



VI-100 Series DC-DC Converters

Family Features:

High Power Density
50, 75, 100 Watts
77-90% Efficiency
2.4" x 4.6" 0.5"
Remote Sense
Current Limit and OVP

Product Highlights:

Introduced in 1984, the VI-100 Series set new standards in converter performance and reliability – standards which have been field-proven in over 100,000 installations. As Vicor's first generation of high frequency zero-current-switching converters, the VI-100 series provides a dramatic improvement in power density and size while significantly outperforming conventional switchmode technologies in the area of efficiency, conducted and radiated noise, and reliability. All VI-100 converters feature logic disable, adjustable outputs, low quiescent currents, and output OVP.

Model Selection Chart

INPUT VOLTAGE NOMINAL	VDC RANGE	OUTPUT VOLTAGE				
		5 VOLT	12 VOLT	15 VOLT	24 VOLT	48 VOLT
270	200-370	VI-160 15A/75W	VI-161 8.3A/100W	VI-162 6.7A/100W	VI-163 4.2A/100W	VI-164 2A/100W
135	100-185	VI-150 15A/75W	VI-151 8.3A/100W	VI-152 6.7A/100W	VI-153 4.2A/100W	VI-154 2A/100W
48	40-60	VI-130 15A/75W	VI-131 8.3A/100W	VI-132 6.7A/100W	VI-133 4.2A/100W	VI-134 2A/100W
36	21-56	VI-120 10A/50W	VI-121 4.16A/50W	VI-122 3.33A/50W	VI-123 2A/50W	VI-124 1A/50W
24	21-30	VI-110 15A/75W	VI-111 8.3A/100W	VI-112 6.7A/100W	VI-113 4.2A/100W	VI-114 2A/100W
12	10-20	VI-100 10A/50W	VI-101 4.16A/50W	VI-102 3.33A/50W	VI-103 2A/50W	VI-104 1A/50W

Product Grade Specifications

PARAMETER	PRODUCT GRADE		
	COMMERCIAL	INDUSTRIAL	MILITARY
Storage Temperature	-40° to +100°C	-55° to +100°C	-65° to +100°C
Operating Temperature (Baseplate)	-20° to +85°C	-40° to +85°C	-55° to +85°C
Environmental Processing	48 hours	72 hours	96 hours
Temperature Cycled with power off	No	8 cycles -40° to +105°C	8 cycles -65° to +105°C
Units tested at these temperatures Test Data supplied with each unit	+25°C No	-40°, +25°, +85°C No	-55°, +25°, +85°C Yes
Final ATE Test	Yes	Yes	Yes
Product Grade Designator*	C	I	M
Warranty	2 years	2 years	2 years

***C** indicates Commercial Product Grade. Specify **I** for Industrial or **M** for Military.

Converter Specifications (At $T_{BP} = 25^{\circ}\text{C}$, nominal line, nominal load (75%), unless otherwise specified.)

	PARAMETER	MIN	TYP	MAX	UNITS
INPUT CHARACTERISTICS					
1.	Under Voltage (No damage to unit or circuitry)	0 to Low Line			N/A
2.	In-Rush Charge (At turn on)		60×10^{-6}	100×10^{-6}	Coulombs
3.	Input Ripple Rejection (120 Hz to 2400 Hz)		$25 + 20 \log \left(\frac{V_{IN}}{V_{OUT}} \right)$		dB
4.	Input Reflected Ripple Current (At full load)		10%		p-p
5.	No Load Power Dissipation		0.75	1.3	W
6.	Efficiency (5V output) ¹	77	80		%
7.	Efficiency (All other outputs) ¹	79	83		%
OUTPUT CHARACTERISTICS					
8.	Set Point Accuracy			2	%
9.	Total Remote Sense Compensation ²	0.3	V		
10.	Adjustment Range	-20		+10	%
11.	Load Regulation (10 to 100%) (At the pins) ³		0.1	0.2	%
12.	Line Regulation (Lo-Hi line) ⁴		0.05	0.2	%
13.	OVP Set Point (As a percentage of V_{OUT})	110	125	135	%
14.	Differential Output Noise (DC to 20 MHz) 5V output		50	100	mV
15.	Differential Output Noise (DC to 20 MHz) All other outputs		0.5	1	%
16.	Current Limit (As a percent of full load, $V_{OUT} > 2\text{V}$)	105	110	125	%
17.	Short Circuit Limit ($V_{OUT} < 0.2\text{V}$) ⁵	10		125	%
ISOLATION CHARACTERISTICS					
18.	Input to Output Isolation Voltage (VI-150, 160 Series)	3750			VAC
19.	Input to Output Isolation Voltage (All others)	1000			VDC
20.	Input to Output Isolation Capacitance			50	pf
DYNAMIC CHARACTERISTICS					
21.	Load Transient Response (10 to 100%)			500	μs
22.	Line Transient Response (Lo-Hi Line)			500	μs
23.	Turn On Time from Power On ($V_O < 1\%$ s.s.)			15	ms
THERMAL CHARACTERISTICS					
24.	Operating Baseplate Temperature			85	$^{\circ}\text{C}$
25.	Output Temperature Drift — average over temp. range		0.02		%/ $^{\circ}\text{C}$
MECHANICAL SPECIFICATIONS					
26.	Volume		4.0		In ³
27.	Weight		5.6		Ounces

NOTES: 1. Slightly lower for 12V inputs. 2. May increase low line input voltage. 3. Load regulation for 24V and 48VDC outputs is 0.3% max. 4. Line regulation for 24V and 48VDC outputs is 0.2% max.
5. Fold back point is a function of model type.