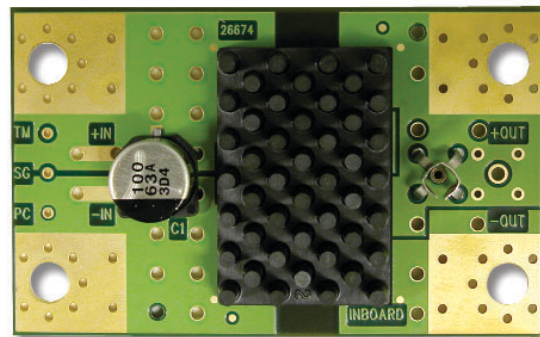




# V•I CHIP™ Evaluation Board

- Oscilloscope probe jack for output voltage and ripple measurements
- Simple to use
- Ring lug or solder connections
- Parallelable
- This board suitable for the following V•I Chip products:  
Bus Converter Module (BCM)  
Voltage Transformation Module (VTM)



The V•I Chip evaluation board offers a convenient means to evaluate the performance of Vicor’s Bus Converter Modules (BCM) or Voltage Transformation Modules (VTM). The board has been optimized for user convenience.

Refer to the appropriate V•I Chip datasheet for performance and operating limits. The datasheets are available for downloading at vicorpower.com.

It is important to remember that given the fast response of most V•I Chips, they can readily show the limitations of the source, load, and associated wiring connected to the evaluation board. Care should be exercised to minimize stray source and load impedances in order to fully exercise the V•I Chip.

Please refer to *Figure 1* for locations of the input and output connections as viewed from the component side. Wires may be soldered directly to the pads in lieu of ring lugs if desired to minimize circuit impedances.

**The evaluation board should be set up as follows:**

*Note: Care should be taken to avoid reversing polarities if connecting to the opposite (solder) side of the board.*

**1. + IN, - IN**

Connect a high quality, low noise power supply to this location. The interconnect leads should be heavy gauge and as short as possible. Additional capacitance may have to be added on the evaluation board to make up for impedances in the interconnect leads as well as deficiencies in the source. It is important to remember that noise from the source, as well as any input source voltage drops, will appear at the output of the V•I Chip multiplied by its k factor.

**2. + OUT, -OUT**

An electronic or passive load should be connected to this location with short heavy gauge leads. Most commercially available electronic loads do not have current slew rates capable of exercising the V•I Chips capability. The evaluation board can be connected directly to the application for which the V•I Chip is intended; however, the interconnect impedances between the evaluation board and the application can greatly effect the transient response. For applications where transient response is critical, the user should consider mounting the V•I Chip directly to the target application PCB.

**3. OUTPUT VOLTAGE MEASUREMENT JACK (J1)**

This connector is provided to make an accurate measurements of the output voltage of the V•I Chip. Many types of scope probes may be directly connected to this point if the probe is equipped with a removable plastic sheath. Be careful to avoid creating ground loops when making measurements of the output or input voltage. It is recommended that the measurements be made separately.

**4. PARALLELING**

The paralleling and current sharing capability of the devices can be demonstrated by stacking multiple evaluation PCBs and interconnecting the inputs and outputs with standoffs of sufficient current handling capability to create a 3-dimensional array. *See Figure 3.*

**5. INPUT CURRENT MEASUREMENT**

A current probe can be passed around the +IN lead connected to the V•I Chip. Input capacitors on the evaluation board are downstream of this measurement point.

## Specifications

### 6. TEMPERATURE MONITOR (TM)

A DVM can be connected between TM (positive) and SG (negative) to monitor the internal temperature of the V•I Chip.

### 7. PRIMARY CONTROL (PC)

The PC can be used to disable the V•I Chip, monitor status, or provide a primary referenced bias supply.

- a.) Connecting PC to SG or to the -IN will disable the V•I Chip.
- b.) Connecting a DVM or oscilloscope between PC (positive) and SG or -IN (negative) will indicate the status of the V•I Chip. Please note that the V•I Chip does not have active current sinking capability.
- c.) Connecting a load between PC (positive) and SG or -IN (negative) will provide a primary referenced bias supply.

