VICOR PRODUCT CATALOG

BRICKs

V•I CHIP

PICOR

CONFIGURABLE PSUs

MIL-COTS

CUSTOM

VICOR CORPORATION

Power Solutions

Vicor's product line of modular power components and complete power systems includes thousands of combinations of input voltage, output voltage, and power levels, complete with accessory components that integrate other power system functions. Together, these products allow designers around the world to meet their unique power requirements by selecting and interconnecting standard modular parts. The benefits for you are rapid, flexible design of complete power systems at any power level.

If you don't find the converter you need from our thousands of predefined DC-DC converters, you can design your own custom product on the web using Vicor's PowerBench Design System. We offer a wide range of solutions with 1 – 20 outputs and autoranging, PFC, or three-phase inputs. There are several chassis sizes to choose from, both with and without integral cooling fans. Also available from Vicor is a strong offering of front ends and filters to complete your design. Our extensive MIL-COTS product line incorporates the technology and features of our commercial products into a cost-effective alternative for military, aerospace, and other high-reliability, harsh-environment applications. Standard inputs of 28, 48, 155, 270, and 375 Vdc are available.

Vicor is pioneering the second wave of the power component revolution with the introduction of flexible, high-performance power components. V•I Chip™ Factorized Power Architecture provides the means to more efficient power distribution and the V•I Chips provide the building blocks with the right attributes of high density and efficiency, flexibility, and fast transient response that enable power architects to more easily design small, high-performance, cost-effective power system solutions. V•I Chip PRMs™ (regulators), VTMs™ (voltage transformers) and BCMs™ (bus converters) are available for a wide range of DC-DC conversion and Intermediate Bus Architecture applications. MIL-COTS versions are also available.

New power options are available with Picor's first standard semiconductor solution – *Cool–ORing*™ – that can substantially reduce power dissipation and size, while providing superior dynamic response for Active ORing applications in redundant power architectures. Another new option is the new modular power platform: VI BRICK. The new VI BRICK family is an advanced modular power platform that incorporates the superior technical attributes of V•I Chip technology and a robust packaging that facilitates thermal management and through-hole assembly. Models include high-current density / low-voltage DC-DC converters, a wide range of highly efficient bus converters (BCM), and individual modules – PRM and VTM – for both regulation and transformation.

Vicor Integration Architects (VIAs) provide custom power solutions for communications, industrial, datacom, test equipment, medical diagnostics, and MIL-COTS. Using the extensive Vicor line of DC-DC converters in a modular, building-block design approach, VIAs offer complete solutions to unique power requirements in the shortest possible time.

All our products deliver agency-approved reliability and the predictable performance of field-proven power technology, including conformance to RoHS if desired. Vicor is ISO 9001:2000 certified and places heavy emphasis on the "Plan-Do-Check-Act" model (PDCA) to foster continuous improvement. This enables proactive actions to be undertaken to improve our technology, our products, our processes, and our service to our customers. Our new Quality Center on vicorpower.com enables quality managers, purchasing agents, and designers to see comprehensive video of our facilities as well as generate customized ISO 9001:2000 reports about our quality systems.

Be assured that Vicor is on a continuous quest for the best technical solution for you. Moreover, our commitment to the elegance and affordability of your design is backed up by our global staff of experienced applications engineers. Rely on Vicor as your dedicated design partner.

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WHAT'S NEW

Vicor develops new products all the time, so, to keep everyone up-to-date, we've created a special area on vicorpower.com where you can always see "what's new." Just go to vicorpower.com and click on "What's New." It will take you to our new products page. From there you'll be able to link to detailed design information.

Web ExpressCode

Web ExpressCode: **abcd**

Web ExpressCode provides quick access to detailed product information

Each product description in the Vicor catalog includes a unique Web ExpressCode. Each code provides direct access to the corresponding, information rich product pages on vicorpower.com. Just enter the Web ExpressCode into the Web ExpressCode search box on vicorpower.com's homepage. You'll be sent to the exact page you want with access to all related information such as product description, operating specifications, access to data sheets, outline drawings, and product configuration tools.

PowerBench™ You Design It ,We Build It

PowerBench is the most advanced suite of online power tools avaliable. They can help you design, select and configure products whether you are just beginning or experienced in designing power, PowerBench can take you from beginning to end of any power project. All of this in real time.

See for yourself what Vicor can do for you on Page 55 or go to the Vicor website, click PowerBench and start building.

VICOR POWERBENCH

OVERVIEW

V•I Chip & VI BRICK Solutions

DC-DC Products

330 – 365 Vin — BCM — Bus Converter, 10.3 – 11.4 Vdc, Up to 300 W

360 – 400 Vin — BCM — Bus Converter, 11.2 – 12.5 Vdc, @ 300 W

38 – 55 Vin — BCM — Bus Converter, 1.2 – 55 V, Up to 300 W

38 – 55 Vin — PRM — Regulator, Up to 320 W

36 – 75 Vin — PRM — Regulator, Up to 240 W

18 – 36 Vin — PRM — Regulator, Up to 120 W

16 – 50 Vin — M-PRM — MIL-COTS Regulator, Up to 120 W

24 Vdc, 48 Vdc — QPI — EMI Filter, Hot-Swap Controller

VTM — Voltage Transformer 0.8 – 55 V, Up to 100 A or 300 W

M-VTM — MIL-COTS Voltage Transformer 1 – 50 V, Up to 100 A or 120 W

■ Active ORing: (12 V bus or lower) Discrete Controller & Full-Function Solutions

Component Power Solutions: VI-200 & VI-J00 Series

AC-DC Products

Universal 85 – 264 Vac — HAM — Harmonic Attenuator Module, Unity Power Factor, Up to 675 W per module

Universal 85 – 264 Vac — AIM / MI-AIM — Rectifier / EMI Filter, Up to 250 W

Autoranging 90 – 132 Vac 180 – 264 Vac — FARM — Filter / Autoranging Rectifier Module, Up to 1,000 W

Autoranging 90 – 132 Vac 180 – 264 Vac — ARM — Autoranging Rectifier Module, Up to 1,500 W

DC-DC Products

10 – 400 Vdc

24, 28, 48, 270, 300 Vdc — IAM / MI-IAM — EMI Filter / Transient Protection, Up to 400 W

24, 28, 48 Vdc — QPI — Active EMI Filter, Up to 576 W @ 48 V

DC-DC Products

VI-200 / MI-200 — DC-DC Converter, 25 – 200 W per module, 1 – 95 Vdc

More Power? Add a Booster.

VI-200 / MI-200 — RAM, MicroRAM — Output Ripple Attenuation Module combines active and passive filtering.

Another Output? Add a Driver.

QPO — QPO provides active filtering to achieve differential noise attenuation.

BatMod — Programmable Current Source

VI-J00 / MI-J00 — DC-DC Converter, 10 – 100 W per module

■ Active ORing: (12 V bus or lower) Discrete Controller & Full-Function Solutions

Component Power Solutions: Maxi, Mini, Micro & VI BRICK Series

AC-DC Products

Universal 85 – 264 Vac — HAM High-Boost — Harmonic Attenuator Module, Unity Power Factor, Up to 675 W per module

Autoranging 90 – 132 Vac 180 – 264 Vac — FARM — Filter / Autoranging Rectifier Module, Up to 1,000 W

Autoranging 90 – 132 Vac 180 – 264 Vac — ARM — Autoranging Rectifier Module, Up to 1,500 W

Autoranging 115 – 230 Vac Input — FARM3 — MINIHAM — Front-end System for EN Compliance, Up to 550 W

DC-DC Products

Nominal Input 10 – 425 Vdc

28, 48, 270 Vdc — FIAM / M-FIAM — Transient Protection, Inrush Current Limiting EMI Filter, Up to 25 A

24, 28, 48 Vdc — QPI — Active EMI Filter, Up to 576 W @ 48 V

DC-DC Products

DC-DC Converter — MAXI — Single wire paralleling for high power, fault tolerant arrays.
Up to 600 W per module, 1 – 54 Vdc

DC-DC Converter — MINI — MicroRAM — Output Ripple Attenuation Module combines active and passive filtering.
Up to 300 W per module, 1 – 48 Vdc

QPO — QPO provides active filtering to achieve differential noise attenuation.

DC-DC Converter — MICRO
Up to 150 W per module, 1 – 48 Vdc

48 Vin VI BRICK
Up to 220 W per module, 1 – 48 Vdc

■ Active ORing: (12 V bus or lower) Discrete Controller & Full-Function Solutions

OVERVIEW

Configurable Power Solutions

VIPAC Power Systems

90 – 132 Vac
180 – 264 Vac

1 – 3 Outputs using Maxi, Mini & Micro Series Modules

MAXI
MINI
MICRO

Up to 900 W

LoPAC Family

85 – 264 Vac

1 – 6 Outputs using VI-200, VI-J00 Series or Maxi, Mini & Micro Series Modules

VI-200
VI-J00
MAXI
MINI
MICRO

Up to 1,500 W

FlatPAC Family

90 – 132 Vac
180 – 264 Vac
85 – 264 Vac (PFC)

1 – 3 Outputs using VI-200 / Maxi Series Modules

VI-200 — Up to 600 W
MAXI — Up to 575 W

PFC FrontEnd

85 – 264 Vac
100 – 380 Vdc

1 – 4 Outputs using VI-200, VI-J00 Series or Maxi, Mini & Micro Series Modules

Can also be used with VIPAC Array, V•I Chip BCM, and more

VI-200
VI-J00
MAXI
MINI
MICRO
BCM
VIPAC ARRAY

Up to 2,200 W

FlatPAC-EN

90 – 132 Vac
180 – 264 Vac

1 – 4 Outputs using VI-200, VI-J00 Series or Maxi, Mini & Micro Series Modules

VI-200
VI-J00
MAXI
MINI
MICRO

Up to 500 W
(425 W for EN compliance)

MegaPAC Family

85 – 264 Vac
3ø 208/240 Vac

1 – 20 Outputs using VI-200, VI-J00 & Maxi Series Modules

VI-200
VI-J00
MAXI

Up to 4,000 W

VIPAC Arrays

DC Inputs
24, 28, 48, 72, 110, 150, 300, 375 Vdc

1 – 4 Outputs using Maxi, Mini & Micro Series Modules

MAXI — Parallel for High Power
MINI
MICRO

Up to 750 W

MegaMod Family (Chassis Mount)

DC Inputs
10 – 400 Vdc

1 – 3 Outputs using VI-200 / MI-200 or VI-J00 / MI-J00 Series Modules

VI-J00/ MI-J00 — Up to 300 W
VI-200 / MI-200 — Up to 600 W

ComPAC Family

DC Inputs
24, 28, 48, 270, 300 Vdc

1 – 3 Outputs using VI-200 / MI-200 Series Modules

VI-200 / MI-200 — Up to 600 W

Front-end filtering optimized for communication and defense applications

V•I CHIP SOLUTIONS

48 V BCM™ Bus Converter

page 5

- ZVS / ZCS isolated Sine Amplitude Converter
- Input: 38 – 55 Vdc
- Output: Eleven models, 1.5 to 48 V
- Power: Up to 300 W (450 W for 1 ms)
- Efficiency: Up to 96%
- High density: Up to 1,036 W/in³ (68 W/cm³)
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation (Tj)
- Low weight: 0.5 oz (15 g)
- >3.5 million hours MTBF
- Low noise: No output filtering required
- J-Lead package pick & place / SMD compatible
- Through-hole pin option

48 V PRM™ Regulator

page 6

- 48 Vin ZVS buck / boost regulator
- Input: 36 – 75 Vdc or 38 – 55 Vdc
- Provides 26 – 55 Vdc output factorized bus for 48 Vin VTMs
- Efficiency: Up to 97%
- High density: Up to 1,105 W/in³ (55 W/cm³)
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation (Tj)
- Low weight: 0.5 oz (15 g)
- J-Lead package pick & place / SMD compatible
- Through-hole pin option

VTM™ Voltage Transformer

page 7

MIL-COTS Version Available
Page 34

- 48 Vin Sine Amplitude Converter
- 26 – 55 Vdc input range
- 0.8 – 55 Vdc outputs
- Efficiency: Up to 97%
- High density: Up to 345 A/in³
- Up to 100 A or 300 W
- Small footprint: Up to 90 A/in²
- 125°C operation (Tj)
- Low weight: 0.5 oz (15 g)
- Isolation to 2,250 Vdc
- <1 µs transient response
- Low noise: No output filtering required
- J-Lead package pick & place / SMD compatible
- Through-hole pin option

High Voltage BCM Bus Converter

page 5

- ZVS / ZCS isolated Sine Amplitude Converter
- 330 – 365 Vdc to 11 Vdc @ 300 W
- 360 – 400 Vdc to 12 Vdc @ 300 W
- Efficiency: Up to 97%
- High density: Up to 1,034 W/in³
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation (Tj)
- Isolation to 4,242 Vdc
- >2.6 million hours MTBF
- Low noise: No output filtering required
- Low weight: 0.5 oz (15 g)
- J-Lead package pick & place / SMD compatible
- Through-hole pin option

