 2\Delta\%) \\ \hline \Delta\% \end{array} \right) \ k\Omega$$

Radj - 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.

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ISO 9001 and 14001 REGISTERED

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