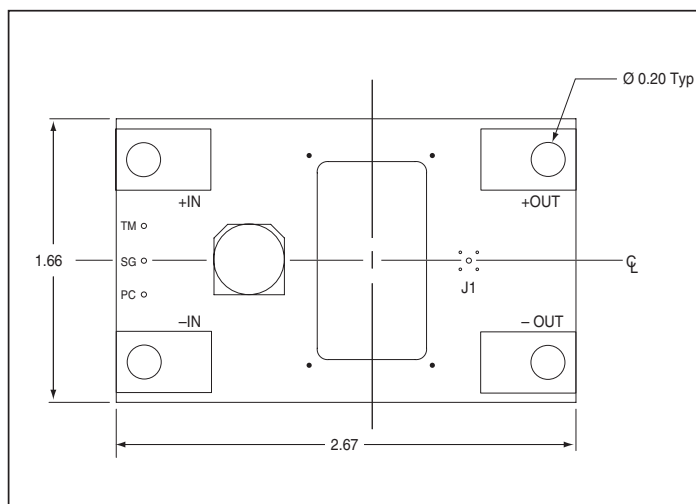


Figure 1— V•I Chip demo board layout and dimensional drawing, Component side. (Dimensions are in inches)

### 8. EFFICIENCY MEASUREMENT

As the V•I Chip can deliver and consume large currents, the effect of the PCB must be considered when making an efficiency measurement. Be certain to accurately measure the voltage directly at the V•I Chip using the appropriate pair of contact points located at the corners of the V•I Chip.

### RECOMMENDED HARDWARE:

QTY	Description	Manufacturer P/N	Vicor P/N
4	Ring Lug	PANDUIT LCAS6-10-L	
4	#10-32 Screw	} → Kit # 26647	
4	#10 Flat Washer		
4	#10 Lock Washer		
4	#10 Hex Nut		

All hardware is Stainless Steel except Ring Lug.  
Kit # 26647 included with evaluation board.

### ORDERING INFORMATION:

The evaluation board is specified by suffixing “-EB” to the appropriate V•I Chip model number that includes in-board mounting and integral pin fin heatsink. See vicorpower.com for model number listings.

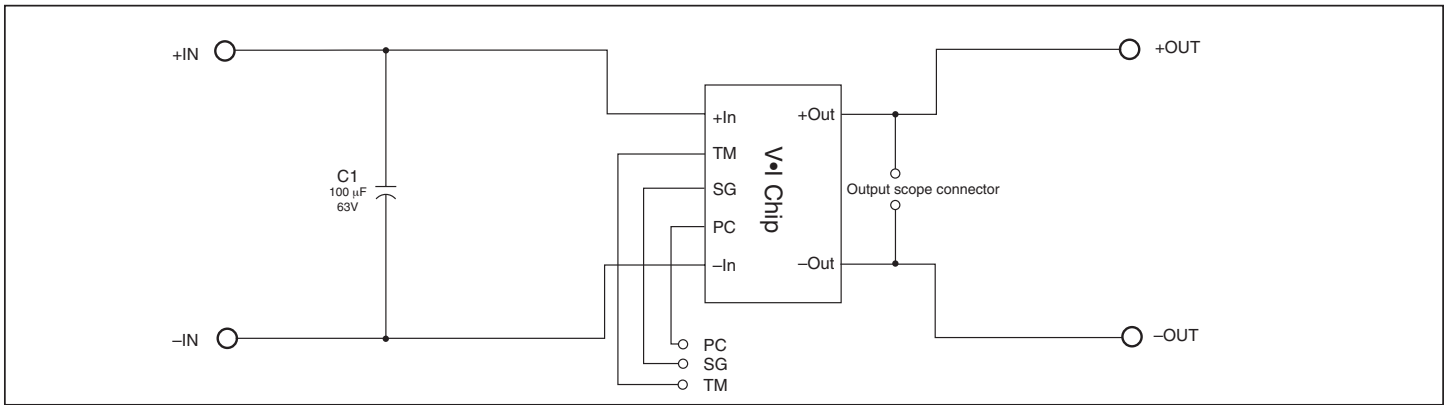


Figure 2— V•I Chip evaluation board schematic

**THERMALS**

For most lab environments a fan is not required as long as the airflow around the device is unobstructed. The temperature monitor function (TM) may be used to monitor the effective junction temperature of the V•I Chip.

**CAUTION**

The V•I Chip and evaluation board can comfortably operate at surface temperatures which may pose a thermal hazard to the operator. Be careful not to touch any exposed surface. Certain V•I Chips may operate at potentially dangerous voltages, use care in such cases. This evaluation PCB is not intended for use in end item equipment.