24 V PRM Regulator

page 6

MIL-COTS Version Available
Page 34

- 24 Vin ZVS buck / boost regulator
- Input: 18 – 36 Vdc
- Provides 26 – 55 Vdc output factorized bus for 48 Vin VTMs
- Efficiency: Up to 95%
- High density: Up to 414 W/in³ (25 W/cm³)
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation (Tj)
- Low weight: 0.5 oz (15 g)
- J-Lead package pick & place / SMD compatible
- Through-hole pin option

VI BRICK

Thermally enhanced packaging option available for PRM, VTM, BCM, Page 8 – 10

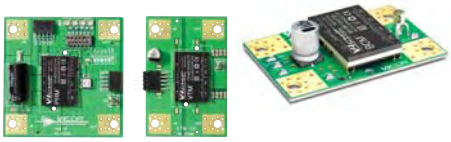
QPI for V•I Chips Input Filter Module

page 26

- Support EN55022, Class B limits
- Compatible with 48 and 24 V V•I Chips
- Efficiency: >99%
- Up to 65 dB CM attenuation at 1 MHz
- Up to 80 dB DM attenuation at 1 MHz
- 7 A models, parallelable for up to 14 A
- Hot-Swap models available
- Supports AdvancedTCA® PICMG3.0 requirements
- 12,5 x 25 x 4,5 mm LGA package
- 25 x 25 x 4,5 mm package for Hot-Swap models

Evaluation Boards Available

Page 46



BRICK SOLUTIONS

VI-200 / VI-J00 DC-DC Converter

page 12-13

MIL-COTS Version Available

Page 35

- Input voltage ranges: 10 – 400 Vdc
- Output voltages: 1 – 95 Vdc
- Output power (per module): VI-200: 50 – 200 W • VI-J00: 25 – 100 W
- Parallelable for higher power
- 100°C operation: 85°C for VI-200
- Efficiency: Up to 90%
- Agency approvals: CE Marked cULus, cTÜVus

Maxi / Mini / Micro DC-DC Converter

MIL-COTS Version Available

Page 35

page 14-15

- Input voltages: 24, 28, 48, 72, 110, 150, 300, 375 Vdc
- Output power: 50 – 600 W
- 100°C, no derating
- High efficiency
- Low-noise ZCS / ZVS
- High power density: Up to 120 W/in³

VI BRICK PRM / VTM / BCM

page 8-10

MIL-COTS Version Available

Page 34

- Brick solution for Factorized Power
- Thermally enhanced package – baseplate and through-hole pin
- 100°C baseplate operation
- Small footprint: 2.08 in²
- Low profile: 0.37 inches above board
- Efficiency: Up to 97%
- High power density: Up to 390 W/in³

VI BRICK DC-DC Converter

page 11

- Input range: 36 – 75 Vdc
- Efficiency: Up to 93%
- Output voltages: 1 – 48 V
- Fast dynamic response
- Low noise
- Maximum case temperature: 100°C, no derating

QPI Family Active EMI Input Filters

page 26

QuietPower™

- Up to 60 dB CM attenuation at 250 kHz
- Up to 80 dB DM attenuation at 250 kHz
- Up to 14 A
- Efficiency: >99% at full load
- High density, low profile LGA package
- Designed to support EN Class B
- Integrated Hot-Swap in select models
- Current rating supports ATCA® blades
- –40°C to +100°C PCB temperature
- Compatible with most industry standard DC-DC converters

QPO Family Active Output Ripple Attenuators

page 27

QuietPower™

- >30 dB PARD attenuation, 1 kHz to 500 kHz
- 3 – 30 Vdc and 0.3 – 5.5 Vdc input models
- Up to 20 A
- Supports precise point-of-load regulation
- Reduces required number of output capacitors to support dynamic loads
- Selectable optimization of attenuation, power dissipation, transient load response
- Compatible with most industry standard DC-DC converters

Front-end Modules

page 18-22

MIL-COTS Version Available

Page 35

- Up to 1,000 W power output
- 85 – 264 Vac input
- Efficiency: 90 – 98%
- Agency approvals: CE Marked, cTÜVus, cULus
- Operating temperature: –55°C to +100°C
- Inrush current limiting

Input Filter Modules

page 24

MIL-COTS Version Available

Page 36

- 24, 48 and 300 V models
- Efficiency: Up to 98%
- Agency approvals: CE Marked, cTÜVus, cULus
- Operating temperature: –55°C to +100°C
- Designed to meet EN Class B, Bellcore and FCC transient and immunity

Output Filter Modules

page 25

MIL-COTS Version Available

Page 36

- 5 – 50 V, Up to 20 A
- 3 – 30 V, Up to 30 A
- Efficiency: Up to 98%
- Up to 40 dB attenuation from 60 Hz to 1 MHz
- Operating temperature: –55°C to +100°C

PICOR SOLUTIONS

Cool-ORing™ Series Controllers

page 16

- Fast dynamic response
- 4 A gate discharge current
- Accurate MOSFET voltage sensing
- Overtemperature fault detection
- Adjustable reverse current blanking timer
- Withstands 100 V transients in low-side applications
- Master / Slave I/O for paralleling
- Active low-fault flag output
- Compatible with bricks and V•I Chips

Cool-ORing™ Series Full-Function Solutions

page 17

- Combines a high-speed ORing MOSFET controller and a very low on-state resistance ORing MOSFET
- Integrated high-performance MOSFET
  PI2121: 8 V, 24 A, 1.5 mΩ
  PI2123: 15 V, 15 A, 3 mΩ
  PI2125: 30 V, 12 A, 5.5 mΩ
- Very small, high density optimized solution
- Fast dynamic response
- Accurate sensing capability
- Compatible with bricks and V•I Chips

CONFIGURABLE POWER SUPPLIES

VIPAC AC-DC or DC-DC Power Solution

page 30

- Input voltage ranges:
  115/230 Vac, 28 Vdc (MIL-COTS)
- Output voltages: 2 – 48 Vdc
- Output power: Up to 900 W
- Single, dual, or triple outputs
- Efficiency: 80 – 90%
- Local or remote control

VIPAC Arrays DC Input Power System

page 31

MIL-COTS Version Available
Page 37

- Input voltages: 24, 300, Vdc
- Output voltages: 2 – 54 Vdc
- Output power: 50 – 650 W
- Array power: Up to 750 W
- Single, dual, triple or quad outputs
- Rugged, low profile, coldplate chassis
- High-temperature capability

FlatPAC AC-DC Power Solution

page 28

- Input voltage:
  115/230 Vac input, autoranging
- Output voltages: 1 – 95 Vdc
- Output power: 50 – 600 W
- Single, dual, or triple outputs
- Low-noise ZCS / ZVS power technology
- Agency approvals:
  CE Marked, cTÜVus, cULus

ComPAC Input Power Solution

page 32

MIL-COTS Version Available
Page 37

- Input voltages:
  24, 48 and 300 Vdc
- Output voltages: 1 – 95 Vdc
- Efficiency: 80 – 90%
- Power density: Up to 10 W/in³
- Low-noise FM control
- ZCS / ZVS power architecture

MegaMod Chassis-mount Converter

page 33

MIL-COTS Version Available
Page 37

- Input voltage range:
  10 – 400 Vdc
- Output voltages: 1 – 95 Vdc
- Output power: Up to 600 W
- Single, dual, or triple outputs
- Efficiency: 80 – 90%
- Low-noise ZCS power architecture

PFC FrontEnd 375 Vdc Output Front End

page 19

- Input voltage ranges:
  85 – 264 Vac and 100 – 380 Vdc
- Output power: Up to 2,200 W
- Up to 4 non-isolated outputs
- Operating temperature:
  –20°C to +45°C (full power)
- DIN rail mountable

CONFIGURABLE POWER SUPPLIES

PFC FlatPAC Single-Output Power System

page 29

- Input voltage range: 85 – 264 Vac
- Output power: Up to 575 W 2 – 54 Vdc
- High efficiency
- Current limit
- Remote sense

LoPAC Family Switcher Power Supplies

page 38

- Input voltage ranges: 85 – 264 Vac and 100 – 380 Vdc
- Output voltages: 2 – 95 Vdc (higher voltage available with series arrays)
- Output power: 25 – 1,500 W
- Up to 6 user-specifiable outputs
- Power density: Up to 11 W/in^3

MegaPAC Family User-Configured

page 40

- Input voltage range: 85 – 264 Vac
- Output voltage: 2 – 95 Vdc (higher voltage available with series arrays)
- Output power: 25 – 4,000 W
- Up to 20 outputs
- High power density

FlatPAC-EN AC-DC Power Solution

page 39

- Input voltage ranges: 90 – 132 / 180 – 264 Vac 180 – 264 Vdc
- Output voltages: 2 – 95 Vdc
- Output power: Up to 500 W
- Up to 4 user-specifiable outputs

DC MegaPAC™ Power Switcher

page 45

- Input voltage range: 12 – 72 Vdc
- Output voltages: 2 – 95 Vdc
- Output power: Up to 1,600 W
- Up to 16 outputs

VME450™ Single-slot Power Supply

page 45

- Vin max range: 18 – 36 Vdc
- Input power: 650 W
- Output power: 550 W
- Temperature: –40 to +85°C
- Low profile: 0.670 in. max. height
- Utilizes Vicor's V•I Chips

Javelin™ MIL-COTS Power Supply

page 44

- Input voltage ranges: 85 – 254 Vac (PFC) / 85 – 380 Vdc
- Output voltages: Single output 2, 3.3, 5, 12, 15, 24, 28, 48 Vdc
- Output power: 600 – 5,400 W

PowerBank™ Low Profile Supply

page 44

- Input voltage: 115/230 Vac
- Output voltages: 1.8 – 52 V
- Output power: 1000 W @ 230 Vac input, 800 W @ 115 Vac input
- Operating temperature: –20°C to +50°C

Badger™ MIL-COTS Power Supply

page 44

- Input voltage ranges: 85 – 264 Vac and 100 – 380 Vdc
- Output power: Up to 1,800 W
- Up to 12 non-isolated outputs
- Operating temperature: –55°C to +65°C

CUSTOM SOLUTIONS

Don't see what you need...

Vicor can deliver a power supply built to your custom specification through our Vicor Integration Architects (VIAs). VIAs design and manufacture turnkey custom power systems for electronic equipment manufacturers in the datacom, telecom, industrial, test equipment, medical, information technology, and MIL-COTS markets.

VIAs use Vicor component power modules in a building-block design approach that offers low cost, quick turnaround, and reliable performance.

For more information on custom solutions, see pages 42 – 43.

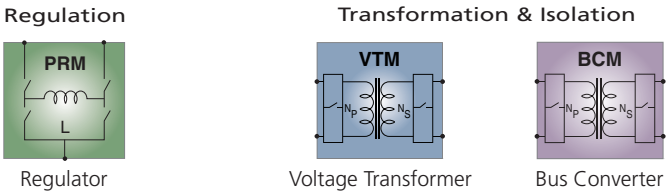
The V•I Chip™ Advantage Density, Efficiency, Flexibility, & Speed

Web ExpressCode: **vichip**

RoHS

Vicor's V•I Chips, new families of integrated power components, give the power architect new ways to create small, cost-effective, high-performance power system solutions.

V•I Chips increase power system flexibility by separating or factorizing a DC-DC converter into two components. One component provides a regulation function (PRM™), and another provides transformation and isolation (VTM™ / BCM™). This allows the power system designer to select only the functions that are needed, where they are needed.



Shown at actual size.

