

PI31xx Series

High Density, Isolated, DC-DC, ZVS Converters

Description

The PI31xx is a family of high density, isolated DC-DC Zero-Voltage Switching (ZVS) converter modules integrating controller, power switches, planar magnetics, and support components all within a high density surface-mount package. This complete solution utilizes a high performance ZVS topology enabling high switching frequencies and providing best in class power density. The high switching frequency reduces input and output filtering requirements, further decreasing size and cost of the overall solution.

These high density converter modules are offered in three input voltage operating ranges; 48 Vin nominal for communication applications, 28 Vin nominal for rugged high temperature or M-Grade applications, and 24 Vin nominal for industrial applications. All PI31xx converters offer a similar function and feature set.

Fully equipped with a variety of programmable features, the PI31xx includes output voltage trimming, programmable soft-start capability, and remote on/off ENABLE. There is also a temperature monitor function providing an analog output voltage proportional to the internal module temperature.

The PI31xx is self-protected against fault conditions including: input over-voltage, under-voltage lockout, over-temperature, and output over-voltage protection. A constant current limit threshold is employed to protect against short circuit and overload conditions. All fault conditions have an auto-restart function.

Features

- Complete isolated DC-DC with Zero Voltage Switching Module
- 50W / 60W output power
- Efficiency up to 89% (dependent upon converter model)
- Output voltage sensing without opto coupler use for higher reliability
- Three input voltage ranges for Communication, Industrial, Rugged/M-Grade Applications
- Communication Converters have Max peak input voltage of 100V/100ms (non-operating)
- Surface Mount 0.87" x 0.65" x 0.265" high density package
- 900kHz switching frequency, minimizes input filtering and reduces output capacitance
- On/Off Control, positive logic ENABLE
- Wide trim range +10/-20% Trim
- Temperature Monitor (TM) & Over-Temperature Protection (OTP)
- Input UVLO & OVLO and output OVP
- Over current protection with auto restart
- Adjustable soft-start
- 2,250V input to output isolation

Converter	Input	Output Set	Output Range	I _{OUT} Max
Communications (-40°C to 125°C)				
PI3101-00-HVIZ	36 – 75 Vin	3.3V	3.0 to 3.6V	18A
PI3105-00-HVIZ		12V	9.6 to 13.2V	5A
PI3110-01-HVIZ	41 – 57 Vin	18V	16.2 to 19.8V	3.3A
Industrial (-40°C to 125°C)				
PI3109-01-HVIZ	18 – 36 Vin	5V	4.0 to 5.5V	10A
PI3106-01-HVIZ		12V	9.6 to 13.2V	4.2A
M-Grade (-55°C to 125°C)				
PI3108-00-HVMZ	16 – 50 Vin	3.3V	3.0 to 3.6V	10A
PI3109-00-HVMZ		5V	4.0 to 5.5V	10A
PI3106-00-HVMZ		12V	9.6 to 13.2V	4.2A
PI3111-00-HVMZ		15V	12 to 16.5V	3.3A

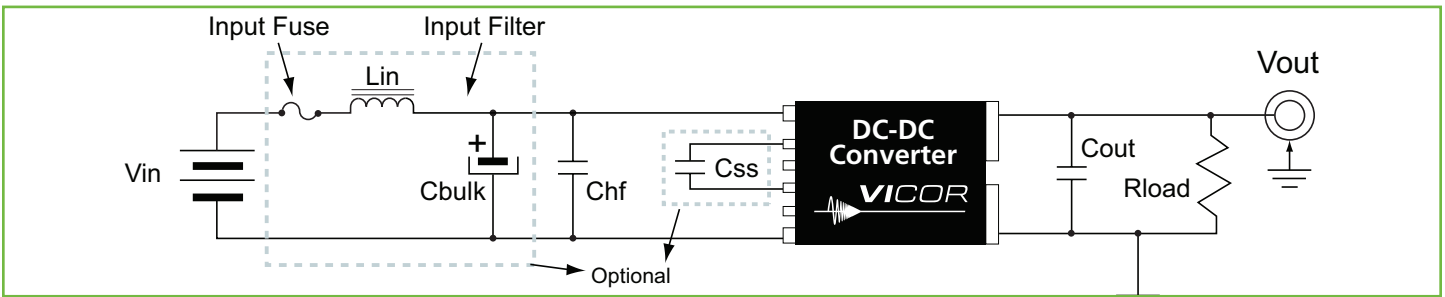
Applications

- Networking
- Industrial
- Rugged Defense Applications
- Space Constrained System
- Isolated, Board-level Power

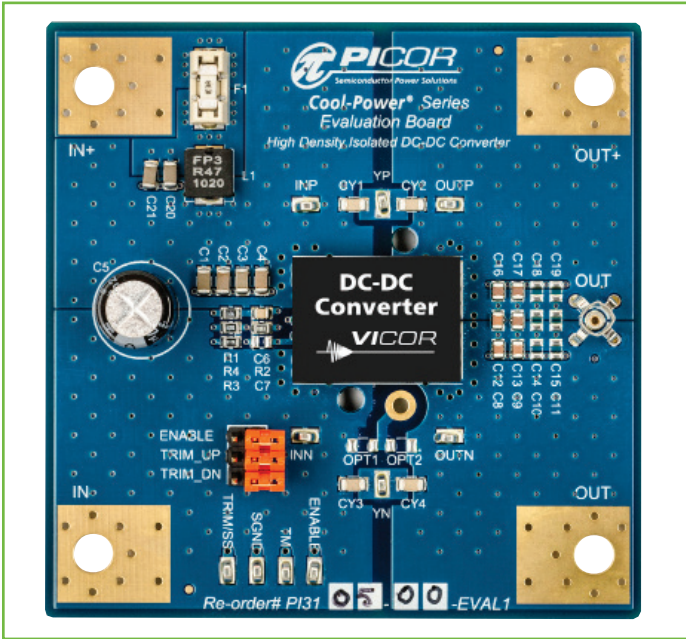


Thermally Enhanced, Surface-Mount Power-System-in-Package (PSIP)
 0.87" x 0.65" x 0.265"
 22 mm x 16.5 mm x 6.7 mm
 Weight: 7.8 Grams

Typical Application



Evaluation Board, PI31xx-xx-EVAL1



Recommended Filters

Converter Type	Filter	Evaluation Board
48 V Communications	QPI-12LZ	QPI-12-CB1
24 V Industrial	QPI-11LZ	QPI-11-CB1
28 V M-Grade	MQPI-18LP	MQPI-18-CB1

Product Outline Drawing