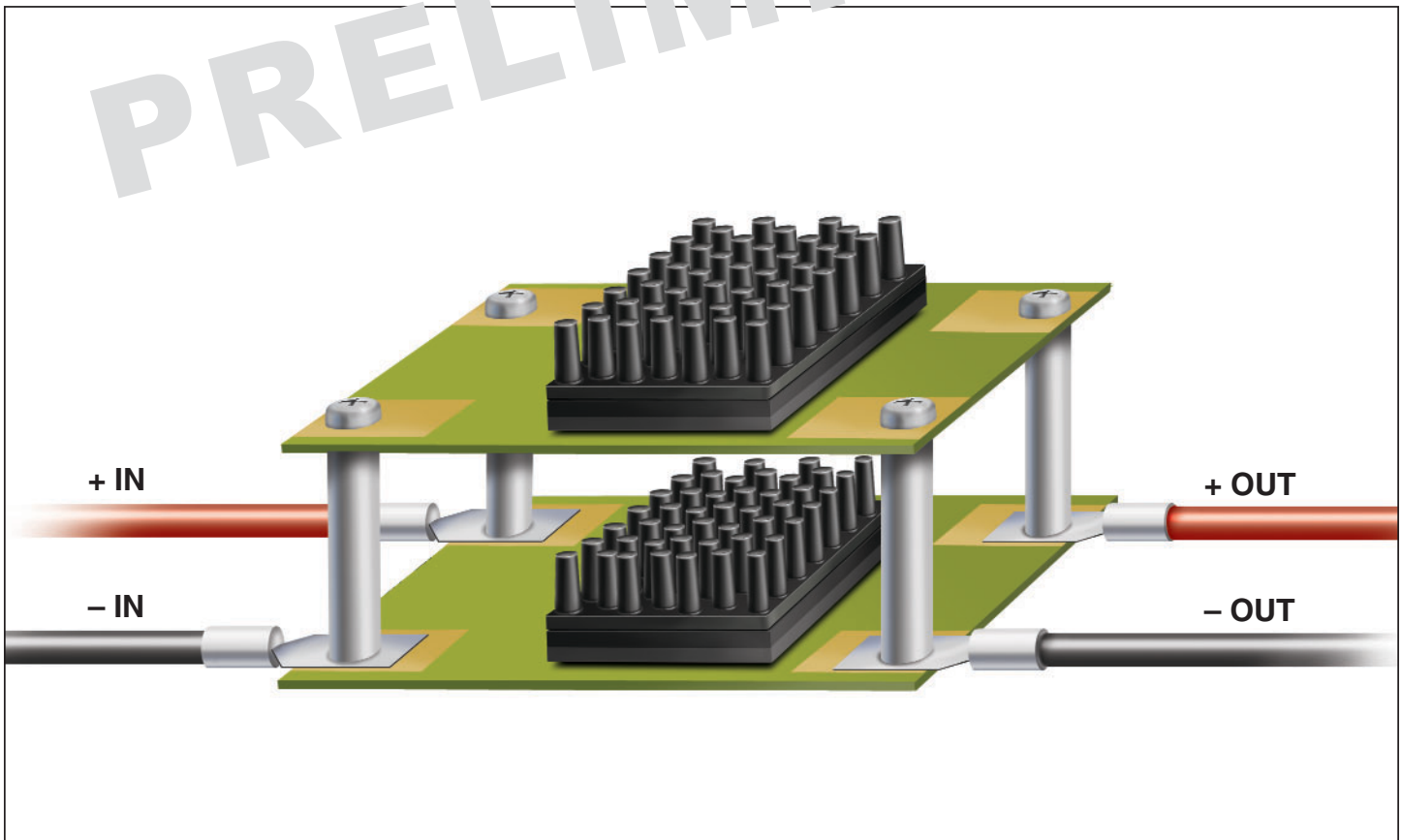


Figure 3— Paralleling connections

**Vicor's comprehensive line of power solutions includes high density AC-DC and DC-DC modules and accessory components, fully configurable AC-DC and DC-DC power supplies, and complete custom power systems.**

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**Specifications are subject to change without notice.**

### **Intellectual Property**

Vicor and its subsidiaries own Intellectual Property (issued U.S. and Foreign Patents and pending patent applications) relating to the product described in this data sheet including;

- The electrical and thermal utility of the V•IChip package
- The design of the V•IChip package
- The Power Conversion Topology utilized in the V•IChip package
- The Control Architecture utilized in the V•IChip package
- The Factorized Power Architecture.

Purchase of this product conveys a license to use it. Anybody wishing to utilize Vicor proprietary technologies must first obtain a license. Potential users are encouraged to first contact Vicor Intellectual Property Department.

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