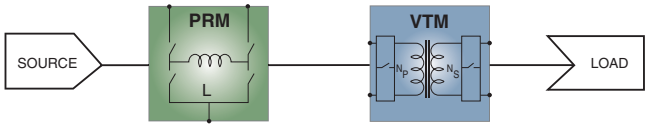
VI BRICKs

PRM, VTM, BCM models available
Baseplate with through-hole pins
Page 8 – 10

DC-DC Conversion Using PRM & VTM

System solution with low component count

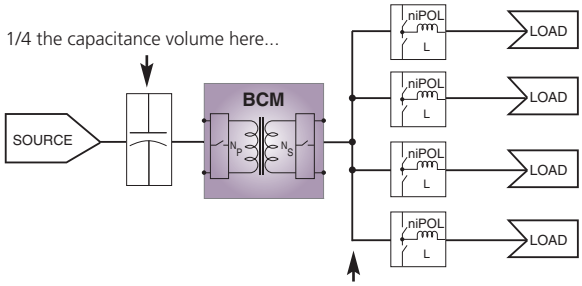
- VTM isolation and transformation at the point of load
- PRM regulation can be collocated with or remote from the VTM
- Efficiency: Up to 93%
- High power density: Up to 517 W/in³



Bus Conversion Using BCMs

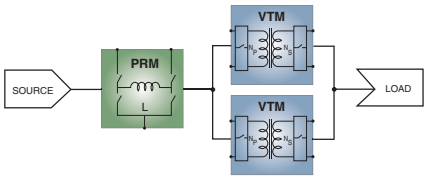
Enable dense IBA Power Systems

- High density bus converter > 1,000 W/in³
- Efficiency: Up to 96%
- Minimize total system capacitance



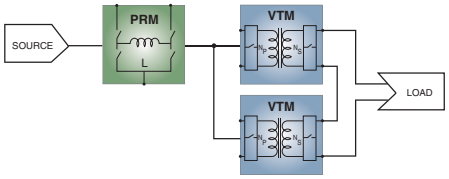
High Current Low Voltage Supply

- Enable twice the current in half the space
- Up to 295 W or 200 A



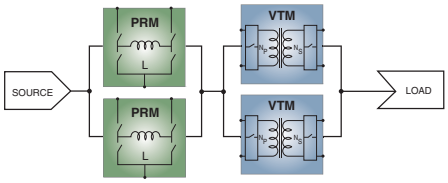
High Voltage Outputs

- Put VTM stages in series to achieve output voltages greater than 55 V



High Power Arrays

- Parallel PRMs and VTMs to create multi-kW power systems



Web ExpressCode: bcm

BCM™ Bus Converter Module

RoHS

The BCM is a member of the new family of V•I Chips. It provides an isolated intermediate bus voltage to power non-isolated POL converters from a narrow range DC input, or it can be used as an independent DC source. The BCM offers superior performance and lower cost than conventional bus converters. BCMs are available in standard 48 V telecom as well as in high-voltage offline input ranges.

Due to the fast response time and low noise of the BCM, the need for limited life aluminum electrolytic or tantalum capacitors at the load is reduced – or eliminated – resulting in savings of board area, materials, and total system cost.

Features

- Fixed-ratio bus converter
- Available in 48, 352, and 384 V inputs
- High density: Up to 1,036 W/in^3
- Isolation to 4,242 Vdc
- Efficiency: Up to 96%
- No output filtering required
- Output power: Up to 300 W
- Small footprint: 1.1in^2 (7.1 cm^2)
- Pick & place / SMD compatible
- Through-hole pin option
- 125°C operation (Tj)
- >3.5 million hours MTBF

VI BRICK

BCM model Page 10

Heat Sinks Available

Page 48

Part Numbering

For a complete listing of our BCM model numbers, go to vicorpower.com/vichip

B	0 4 8	F	1 2 0	T	3 0
Bus Converter Module	**Input Voltage Designator**	**Configuration** F = J-Lead T = Through hole	**Output Voltage Designator** (= Vout X10)	**Product Grade** Storage T –40 to 125°C M –65 to 125°C [a]	**Temperatures** Operating (Tj) –40 to 125°C –55 to 125°C	**Output Power Designator** (= POUT/10)

[a] *M–Grade available on 48 Vin models*

Input Voltage	K Factor	Vout @ 48 Vin	Vout Range	Max Power	BCM Model No.
38 – 55 Vdc	1/32	1.5 Vdc	1.19 – 1.71 Vdc	135 W	B048F015T14
	1/16	3.0 Vdc	2.38 – 3.43 Vdc	210 W	B048F030T21
	1/12	4.0 Vdc	3.17 – 4.58 Vdc	200 W	B048F040T20
	1/8	6.0 Vdc	4.75 – 6.87 Vdc	240 W	B048F060T24
	1/6	8.0 Vdc	6.34 – 9.16 Vdc	240 W	B048F080T24
	1/5	9.6 Vdc	7.60 – 11.00 Vdc	240 W	B048F096T24
	1/4	12.0 Vdc	9.50 – 13.80 Vdc	300 W	B048F120T30
	1/3	16.0 Vdc	12.70 – 18.30 Vdc	240 W	B048F160T24
	1/2	24.0 Vdc	19.00 – 26.50 Vdc [b]	300 W	B048F240T30
	2/3	32.0 Vdc	25.30 – 36.70 Vdc	300 W	B048F320T30
	1	48.0 Vdc	38.00 – 55.00 Vdc	300 W	B048F480T30

[b] *Vin = 38 – 53 Vdc*

Input Voltage	K Factor	Vout @ Nom. Vin	Vout Range	Max Power	BCM Model No.
330 – 365 Vdc	1/32	11.0 Vdc	10.30 – 11.4 Vdc	240 W	B352F110T24
330 – 365 Vdc	1/32	11.0 Vdc	10.30 – 11.4 Vdc	300 W	B352F110T30
360 – 400 Vdc	1/32	12.0 Vdc	11.30 – 12.5 Vdc	300 W	B384F120T30

PRM™ Regulator

RoHS

The PRM is a high-efficiency, non-isolated regulator capable of both boosting and bucking a wide-range input voltage. PRMs may be used independently, as stand-alone regulators, or together with downstream V•I Chip VTMs™ — fast, efficient, isolated low-noise point-of-load (POL) converters.

PRMs feature unique "Adaptive Loop" compensation feedback: a single-wire alternative to traditional remote sensing and feedback loops that enables precise control of an isolated POL voltage without the need for either a direct connection to the POL or for noise sensitive, bandwidth limiting, isolation devices in the feedback path.

VI BRICK

PRM model Page 8

Features

- ZVS buck / boost regulator
- Provides factorized bus for 48 Vin VTMs
- Available in 24, 36 and 48 V models
- Efficiency: Up to 97%
- High density: Up to 1,105 W/in³
- Small footprint: 1.1in² (7.1 cm²)
- 125°C operation (Tj)
- J-Lead package
- Through-hole pin option
- Pick & place / SMD compatible

MIL-COTS Version Available

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Heat Sinks Available

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Part Numbering

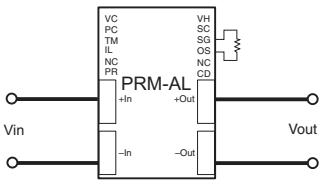
For a complete listing of our PRM model numbers, go to vicorpower.com/vichip

P	0 4 8	F	0 4 8	T	2 4	A L
Pre-Regulator Module	**Input Voltage Designator**	**Configuration** F = J-Lead T = Through Hole	**Nominal Factorized Bus Voltage**	**Product Grade** Storage T –40 to 125°C M –65 to 125°C	**Temperatures** Operating (Tj) –40 to 125°C –55 to 125°C	**Output Power Designator** (= Pf/10)	**Adaptive Loop**

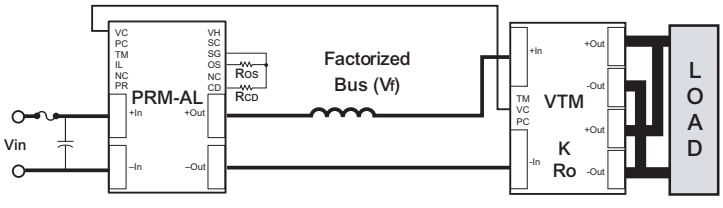
Input Voltage	Max Output		PRM Model No.	Trim / Vf Range
	Power	Current		
36 – 75 Vdc	240 W	5.0 A	P048F048T24AL	26 – 55 V
	120 W	2.5 A	P048F048T12AL	
38 – 55 Vdc	320 W	6.6 A	P045F048T32AL	
	170 W	3.5 A	P045F048T17AL	
18 – 36 Vdc	120 W	2.5 A	P024F048T12AL	
18 – 60 Vdc	120 W	2.5 A	P036F048T12AL	

Note: *See individual data sheets for additional model specifications and configurations.*

Application Examples



Regulator



DC-DC Converter

VTM™ Voltage Transformer

Web ExpressCode: **vtm**

RoHS

The VTM provides an isolated voltage to the point of load. Utilizing a Sine Amplitude Converter (SAC), it offers unprecedented performance in the critical areas of speed, noise, efficiency and density. VTMs address output requirements from 0.8 – 55 Vdc at up to 100 A, all in a surface-mount package only one-quarter of a cubic inch in volume. VTMs operate over an input voltage range of 26 – 55 Vdc — the "factorized bus"— and are a fixed-ratio device that requires a PRM or other stabilized voltage source for regulation.

VI BRICK

VTM model Page 9

Heat Sinks Available

Page 48

MIL-COTS Version Available

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Features

- Fixed ratio DC-DC converter
- Output: Up to 100 A / 300 W
- High density: Up to 345 A/in³
- Small footprint: 1.1in² (7.1 cm²)
- Low weight: 0.5 oz (15 g)
- Pick & place / SMD compatible
- Efficiency: Up to 97%
- 125°C operation (Tj)
- 1 µs transient response
- >3.5 million hours MTBF
- J-Lead package
- Through-hole pin option
- Isolation to 2,250 Vdc

Part Numbering

For a complete listing of our VTM model numbers, go to vicorpower.com/vichip

V	0 4 8	F	1 2 0	T	0 2 5
Voltage Transformation Module	**Input Voltage Designator**	**Configuration** F = J-Lead T = Through Hole	**Output Voltage Designator** (= Vout X10)	**Product Grade** Storage T –40 to 125°C M –65 to 125°C	**Temperatures** Operating (Tj) –40 to 125°C –55 to 125°C	**Output Current Designator** (= Iout)

Input Voltage	K Factor	Vout @ 48 Vin	Vout Range	Output Current	VTM Model No.
26 – 55 Vdc	1/32	1.5 Vdc	0.82 – 1.71 Vdc	100 A	V048F015T100
	1/24	2.0 Vdc	1.09 – 2.29 Vdc	80 A	V048F020T080
	1/16	3.0 Vdc	1.63 – 3.43 Vdc	70 A	V048F030T070
	1/12	4.0 Vdc	2.17 – 4.58 Vdc	50 A	V048F040T050
	1/8	6.0 Vdc	3.25 – 6.87 Vdc	40 A	V048F060T040
	1/6	8.0 Vdc	4.34 – 9.16 Vdc	30 A	V048F080T030
	1/5	9.6 Vdc	6.40 – 11.00 Vdc	25 A	V048F096T025 [a]
	1/4	12.0 Vdc	6.50 – 13.80 Vdc	25 A	V048F120T025
	1/3	16.0 Vdc	8.67 – 18.30 Vdc	15 A	V048F160T015
	1/2	24.0 Vdc	13.80 – 26.50 Vdc	12 A	V048F240T012 [b]
	2/3	32.0 Vdc	17.30 – 36.70 Vdc	9 A	V048F320T009
	1	48.0 Vdc	26.00 – 55.00 Vdc	6 A	V048F480T006

[a] *Vout = 6.4 Vdc @ 32 Vin*
[b] *Vout = 14.0 Vdc @ 28 Vin*

Web ExpressCode: vibprm

VI BRICK PRM Thermally Enhanced Package

RoHS

The VI BRICK PRM is a very efficient non-isolated regulator designed to provide a controlled Factorized Bus distribution voltage for powering downstream VI BRICK or V•I Chip Voltage Transformation Modules. In combination, VI BRICK PRMs and VTMs form a complete DC-DC Converter subsystem offering all of the unique benefits of Vicor's Factorized Power Architecture (FPA): high density and efficiency; low noise operation; architectural flexibility; extremely fast transient response; elimination of bulk capacitance at the point of load (POL); in a brick style package.

MIL-COTS Version Available

Page 34

Features

- 100°C baseplate operation
- Input voltages: 24, 36, 45 and 48 Vdc
- Low profile: 0.37 in. (9.5 mm)
- Low weight: 1.07 oz (30.3 g)
- Small footprint: 2.08 in^2
- ZVS buck-boost regulator
- Efficiency: Up to 97%
- Fast transient response
- Low noise operation
- Rugged robust package
- Lead free wave solder compatible
- Agency approvals

Part Numbering

Ordering, see back cover for contacts

P R	0 4 8	A	4 8 0	T	0 2 4	F	P
Pre-Regulator Module	**Input Voltage Designator**	**Package Size**	**Output Voltage Designator** (= VOUT X 10)	**Product Grade** Storage T –40 to 125°C M –65 to 125°C	**Temperatures** Operating –40 to 100°C –55 to 100°C	**Output Power Designator** (= POUT / 10)	**Baseplate** F = Slotted flange T = Transverse heat sink [a]	**Pin Style** P = Through hole

[a] Contact factory

Input Voltage	Max Output		PRM Model No.	Trim / Vf Range
	Power	Current		
36 – 75 Vdc	240 W	5.0 A	PR048A480T024FP	26 – 55 V
	120 W	2.5 A	PR048A480T012FP	
38 – 55 Vdc	320 W	6.6 A	PR045A480T032FP	
	170 W	3.5 A	PR045A480T017FP	
18 – 36 Vdc	120 W	2.5 A	PR024A480T012FP	
18 – 60 Vdc	120 W	2.5 A	PR036A480T012FP	

Note: *See individual data sheets for additional model specifications and configurations.*

Web ExpressCode: vibvtm

VI BRICK VTM Thermally Enhanced Package

RoHS

The VI BRICK VTM current multiplier excels at speed, density and efficiency to meet the demands of advanced power applications. Combined with the VI BRICK or V•I Chip PRM regulator the VI BRICK VTM creates a DC-DC converter with flexibility to provide isolation and regulation where needed. The PRM can be located with the VTM at the point of load or remotely in the back plane or on a daughtercard.

MIL-COTS Version Available

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Features

- 100°C baseplate operation
- Up to 100A or 300 W
- High density: Up to 390 W/in^3
- Small footprint: 2.08 in^2
- Low profile: 0.37 in. (9.5 mm)
- Low weight: 1.10 oz (31.3 g)
- ZVS / ZCS isolated sine amplitude converter
- Efficiency: Up to 97%
- <1 µs transient response
- Isolated output
- No output filtering required
- Lead free wave solder compatible
- Agency approvals

Part Numbering

Ordering, see back cover for contacts

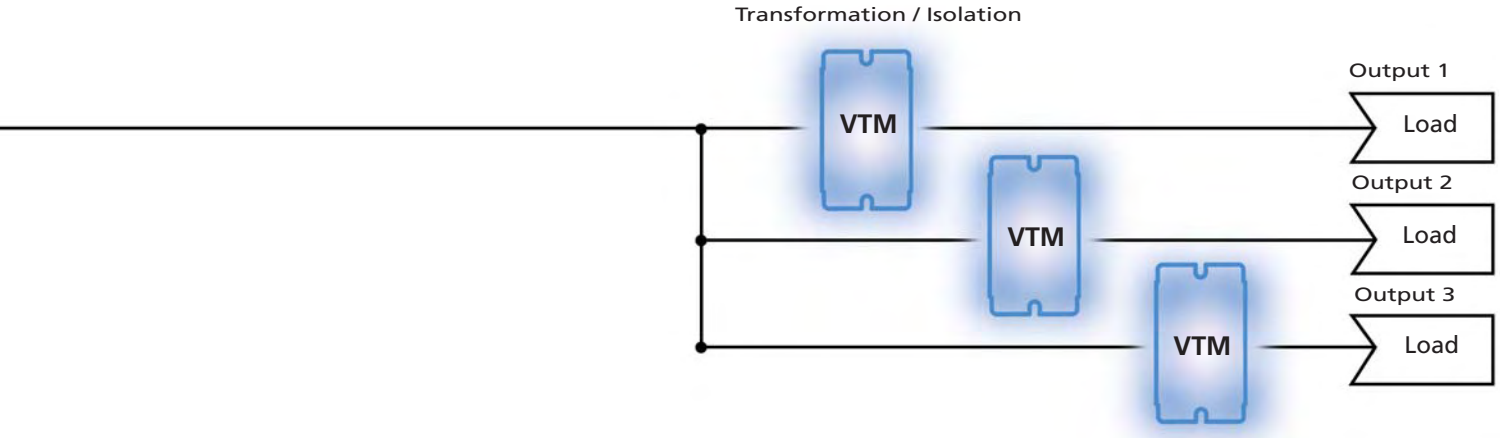
V T	0 4 8	A	1 2 0	T	0 2 5	F	P
Voltage Transformation Module	**Input Voltage Designator**	**Package Size**	**Output Voltage Designator** (= VOUT X 10)	**Product Grade** Storage T –40 to 125°C M –65 to 125°C	**Temperatures** Operating –40 to 100°C –55 to 100°C	**Output Current Designator** (= Iout)	**Baseplate** F = Slotted flange T = Transverse heat sink [a]	**Pin Style** P = Through hole

[a] Contact factory

Input Voltage	K Factor	Vout @ 48 Vin	Vout Range	Output Current	VTM Model No.
26 – 55 Vdc	1/32	1.5 Vdc	0.82 – 1.71 Vdc	100 A	VT048A015T100FP
	1/24	2.0 Vdc	1.09 – 2.29 Vdc	80 A	VT048A020T080FP
	1/16	3.0 Vdc	1.63 – 3.43 Vdc	70 A	VT048A030T070FP
	1/12	4.0 Vdc	2.17 – 4.58 Vdc	50 A	VT048A040T050FP
	1/8	6.0 Vdc	3.25 – 6.87 Vdc	40 A	VT048A060T040FP
	1/6	8.0 Vdc	4.34 – 9.16 Vdc	30 A	VT048A080T030FP
	1/5	9.6 Vdc	6.40 – 11.00 Vdc	25 A	VT048A096T025FP [b]
	1/4	12.0 Vdc	6.50 – 13.80 Vdc	25 A	VT048A120T025FP
	1/3	16.0 Vdc	8.67 – 18.30 Vdc	15 A	VT048A160T015FP
	1/2	24.0 Vdc	13.80 – 26.50 Vdc	12 A	VT048A240T012FP [c]
	2/3	32.0 Vdc	17.30 – 36.70 Vdc	9 A	VT048A320T009FP
	1	48.0 Vdc	26.00 – 55.00 Vdc	6 A	VT048A480T006FP

Note: *See individual data sheets for additional model specifications and configurations.*

[b] Vout = 6.4 Vdc @ 32 Vin *[c] Vout = 14.0 Vdc @ 28 Vin*



Web ExpressCode: vibbcm

VI BRICK BCM Thermally Enhanced Package

RoHS

VI BRICK BCM modules use advanced Sine Amplitude Converter™ (SAC) technology, thermally enhanced packaging technologies, and advanced manufacturing processes to provide high power density and efficiency, superior transient response, and improved thermal management. These modules can be used to provide an isolated intermediate bus to power non-isolated POL converters and due to the fast response time and low noise of the BCM, capacitance can be reduced or eliminated near the load.

Features

- 100°C baseplate operation
- 48 V, 352, and 384 V Bus Converters
- High density: Up to 390 W/in^3
- Small footprint: 2.08 in^2
- Height above board: 0.37 in (9.5 mm)
- Efficiency: Up to 96%
- Isolated output
- No output filtering required
- <1 µs transient response
- Fast transient response
- Lead free wave solder compatible
- Agency approvals

Part Numbering

Ordering, see back cover for contacts

B C	0 4 8	A	0 1 5	T	0 1 4	F	P
Bus Converter Module	**Input Voltage Designator**	**Package Size**	**Output Voltage Designator** (= VOUT X 10)	**Product Grade** Storage T –40 to 125°C M –65 to 125°C	**Temperatures** Operating –40 to 100°C –55 to 100°C	**Output Power Designator** (= POUT / 10)	**Baseplate** F = Slotted flange T = Transverse heat sink [a]	**Pin Style** P = Through hole

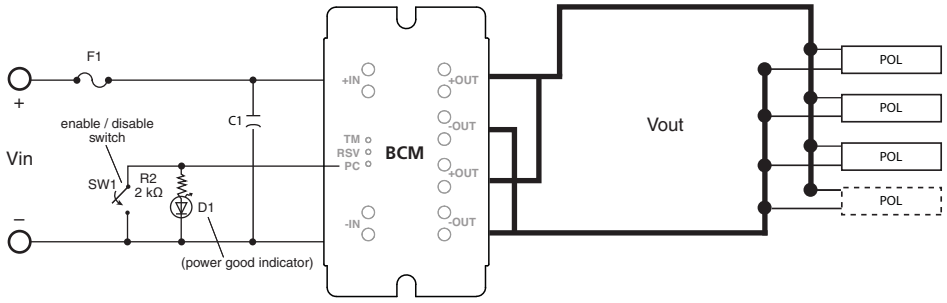
[a] *Contact factory*

Input Voltage	K Factor	Vout		Max Power	BCM Model No.
		@ 48 Vin	Range		
38 – 55 Vdc	1/32	1.5 Vdc	1.19 – 1.71 Vdc	135 W	BC048A015T014FP
	1/16	3.0 Vdc	2.38 – 3.43 Vdc	210 W	BC048A030T021FP
	1/12	4.0 Vdc	3.17 – 4.58 Vdc	200 W	BC048A040T020FP
	1/8	6.0 Vdc	4.75 – 6.87 Vdc	240 W	BC048A060T024FP
	1/6	8.0 Vdc	6.34 – 9.16 Vdc	240 W	BC048A080T024FP
	1/5	9.6 Vdc	7.60 – 11.00 Vdc	240 W	BC048A096T024FP
	1/4	12.0 Vdc	9.50 – 13.80 Vdc	300 W	BC048A120T030FP
	1/3	16.0 Vdc	12.70 – 18.30 Vdc	240 W	BC048A160T024FP
	1/2	24.0 Vdc	19.00 – 26.50 Vdc [a]	300 W	BC048A240T030FP
	2/3	32.0 Vdc	25.30 – 36.70 Vdc	300 W	BC048A320T030FP
	1	48.0 Vdc	38.00 – 55.00 Vdc	300 W	BC048A480T030FP
330 – 365 Vdc	1/32	11.0 Vdc	10.3 – 11.4 Vdc	240 W	BC352A110T024FP
330 – 365 Vdc	1/32	11.0 Vdc	10.3 – 11.4 Vdc	300 W	BC352A110T030FP
360 – 400 Vdc	1/32	12.0 Vdc	11.3 – 12.5 Vdc	300 W	BC384A120T030FP

Note: *See individual data sheets for additional model specifications and configurations.*

[a] *Vin = 38 – 53 Vdc*

Typical Application



VI BRICK DC-DC Converter

Web ExpressCode: vibdcdc

RoHS

VI BRICK DC-DC converters use advanced Sine Amplitude Converter (SAC) technology, thermally enhanced packaging technologies, and advanced CIM processes to provide high power density and efficiency, superior transient response, and improved thermal management. The high speed 3.5 MHz, zero-current switching / zero-voltage switching (ZCS / ZVS) design enables efficient and low noise operation throughout the entire operating range.

Features

- DC input range: 36 – 75 V
- Efficiency: Up to 93%
- DC output: 1 – 48 V
- Maximum operating temp: 100°C, full load
- Isolated output
- Low noise: Sine Amplitude Converter (SAC) technology
- Highly efficient: ZCS / ZVS switching
- Fast dynamic response
- Low profile: 0.37 in. (9.5 mm)
- Power density: Up to 145 W/in^3
- Lead free wave solder compatible
- Agency approvals

Part Numbering

Ordering, see back cover for contacts

D C	0 4 8	B	0 5 0	T	0 1 8	F	P
DC-DC Converter Module	**Input Voltage Designator**	**Package Size**	**Output Voltage Designator** (= VOUT X 10)	**Product Grade** Storage T –40 to 125°C M –65 to 125°C	**Temperatures** Operating –40 to 100°C –55 to 100°C	**Output Power Designator** (= POUT / 10)	**Baseplate** F = Slotted flange T = Transverse heat sink [a]	**Pin Style** P = Through hole

[a] *Contact factory*

Output Voltage	Output Power (W)	Current (A)	Efficiency (%)	Part Numbering
1.0 Vdc	100	100	85	DC048B010T010FP
1.5 Vdc	120	80	87	DC048B015T012FP
1.8 Vdc	144	80	89	DC048B018T014FP
2.5 Vdc	175	70	90	DC048B025T017FP
3.0 Vdc	180	60	91	DC048B030T018FP
3.3 Vdc	165	50	91	DC048B033T016FP
5 Vdc	180	36	91	DC048B050T018FP
10 Vdc	180	18	92	DC048B100T018FP
12 Vdc	220	18.33	92	DC048B120T022FP
15 vdc	200	13.33	92	DC048B150T020FP
24 Vdc	220	9.17	92	DC048B240T022FP
28 Vdc	190	6.79	92	DC048B280T019FP
48 Vdc	220	4.58	93	DC048B480T022FP

VI-200 & VI-J00 Series Converter Modules

Web ExpressCode: bricks1

RoHS

VI-200 and VI-J00 converters feature wide input voltage ranges, remote sense, enhanced output programmability, logic disable, and low quiescent current. VI-200 product series feature output overvoltage protection and thermal shut down. VI-J00 product series, at half the size of VI-200 converters, operate to 100˚C. Both product series are safety agency approved, accelerating your time to market.

Features

- Input voltage range: 10 – 400 Vdc
- Output voltages: 1 – 95 Vdc
- Output power (per module):
  VI-200 Series: 50 – 200 W • VI-J00 Series: 25 – 100 W
- Parallelable for higher power (VI-200)
- 3,000 Vrms isolation
- 100°C operation: (85°C for VI-200 Series)
- Output voltage trim range: 50 – 110%
- Efficiency: Up to 90%
- Agency approvals: cULus, cTÜVus, CE Marked
- Dimensions:
  VI-200 Series: 4.6" x 2.4" x 0.5"
  (116,9 x 61,0 x 12,7 mm)
  VI-J00 Series: 2.28" x 2.4" x 0.5"
  (57,9 x 61,0 x 12,7 mm)
- Weight:
  VI-200 Series: 6.0 oz / 170 g
  VI-J00 Series: 3.0 oz / 85 g
- Low-noise ZCS / ZVS
  power architecture
- 4 temperature grades

MIL-COTS Version Available
Page 35

Battery charging and packaging options
Page 23

General Performance

Refer to data sheet for detailed specifications

Parameter	C-, I-, M-Grade	E-Grade
Input voltage and output voltage	See chart on page 13	
Set point accuracy	0.5%	1.0%
Load / line regulation (max)	0.2%	0.5%
Output temperature drift	0.01%/°C	0.02%/°C
Peak-to-peak output ripple (max)	1.5%	3%
Trim range [a]	50 – 110%	50 – 110%
Total remote sense compensation	0.5 V	0.5 V
OVP set point (VI-200 Series only)	125%	125%
Current limit	105 – 125%	105 – 135%
Efficiency (output ≥5 V)	80 – 90%	78 – 88%
Power sharing accuracy (VI-200 Series only)	±5%	±5%
Input reflected ripple current	10%	10%
No-load power dissipation	1.35 W	1.35 W
Isolation		
Input to output	3,000 Vrms	3,000 Vrms
Input to baseplate	1,500 Vrms	1,500 Vrms
Output to baseplate	500 Vrms	500 Vrms
Max. baseplate temperature: VI-200 Series (VI-J00 Series)	85°C (100°C)	85°C (100°C)

[a] 10 V, 12 V and 15 V outputs, standard trim range ±10-%. Consult factory for wider trim range. 95 V outputs cannot be trimmed up.

Visit vicorpower.com & get your Design Guide

Part Number Configuration Chart VI-200 & VI-J00

Web ExpressCode: prodselect

IMPORTANT NOTICE: PLEASE READ BEFORE STARTING

The part numbering format below is for Vicor VI-200 and VI-J00 DC-DC converters and configurables. The power levels shown are the maximum available for every input and output voltage combination. If you need more power than a VI-200 ("driver"), add parallel "booster" modules (of the same power level). For lower power versions use PowerBench at vicorpower.com.

Configure your BRICK online with POWERBENCH
vicorpower.com/powerbench

V I - J 6 1 - C W

Family
- VI Non-RoHS
- VE RoHS

Series
- 2 200
- J J00
- B Booster

Input

0	12 V	N	48 V
V	24 V	4	72 V
1	24 V	T	110 V
W	24 V	5	150 V
2	36 V	6	300 V
3	48 V	7	150/300 V

Output

Z	2 V	M	10 V	K	40 V
Y	3.3 V	1	12 V	4	48 V
0	5 V	P	13.8 V	H	52 V
X	5.2 V	2	15 V	F	72 V
W	5.5 V	N	18.5 V	D	85 V
V	5.8 V	3	24 V	B	95 V
T	6.5 V	L	28 V		
R	7.5 V	J	36 V		

Grade
- E –10°C
- C –25°C
- I –40°C
- M –55°C

Power
- U 200 W
- V 150 W
- W 100 W
- X 75 W
- Y 50 W
- Z 25 W

Designators VI-200 & VI-J00 Family and Accessory Modules

Maximum Power available for VI-2(B)xx-xx
Output Voltages

Vin Designator	Input Voltage	2 Z	3.3 Y	5 0	5.2 X	5.5 W	5.8 V	6.5 T	7.5 R	10 M	12 1	13.8 P	15 2	18.5 N	24 3	28 L	36 J	40 K	48 4	52 H	72 F	85 D	95 B
0	12 (10-20)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
V	24 (10-36)	--	X	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	--	--	--	--
1	24 (21-32)	U	U	U	U	U	U	V	V	U	U	U	U	U	U	U	U	U	U	U	U	U	U
W	24 (18-36)	V	V	V	V	V	V	W	W	V	V	V	V	V	V	V	V	V	V	V	V	V	V
2	36 (21-56)	W	V	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	--	--	--
3	48 (42-60)	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
N	48 (36-76)	V	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
4	72 (55-100)	U	U	U	U	U	U	V	V	U	U	U	U	U	U	U	U	U	U	U	U	U	U
T	110 (66-160)	V	V	V	V	V	V	W	W	V	V	V	V	V	V	V	V	V	V	V	V	--	--
5	150 (100-200)	U	U	V	V	V	V	V	V	U	U	U	U	U	U	U	U	U	U	U	U	U	U
7	150 (100-375)	W	W	Y	Y	Y	Y	W	W	W	W	W	W	W	W	W	W	W	W	W	--	--	--
6	300 (200-400)	U	U	U	U	U	U	V	V	U	U	U	U	U	U	U	U	U	U	U	U	U	U

Maximum Power available for VI-Jxx-xx
Output Voltages

Vin Designator	Input Voltage	2 Z	3.3 Y	5 0	5.2 X	5.5 W	5.8 V	6.5 T	7.5 R	10 M	12 1	13.8 P	15 2	18.5 N	24 3	28 L	36 J	40 K	48 4	52 H	72 F	85 D	95 B
0	12 (10-20)	X	X	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X
V	24 (10-36)	--	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	--	--	--	--
1	24 (21-32)	W	W	W	W	W	W	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W
W	24 (18-36)	W	W	W	W	W	W	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W
2	36 (21-56)	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	--	--	--
3	48 (42-60)	W	W	W	W	W	W	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W
N	48 (36-76)	W	W	X	X	X	X	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W
4	72 (55-100)	W	W	W	W	W	W	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W
T	110 (66-160)	W	W	X	X	X	X	X	X	W	W	W	W	W	W	W	W	W	W	W	W	--	--
5	150 (100-200)	W	W	W	W	W	W	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W
7	150 (100-375)	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	--	--	--
6	300 (200-400)	W	W	W	W	W	W	X	X	W	W	W	W	W	W	W	W	W	W	W	W	W	W

*Note: See **Design Guide & Applications Manual** for VI-200 & VI-J00 Family, DC-DC Converters & Configurable Power Supplies*

Web ExpressCode: bricks2

Maxi, Mini, Micro Series Converter Modules

RoHS

Maxi, Mini, Micro Series DC-DC converter modules use advanced power processing, control, and packaging technologies to provide the performance, flexibility, and cost effectiveness expected of a mature power component. High-frequency ZCS / ZVS switching, advanced power semiconductor packaging, and thermal management provide high power density with low noise and high efficiency.

Features

- 24 V input: 18 – 36 Vdc
  28 V input: 10 – 36 Vdc
  48 V input: 36 – 75 Vdc
  72 V input: 43 – 110 Vdc
  110 V input: 66 – 154 Vdc
  150 V input: 100 – 200 Vdc
  300 V input: 180 – 375 Vdc
  375 V input: 250 – 425 Vdc
- 100°C, no derating
- High efficiency
- Low-noise ZCS / ZVS
- Up to 120 W/in^3
- 3,000 Vac isolation
- Single-wire paralleling
- Input undervoltage lockout
- Output overvoltage protection
- Overtemperature shut down
- Module fault alarm
- ZCS / ZVS power architecture
- Output voltage trim: 10 – 110%
- Bias supply to power external circuitry
- Logic enable / disable
- 5 temperature grades

Module Mounting & Interconnect Options

Page 50

MIL-COTS Version Available

Page 35

Configure your BRICK online with POWERBENCH

vicorpower.com/vdac

General Performance Refer to data sheet for detailed specifications

Parameter	Specifications	Notes
Set point accuracy	±1% Vout nom.	Nominal input; full load; 25°C
Line regulation	±0.02% Vout nom.	Low line to high line; full load
Load regulation	±0.02% Vout nom.	No load to full load; nominal input
Temperature regulation	±0.002% Vout/°C	–20 to 100°C (C-Grade)
Remote sense compensation	0.5 V	Maxi and Mini only
Overvoltage set point	115% Vout nom.	
Current limit	115% Iout typ.	Vout 95% of nominal
Short-circuit current	115% Iout typ.	Output voltage <250 mV
Efficiency	Up to 90%	Nominal input; 80% load; 25°C
Programming range	10 – 110% Vout nom.	
Isolation voltage	3,000 Vrms	Input to output
Dimensions		
Maxi full-brick	4.6" x 2.2" x 0.5" (117 x 55,9 x 12,7 mm)	Up to 600 W
Mini half-brick	2.28" x 2.2" x 0.5" (57,9 x 55,9 x 12,7 mm)	Up to 300 W
Micro quarter-brick	2.28" x 1.45" x 0.5" (57,9 x 36,8 x 12,7 mm)	Up to 150 W
Agency approvals	cULus, cTÜVus, CE Marked	

Design Guide & Applications Manual Maxi, Mini, Micro Family DC-DC Converters & Accessory Modules

- High density DC-DC converter technology
- Control pin functions & applications
- Design requirements
- EMC considerations
- Current sharing in power arrays
- Thermal performance information
- Filter / autoranging rectifiers
- Modular AC front-end system
- High Boost HAM
- Filter Input Attenuator Module
- MIL-COTS Filter Input Attenuator
- Output ripple attenuator

Visit vicorpower.com & get your Design Guide

Part Numbering Maxi, Mini & Micro Series Converters

Maxi example:
V24A48M400BN
24 Vin, Maxi, 48 Vout @ 400 W,
long ModuMate pins, slotted baseplate

Mini example:
V48B28C250BG
48 Vin, Mini, 28 Vout @ 250 W,
long RoHS pins, slotted baseplate

Micro example:
V375C24C150BG
375 Vin, Micro, 24 Vout @ 150 W,
long RoHS pins, slotted baseplate

V	48	A	48	C	500	B	L	

Input Voltage [a]

Package
A = Maxi
B = Mini
C = Micro

Output Voltage [a]

Product Grade
E = –10 to +100°C
C = –20 to +100°C
T = –40 to +100°C
H = –40 to +100°C
M = –55 to +100°C

Output Power

Pin Style
Blank = Short tin / lead
L = Long tin / lead
S = Short ModuMate
N = Long ModuMate
F = Short gold (RoHS)
G = Long gold (RoHS)

Baseplate
Blank = Slotted
2 = Threaded
3 = Through hole

[a] *Consult factory for other input / output / power models.*

Designators VI BRICK Family

Maximum Power available for Maxi (Full Brick)

Input Voltage	Output Voltages 2 V	3.3 V	5 V	8 V	12 V	15 V	24 V	28 V	32 V	36 V	48 V	54 V
24 (18-36)	--	264 W	400 W	300	400 W	400 W	400 W	400 W	--	400 W	400 W	--
28 (10-36)	--	150 W	175 W	--	200 W	200 W	200 W	200 W	--	200 W	200 W	--
48 (36-75)	--	264 W	400 W	--	500 W	500 W	500 W	500 W	--	500 W	500 W	--
72 (43-110)	--	264 W	300 W	--	400 W	400 W	400 W	400 W	--	400 W	400 W	--
110 (66-154)	--	200 W	300 W	--	400 W	400 W	400 W	400 W	--	400 W	400 W	--
150 (100-200)	--	264 W	400 W	400 W	500 W	500 W	500 W	500 W	--	500 W	500 W	--
300 (180-375)	160 W	264 W	400 W	400 W	500 W	500 W	500 W	500 W	--	500 W	500 W	--
375 (250-425)	160 W	264 W	400 W	400 W	600 W	600 W	600 W	600 W	600 W	600 W	600 W	600 W

Maximum Power available for Mini (Half Brick)

Input Voltage	Output Voltages 2 V	3.3 V	5 V	8 V	12 V	15 V	24 V	28 V	32 V	36 V	48 V	54 V
24 (18-36)	--	150 W	200 W	200 W	200 W	200 W	200 W	200 W	--	200 W	200 W	--
48 (36-75)	100 W	150 W	200 W	--	250 W	250 W	250 W	250 W	--	250 W	250 W	--
72 (43-110)	--	100 W	150 W	--	250 W	250 W	250 W	250 W	--	250 W	250 W	--
110 (66-154)	--	100 W	150 W	--	200 W	200 W	200 W	200 W	--	200 W	200 W	--
150 (100-200)	--	150 W	200 W	200 W	250 W	250 W	250 W	250 W	--	250 W	250 W	--
300 (180-375)	100 W	150 W	200 W	200 W	250 W	250 W	250 W	250 W	--	250 W	250 W	--
375 (250-425)	100 W	150 W	200 W	200 W	300 W	300 W	300 W	300 W	--	300 W	300 W	--

Maximum Power available for Micro (Quarter Brick)

Input Voltage	Output Voltages 2 V	3.3 V	5 V	8 V	12 V	15 V	24 V	28 V	32 V	36 V	48 V	54 V
24 (18-36)	--	75 W	100 W	100 W	100 W	100 W	100 W	100 W	--	100 W	100 W	--
48 (36-75)	50 W	75 W	100 W	--	150 W	150 W	150 W	150 W	--	150 W	150 W	--
72 (43-110)	--	75 W	100 W	--	150 W	150 W	150 W	150 W	--	150 W	150 W	--
110 (66-154)	--	50 W	75 W	--	100 W	100 W	100 W	100 W	--	100 W	100 W	--
150 (100-200)	--	75W	100 W	100 W	150 W	150 W	150 W	150 W	--	150 W	150 W	--
300 (180-375)	50 W	75 W	100 W	100 W	150 W	150 W	150 W	150 W	--	150 W	150 W	--
375 (250-425)	50 W	75 W	100 W	100 W	150 W	150 W	150 W	150 W	--	150 W	150 W	--

*See **Vicor PowerBench Online** for intermediate power modules and to customize a solution.*
*See **Data Sheet** for detailed electrical specifications and intermediate power modules.*

Cool-ORing™ Series Universal Active ORing Controllers

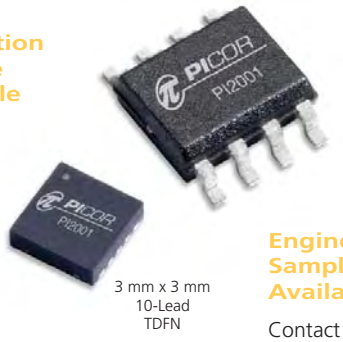
Web ExpressCode: oring

PI2001

RoHS

Production Release Schedule

Q2CY08



Engineering Samples Available Now

Contact Picor Marketing

The PI2001 *Cool-ORing* solution is a universal high-speed Active ORing controller IC designed for use with N-channel MOSFETs in redundant power system architectures. The PI2001 *Cool-ORing* controller enables an extremely low power loss solution with fast dynamic response to fault conditions, critical for high availability systems. The PI2001 controls single or parallel MOSFETs to address Active ORing applications protecting against power source failures. The PI2001 can be used in either high-side or low-side Active ORing applications and a master / slave feature allows the paralleling of IC / MOSFET chipsets for high current Active ORing.

The gate drive output turns the MOSFET on in normal steady state operation, while achieving high-speed turn-off during input power source fault conditions, which cause reverse current flow, with auto-reset once the fault clears. The MOSFET drain-to-source voltage is monitored to detect normal forward, excessive forward, light load and reverse current flow. The PI2001 provides an active-low fault flag output to the system during excessive forward current, reverse current, light load, overvoltage, undervoltage and overtemperature fault conditions. There is an internal shunt regulator at the VC input for high voltage applications and the undervoltage and overvoltage thresholds are programmable via external resistor dividers.

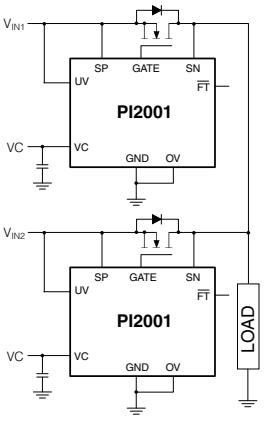
Features

- Fast dynamic response to power source failures, with 160 ns reverse current turn-off delay time
- 4 A gate discharge current
- Accurate MOSFET drain-to-source voltage sensing to indicate system level fault conditions
- Programmable under and overvoltage detection
- Overtemperature fault detection
- Adjustable reverse current blanking timer
- Withstands 100 V transients in low-side applications
- Master / Slave I/O for paralleling (TDFN package only)
- Active-low fault flag output

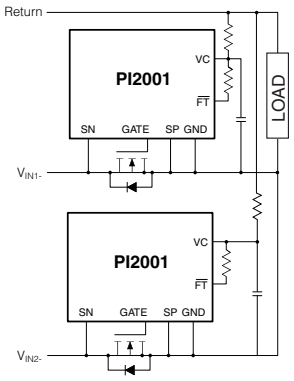
Part Numbering

Part Number	Package	Target Application	Bias Supply	MOSFET Gate Drive Voltage	MOSFET Gate Discharge Current	Turn-off Delay Time	Minimum Order Quantity
PI2001-00-QEIGR	3 mm x 3 mm 10 Lead TDFN	Universal Low Voltage Up to 100 V (low side)	4.5 V – 13.2 V	8.5 V – 10.5 V	4 A (typ)	160 ns (typ.)	3 kpcs (T+R)
PI2001-00-QEIGS							10 pcs (T+R)
PI2001-00-SOIGR	8 Lead SOIC						3 kpcs (T+R)
PI2001-00-SOIGS							10 pcs (T+R)
Evaluation Boards							
PI2001-EVAL1	PI2001 Evaluation Board using 3 mm x 3 mm TDFN package and SO-8 MOSFET in high-side configuration. (pg. 47)						

Typical Application

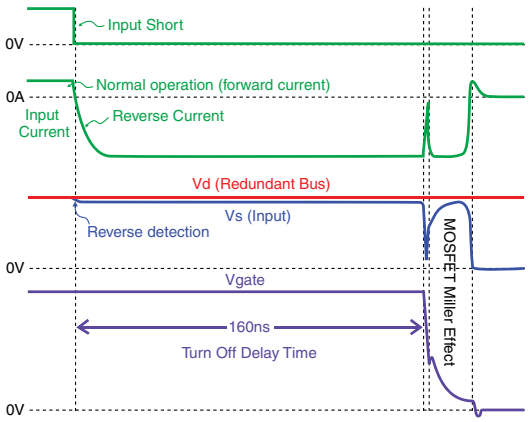


High-side Active ORing



Low-side Active ORing

PI2001 performance



Typical dynamic response of the PI2001 to an input power source short circuit fault condition

Cool-ORing™ Series Full-Function Active ORing Solutions

PI2121 / PI2123 / PI2125

Web ExpressCode: oring2

The *Cool-ORing* PI2121/3/5 are complete full-function Active ORing solutions with a high-speed ORing MOSFET controller and a very low on-state resistance MOSFET designed for use in redundant power system architectures. The PI2121/3/5 *Cool-ORing* solutions are offered in an extremely small, thermally enhanced 5 mm x 7 mm LGA package and can be used in low voltage (≤5 V bus, ≤9.6 V bus and ≤12 V bus respectively) high side Active ORing applications. The PI2121/3/5 enable extremely low power loss with fast dynamic response to fault conditions, critical for high-availability systems. A master / slave feature allows the paralleling of PI2121/3/5 solutions for high-current, Active ORing requirements.

The PI2121/3/5 provide very high efficiency and low power loss during steady state operation, while achieving high-speed turn-off of the internal MOSFET during input power source fault conditions, which cause reverse current flow. The PI2121/3/5 provide an active low fault flag output to the system during excessive forward current, light load, reverse current, overvoltage, undervoltage and overtemperature fault conditions.
A temperature sensing function indicates a fault if the maximum junction temperature exceeds 160°C. The undervoltage and overvoltage thresholds are programmable via an external resistor divider.

5 mm x 7 mm x 2 mm
17-Lead Thermally Enhanced LGA

RoHS

Production Release Schedule

Q2CY08

Engineering Samples Available Now

Contact Picor Marketing

Features

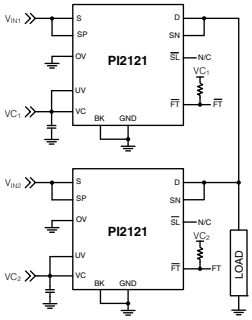
- Combines a high-speed ORing MOSFET controller and low on-state resistance MOSFET
- Integrated high-performance MOSFET
  PI2121: 8 V, 24 A, 1.5 mΩ
  PI2123: 15 V, 15 A, 3 mΩ
  PI2125: 30 V, 12 A, 5.5 mΩ
- Very small, high density fully optimized solution
- Fast dynamic response to power source failures, with 160 ns reverse current turn-off delay time
- Accurate sensing capability to indicate system fault conditions
- Programmable under and overvoltage functions
- Overtemperature fault detection
- Adjustable reverse current blanking timer
- Master / Slave I/O for paralleling
- Active-low fault flag output

Part Numbering

Part Number	Package	Voltage Rating	Current Handling	Target Application	Internal MOSFET On-State Resistance	Bias Supply	Turn-off Delay Time	Minimum Order Quantity
PI2121-00-LGIZR	5x7 mm 17-pin LGA	8 V (max)	24 A (max)	≤5 V Bus	1.5 mΩ (typ)	4.5 V – 13.2 V	160 ns (typ.)	3 kpcs (T+R)
PI2121-00-LGIZS								10 pcs (T+R)
PI2123-00-LGIZR		15 V (max)	15 A (max)	≤9.6 V Bus	3 mΩ (typ)			3 kpcs (T+R)
PI2123-00-LGIZS								10 pcs (T+R)
PI2125-00-LGIZR		30 V (max)	12 A (max)	≤12 V Bus	5.5 mΩ (typ)			3 kpcs (T+R)
PI2125-00-LGIZS								10 pcs (T+R)
Evaluation Boards								
PI2121-EVAL1	PI2121 Evaluation Board configured for a high-side ground referenced application. (pg. 47)							
PI2125-EVAL2	PI2125 Evaluation Board configured for a high-side floating application. (pg. 47)							

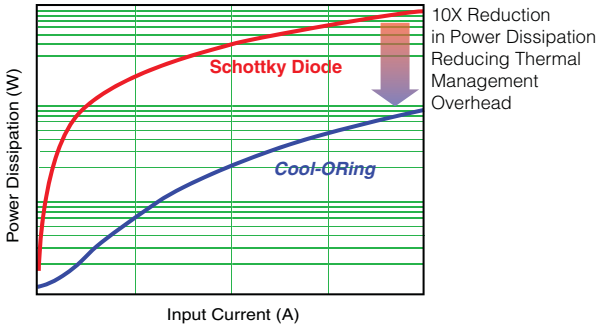
Note: *Both PI2121-EVAL1 and PI2125-EVAL2 are compatible with the PI2123 solution.*

Typical Application



PI2121: High-side Active ORing

PI2121 / PI2123 / PI2125 performance



Power Dissipation comparison between Picor's Cool-ORing solutions versus industry standard Schottky diode solutions

HAM Input Harmonic Attenuator Module

Web ExpressCode: ham

RoHS

The Harmonic Attenuator Module (HAM) accepts an input of 85 – 264 Vac. The "M" version provides a DC output compatible with Vicor's 26x, J6x and user-defined Maxi, Mini and Micro DC-DC converters. The "L" version is compatible with V375 series DC-DC converters. The combination of a HAM, one or more Vicor DC-DC converters, and the 30205 line filter, listed on Page 51, offers a high-density power solution meeting EN61000-3-2.

Features

- Power output: Up to 675 W
- Input: 85 – 264 Vac
- Meets EN61000-3-2
- 0.99 Power Factor
- Short-circuit protection
- High efficiency
- Input-surge limiting
- Dimensions:
  4.6" x 2.4" x 0.5"
  (117 x 61,0 x 12,7 mm)
- cULus, cTÜVus, CE Marked

Part Numbering

Ordering, see back cover for contacts

V I - H A M - C L

Family	Product Types	Product Grade	Output Power
VI = Non-RoHS VE = RoHS	HAM = Driver HAM HAMD = Driver HAM for use with the BAMD BAMD = Booster HAM	E = –10 to +85°C C = –25 to +85°C I = –40 to +85°C M = –55 to +85°C	M = 600 W L = 675 W [a]

Note: *If power requirements exceed the capability of one HAM, use a HAMD and one or more BAMDs, with an external bridge rectifier. HAM, HAMD, and BAMD modules require three surge suppressors in series directly across the input. These surge suppressors are already contained in the EMI filter P/N 30205. Also, use a 10 A, 3AG fast-blow fuse ahead of the line filter.*

[a] Compatible with V375 Maxi, Mini, Micro Series

General Performance

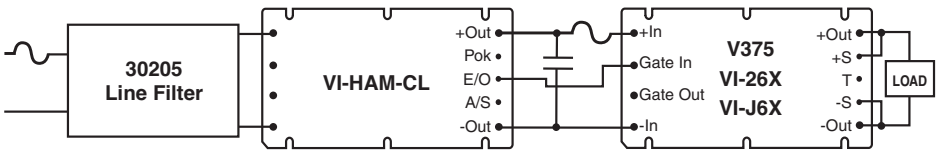
Refer to data sheet for detailed specifications

Parameter	Specifications	Notes
AC line input	85 – 264 Vac	Continuous operation
	47 – 63 Hz	
Output power	Up to 675 W	
Efficiency	92%	
Power factor	0.99	
Total harmonic distortion [b]	<8.5%	
Output ripple	7 Vp-p	Cout = 1000 µF, 600 W
Inrush current	20 A peak	No external circuitry
Hold-up capacitance	500 – 3,000 µF	Power dependent
Isolation voltage		
Input to output	None	Provided by DC-DC converters
Input / output to baseplate	1,500 Vrms	
Auxiliary output	19 – 23 Vdc @ ≤3 mA	
Thermal shut down	90 to 100°C baseplate	
Short-circuit protection	Yes	
Weight	6 oz (170 g)	

[b] With sinusoidal input voltage ITHD – VTHD = THD

Typical Configuration

Not for design use; see data sheet for more information



Web ExpressCode: pfcfrontend

PFC FrontEnd 375 V Output

RoHS

The PFC FrontEnd from Westcor is a low-profile, 1 RU enclosed chassis-mount AC front end that may be used with any 375 Vin Vicor module, VIPAC Array, BCM, or other module to create a complete, high-density AC-DC power supply. Accepting universal input voltages of 85 – 264 Vac, and 100 – 380 Vdc, the PFC FrontEnd can deliver up to 2,200 Watts from four non-isolated outputs. With an extremely compact package size of 1.72"x 6.4"x 7" (43,6 x 162,6 x 177,8 mm), the PFC FrontEnd can provide >28 W/in^3.

Besides meeting the cTÜVus and CE Marked safety agency approvals, the PFC FrontEnd complies with harmonic current limits per EN61000-3-2, Electrical Fast Transient / burst EN61000-4-5. It also meets MIL-STD-810E for vibration.

VICOR Westcor Division

Part Number

FE375

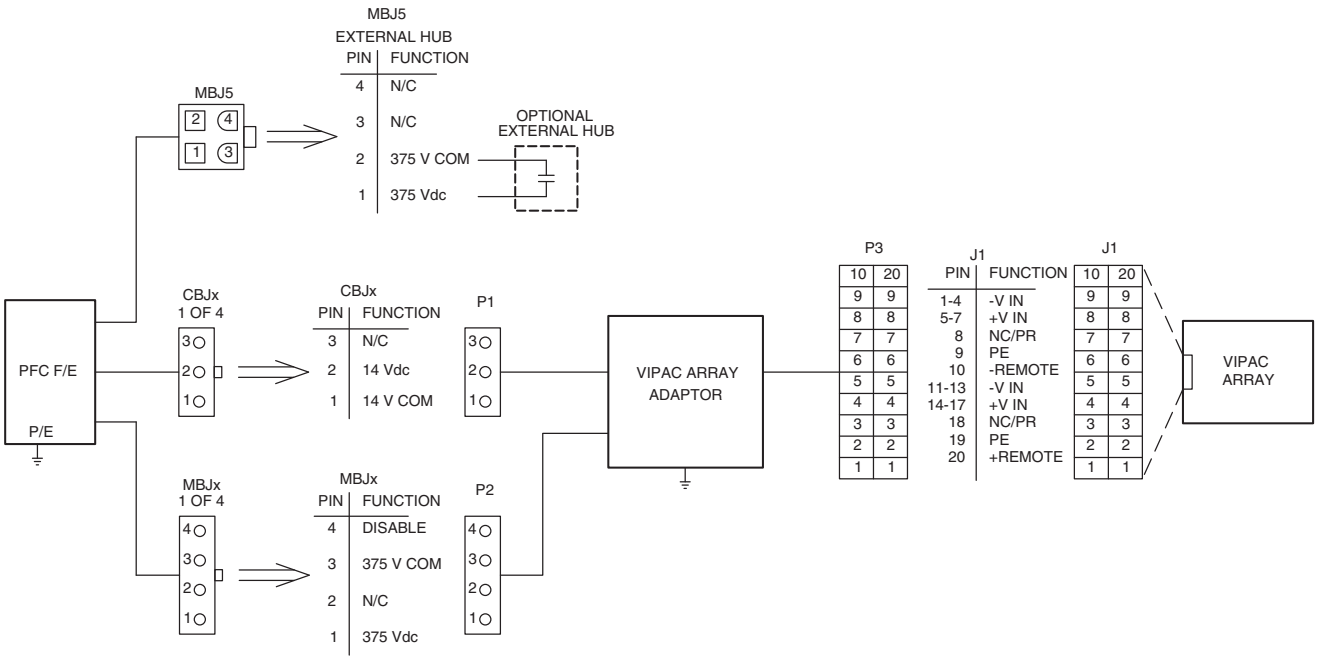
Features

- Power Factor Corrected (PFC)
- Low profile: 1.72" (43,6 mm)
- Output power: Up to 2,200 Watts
- High power density
- Up to four 375 Vdc non-isolated outputs
- Integral cooling fans
- Meets MIL-STD-810E for vibration
- DIN rail mountable
- Safety agency approvals: cTÜVus, CE Marked

General Performance Refer to data sheet for detailed specifications

Product	Dimensions	Input Power	Output Power	Number of Outputs
PFC FrontEnd	1.72" x 6.4" x 7" (43,6 x 162,6 x 177,8 mm)	85 – 264 Vac 47 – 500 Hz	2,200 W @ 230 Vac	4 (non-isolated)
		100 – 380 Vdc	1,100 W @ 115 Vac	

Typical Configuration With VIPAC Array; see data sheet for more information



Web ExpressCode: aim

AIM AC Input Module

RoHS

The AIM (Alternating Input Module) is an AC front-end module which interfaces directly with worldwide AC mains. The AIM provides line rectification, EMI/RFI filtering, transient protection, and inrush limiting in a half-brick package measuring 2.28" x 2.4" x 0.5"(57,9 x 61,0 x 12,7 mm).

The AIM is used in conjunction with Vicor VI-200 or VI-J00 DC-DC converters to realize a universal AC input, high-density, low-profile switching power supply with outputs from 1 – 95 Vdc and a total power rating up to 200 W. An external capacitor is used to satisfy system hold-up requirements. Internal EMI filtering meets EN55022 and FCC Part 15, Class A emissions limits.

MIL-COTS Version Available

Page 35

Features

- Universal input: 85 – 264 Vac
- Output power: 250 W
- Operating temperature up to 100˚C baseplate (no derating)
- Efficiency: 97%
- Integral EMI filtering
- Input transient protection
- Inrush limiting
- cULus, cTÜVus, CE Marked

Part Numbering

Ordering, see back cover for contacts

V I - A I M - E 1

Family	Product	Product Grade	AC Input Module
VI = Non-RoHS VE = RoHS		E = –10°C to +85°C C = –25°C to +85°C I = –40°C to +85°C M = –55°C to +85°C	

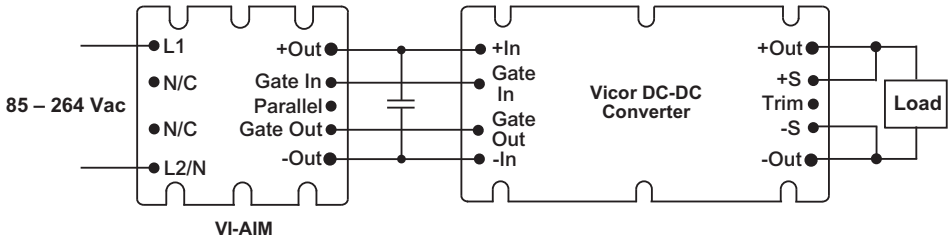
General Performance

Refer to data sheet for detailed specifications

Parameter	Specifications	Notes
AC line input	85 – 264 Vac	No strapping
	47 – 440 Hz	No damage below low line
Output power	Up to 250 W	
Efficiency	97%	
Power factor	0.62	
Inrush current	<40 A peak	No external circuitry
Hold-up capacitance	270 – 1,200 µF	Power dependent
Isolation voltage		
Input to output	None	Provided by DC-DC converters
Input / output to baseplate	1,500 Vrms	
Short-circuit protection	No	
Weight	3 oz (85 g)	

Typical Configuration

Not for design use; see data sheet for more information



Autoranging Rectifier Module ARM

Web ExpressCode: arm

RoHS

The Autoranging Rectifier Module (ARM) is the front end of a switching power supply and uses a microprocessor to control strapping of the voltage doubler. The user only needs to add an input filter, hold-up capacitor and appropriate DC-DC converters to realize an autoranging, high-density, low-profile switching power supply.

Features

- Efficiency: 96 – 98%
- Operating temperature: Up to 100˚C baseplate (no derating)
- Agency approvals: cTÜVus, cULus, CE Marked
- AC Bus OK, module enable
- Inrush limiting (no external circuitry)
- Autoranging input: 90 – 132 / 180 – 264 Vac

Part Numbering

Ordering, see back cover for contacts

V I - A R M B - C 1 2

Product		Product Grade	Type	Pin Style
	Blank = 500 W / 750 W [a] B = 750 W / 1,500 W [b]	E = –10 to +100°C C = –20 to +100°C T = –40 to +100°C [c] H = –40 to +100°C [c] M = –55 to +100°C	1 = 500 W / 750 W 2 = 750 W / 1,500 W	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS

*[a] Valid combination with **Type 1** only*
*[b] Valid combination with **Type 2** only*
[c] T-Grade storage temp. is –40°C; H-Grade storage temp. is –55°C

Filter / Autoranging Rectifier Module FARM

Web ExpressCode: farm

RoHS

The FARM (Filter / Autoranging Rectifier Module) is an AC front-end module which provides EMI filtering, autoranging line rectification, transient protection, and inrush current limiting.

Part Numbering

Ordering, see back cover for contacts

F A R M - 1 C 1 1

Product	Type	Product Grade	Pin Style	Baseplate
	1 = 500 W / 750 W 2 = 750 W / 1,000 W	E = –10 to +100°C C = –20 to +100°C T = –40 to +100°C [d] H = –40 to +100°C [d]	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Through hole

[d] T-Grade storage temp. is –40°C; H-Grade storage temp. is –55°C

General Performance for ARM & FARM

Refer to data sheet for detailed specifications

Parameter	ARM-( )12	ARMB-( )22	FARM1( )21	FARM2( )21
Input voltage	90 – 132 Vac 180 – 264 Vac		90 – 132 Vac 180 – 264 Vac	
Input frequency (C & E-Grade)	47 – 63 Hz		47 – 63 Hz	
Input frequency (T & H-Grade)	47 – 880 Hz		47 – 880 Hz	
Output power				
115 Vac input	500 Watts	750 Watts	500 Watts	750 Watts
230 Vac input	750 Watts	1,500 Watts	750 Watts	1,000 Watts
Compatible DC-DC converter	26x, J6x, V300		26x, J6x, V300	
Efficiency (typical)	97%		96%	
Inrush current (peak line. Cold start)	<30 A @ 264 Vac	<60 A @264 Vac	<30 A @ 264 Vac	<60 A @264 Vac
Dielectric withstand: Input / output	Provided by DC-DC converters		Provided by DC-DC converters	
I/O to baseplate	1,500 Vrms		1,500 Vrms	
Package	Micro		Mini	
Dimensions	2.28" x 1.45" x 0.5" (57,9 x 36,8 x 12,7 mm)		2.28" x 2.2" x 0.5" (57,9 x 55,9 x 12,7 mm)	
Operating temperature (C-Grade)	–20 to +100°C		–20 to +100°C	
Operating temperature (T-Grade)	–40 to +100°C		–40 to +100°C	
Weight	2.1 oz (60 g)		3.1 oz (87.9 g)	

ENMods Modular AC Front-end System

Web ExpressCode: enmods

RoHS

The ENMod system is an AC front-end solution providing compliance to electromagnetic compatibility (EMC) standards. It consists of the MiniHAM passive harmonic attenuation module and the FARM3 autoranging AC-DC front-end module. Combined with filtering and hold-up capacitors, the ENMod system provides full compliance to EN61000-3-2 Harmonic Current, EN55022, Level B Conducted Emissions, EN61000-4-5 Surge Immunity, EN61000-4-11 Line Disturbances, and EN61000-3-3 Inrush Current. Unlike active PFC solutions, the MiniHAM generates no EMI, greatly simplifying and reducing system noise filtering requirements. It is also smaller and more efficient than active alternatives. Optimized for operation on the DC bus (provided by the FARM3) rather than directly on the AC line, it will provide harmonic current compliance at up to 600 W of input power at 230 Vac.

The FARM3 is a filter and autoranging module that has been optimized for use as the front end for the MiniHAM. Both modules are in Vicor's standard Mini half-brick package.

Features

- Passive harmonic current attenuation to EN61000-3-2
- 575 W rated power output
- Autoranging 115/230 Vac Input
- Inrush current limiting

Part Numbering

Ordering, see back cover for contacts

E N 1 C 1 1

Product Type [a]	Product Grade (°C)	Pin Style [b]	Baseplate
	E = –10 to +100 C = –20 to +100 T = –40 to +100 [c] H = –40 to +100 [c]	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Through hole

[a] EN1 product includes one each MiniHAM and FARM3, same product grade, pin and baseplate style.
[b] Pin styles S & N are compatible with ModuMate interconnect systems for socketing and surface mounting.
[c] T-Grade storage temp. is –40°C; H-Grade storage temp. is –55°C

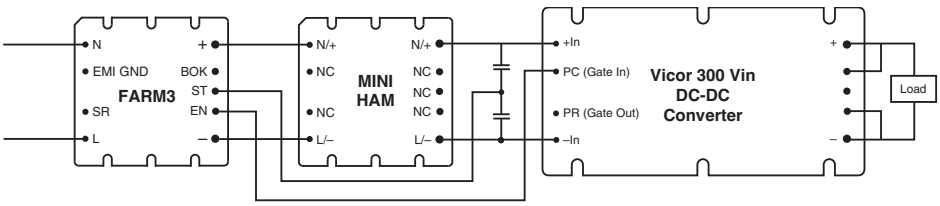
General Performance

Refer to data sheet for detailed specifications

Parameter	Specification	Notes
Operating input voltage	90 – 132 Vac	Autoranging (doubler-mode)
	180 – 264 Vac	Autoranging (bridge-mode)
Output power (max)	575 Watts	
Harmonic currents	EN61000-3-2	50 – 600 W, 230 Vac input
Transient surge immunity	EN61000-4-5	2 kV – 50 µs line to earth
		1 kV – 50 µs line to line
Conducted emissions	EN55022, Class B	
Safety	EN60950	
Dimensions		
MiniHAM	2.28" x 2.2" x 0.5" (57,9 x 55,9 x 12,7 mm)	
FARM3	2.28" x 2.2" x 0.5" (57,9 x 55,9 x 12,7 mm)	

Typical Configuration

Not for design use; see data sheet for more information



BatMod Battery Charger

Web ExpressCode: batmod

RoHS

The fully-programmable BatMod current source module is based on the VI-200 Series of DC-DC converters. It accepts 48, 150, or 300 V inputs, provides programmable output current, and is well-suited for such applications as battery chargers, metal platers, and laser diodes. The BatMod is compatible with all major battery types, and is available in booster versions for higher output current applications.

Features

- Input voltages: 48, 150 or 300 V
- Programmable output current
- Booster versions for higher output current applications
- Agency approvals: cULus, cTÜVus, CE Marked
- Dimensions: 4.6" x 2.4" x 0.5" (116,9 x 61,0 x 12,7 mm)

Part Numbering

Ordering, see back cover for contacts

V I - 2 6 1 - E U - B M

Family	Module	Input Voltage		Output Voltage		Product Grade
		Nominal	Range	Nominal	Range	
VI = Non-RoHS	2 = Driver	3 = 48 V	42 – 60 V	1 = 12 V	11.25 – 16.5 V	E = –10 to +85°C
VE = RoHS	B = Booster	5 = 150 V	100 – 200 V	3 = 24 V [a]	22.5 – 33.0 V	C = –25 to +85°C
		6 = 300 V	200 – 400 V	4 = 48 V	45.0 – 66.0 V	I = –40 to +85°C
						M = –55 to +85°C

[a] Available in 300 V input only.

Packaging Options

Chassis-mount housing VI-200 & VI-J00 Series, page 33

SlimMod

Flangeless package

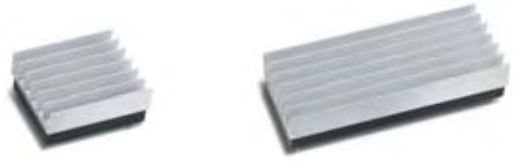
2.28"L x 1.80"W x 0.50"H
(57,9 x 45,7 x 12,7 mm)

4.60"L x 1.80"W x 0.50"H
(116,8 x 45,7 x 12,7 mm)

To order the SlimMod configuration add the suffix "–S" to the standard module part number as shown on Page 13.

FinMod

Flangeless package with integral heat sink



Longitudinal, 0.25" fins — add suffix "–F1"
Longitudinal, 0.50" fins — add suffix "–F2"

Transverse, 0.25" fins — add suffix "–F3"
Transverse, 0.50" fins — add suffix "–F4"

Available with longitudinal or transverse fins of 0.25" or 0.50" height. Add the appropriate suffix to the module part number as shown on Page 13.

BusMod

Chassis mount housing with screw / lug wiring interface

2.28"L x 2.40"W x 1.08"H
(57,9 x 61,0 x 27,4 mm)

4.60"L x 2.40"W x 1.08"H
(116,8 x 61,0 x 27,4 mm)

To order the BusMod fully assembled, add suffix "–B1" to the standard module part number as shown on Page 13.

To order the BusMod separately:
Half-sized BusMod — P/N 18952
Full-sized BusMod — P/N 06322

FIAM Filter Input Attenuator Module

Web ExpressCode: fiam

RoHS

A DC input, front-end module providing transient protection, inrush current limiting and EMI filtering. The FIAM enables designers using Vicor Maxi, Mini, and Micro 48 Vin DC-DC converters to meet the transient immunity and EMI requirements of Telcordia, FCC, ETSI and European Norms.

Features

- EMI filtering - Class A
- Inrush current limiting
- Transient protection
- Input: 36 – 76 Vdc
- 10 and 20 Amp versions
- Agency approvals: cULus, cTÜVus, CE Marked

MIL-COTS Version Available

Page 36

General Performance Not for design use; see data sheet

Parameter	Specification
Input voltage	36 – 76 Vdc
Output current	
FIAM1xxx / FIAM2xxx	10 A / 20 A
Inrush limiting	0.014 Amp/µF
EMI / RFI	Telcordia GR-1089-Core Issue 2, EN55022, Class A, FCC Part 15, Class B
Transient immunity	Telcordia GR-499-Core, Section 13-2, ETS 300 386-1, Class 2
Mini package dimensions	2.28" x 2.2" x 0.5" (57,9 x 55,9 x 12,7 mm)

Part Numbering Ordering, see back cover for contacts

F I A M	1	C	1	1

Product	Type	Product Grade	Pin Style	Baseplate
	1 = 10 A 2 = 20 A	C = –20 to +100°C T = –40 to +100°C [a] H = –40 to +100°C [a]	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Through hole

[a] T-Grade storage temp. is –40°C; H-Grade storage temp. is –55°C

Input Attenuator Module IAM

Web ExpressCode: iam

RoHS

The IAM provides EMI filtering and transient protection for industrial and communications applications, using VI-200 and VI-J00 Series modules.

Features

- Meets Telcordia & British Telecom standards for EMI/RFI
- Meets Telcordia, IEC and British Telecom standards for transients
- Agency approvals: cULus, cTÜVus, CE Marked
- Efficiency: 97%
- Input reverse polarity protection
- Dimensions: 2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7 mm)

MIL-COTS Version Available

Page 36

IAM Models & General Performance

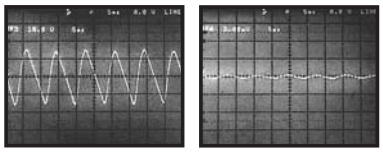
Model	Input Voltage Min.	Input Voltage Typ.	Input Voltage Max.	Output Power
VI-A11-CU	21 Vdc	24 Vdc	32 Vdc	200 W
VI-AWW-CU	18 Vdc	24 Vdc	36 Vdc	200 W
VI-A33-CQ	42 Vdc	48 Vdc	60 Vdc	400 W
VI-ANN-CQ	36 Vdc	48 Vdc	76 Vdc	400 W
VI-A66-CQ	200 Vdc	300 Vdc	400 Vdc	400 W

RoHS compliant versions begin with "VE-". For example: VE-A33-CQ

RAM Ripple Attenuator Module

Web ExpressCode: ram

Combining active and passive filtering, the RAM attenuates both low-frequency input power source fundamental and harmonics, and high-frequency switching components in the frequency range of DC to 20 MHz, while exhibiting efficiencies of 93 – 99%. No adjustments are required, and remote sense and output voltage trim features are retained.

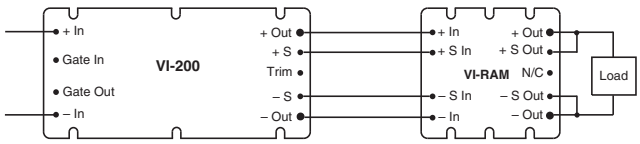


Input to VI-RAM | Low Noise Output

Features

- Reduces output ripple to <3 mV pp (VI-200)
- Compatible with VI-200 / VI-J00 based products: 5 – 50 Vdc output
- Full attenuation up to 20 A
- No adjustments required
- Efficiency: 93 – 99%
- Converter sense, trim, overvoltage, and overcurrent retained
- Dimensions: 2.28" x 2.4" x 0.5" (57,9 x 61,0 x 12,7 mm)
- CE Marked

Typical Configuration Not for design use; see data sheet



Part Numbering Ordering, see back cover for contacts

V I - R A M - C 2

Family	Product	Product Grade	Type
VI = Non-RoHS VE = RoHS		E = –10 to +100°C C = –25 to +100°C I = –40 to +100°C M = –55 to +100°C	1 = Up to 10 Amps 2 = Up to 20 Amps

Output Ripple Attenuator Module MicroRAM

Web ExpressCode: uram

RoHS

Combines both active and passive filtering to achieve greater than 40 dB of noise attenuation from 60 Hz to 1 MHz.

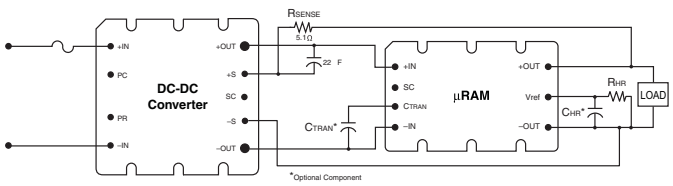
MIL-COTS Version Available

Page 36

Features

- Integrated ORing diode supports N+1 redundancy
- >40 dB ripple attenuation from 60 Hz to 1 MHz
- Significantly improves load transient response
- Reduces ripple to less than 10 mV peak to peak
- Efficiency: Up to 98%
- 20 and 30 Amp ratings
- 3 – 30 Vdc input range
- Dimensions: 2.28" x 1.45" x 0.5" (57,9 x 36,8 x 12,7 mm)
- Compatible with Vicor's DC-DC converters

Typical Configuration Not for design use; see data sheet



Part Numbering Ordering, see back cover for contacts

µ R A M 2 C 2 1

Product	Type	Product Grade (°C)	Pin Style	Baseplate
	2 = 20 Amps 3 = 30 Amps	C = –20 to +100 T = –40 to +100[a] H = –40 to +100[a] M = –55 to +100	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Through hole

[a] *T-Grade storage temp. is –40°C; H-Grade storage temp. is –55°C*

Active Filters QPI Family

QPI-3LZ through QPI-12LZ Active EMI Filters

Web ExpressCode: qpi

RoHS

The QPI family of active EMI filters provides conducted common-mode (CM) and differential-mode (DM) attenuation from 150 kHz to 30 MHz (CISPR22 range). The proprietary active filtering circuit provides superior attenuation at low frequencies intended to support EN Class B limits, including PICMG® 3.0 for ATCA.

Models QPI-3LZ through QPI-8LZ are designed to work with most switch-mode power supplies. The QPI-9LZ through QPI-12LZ products are designed specifically for use with Vicor's V•I Chip power conversion products.

Full-size QPI models are 25 x 25 x 4,5 mm SiP (System-in-Package), with LGA mounting. QPI-11LZ and QPI-12LZ are half size 12,5 x 25 x 4,5 mm SiPs.

Patents Pending

AdvancedTCA®

Features

- 24/28 V and 48/60 V models
- Efficiency: >99% at full load
- High density, low profile surface mount LGA package
- Integrated Hot-Swap in selected models
- Supports PICMG® 3.0 ATCA requirements
- Compatible with most DC-DC converters
- –40°C to +100°C PCB temperature
- TÜV approved

QPI Evaluation Boards Available pg. 47

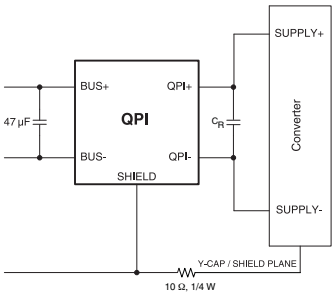
For more information, go to picorpower.com

Part Numbering

Part Number	Input Voltage	Nominal Range	Current Rating	CM Attenuation @ 250 kHz	DM Attenuation @ 250 kHz	Hipot	Hot-Swap
QPI-3LZ	24/28 Vdc	10 – 40 Vdc	7 A	60 dB	80 dB	707 Vdc	N/A
QPI-4LZ	48/60 Vdc	30 – 80 Vdc	7 A	40 dB	70 dB	1,500 Vdc	N/A
QPI-5LZ	24/28 Vdc	10 – 40 Vdc	14 A	60 dB	80 dB	707 Vdc	N/A
QPI-6LZ	48/60 Vdc	30 – 80 Vdc	14 A	40 dB	80 dB	1,500 Vdc	N/A
QPI-7LZ	24/28 Vdc	18 – 38 Vdc	6 A	50 dB	80 dB	707 Vdc	Yes
QPI-8LZ	48/60 Vdc	32 – 76 Vdc	6 A	40 dB	70 dB	1,500 Vdc	Yes
V•I Chip Specific Models				**@ 1 MHz**	**@ 1 MHz**		
QPI-9LZ	24/28 Vdc	18 – 38 Vdc	6 A	65 dB	80 dB	707 Vdc	Yes
QPI-10LZ	48/60 Vdc	32 – 76 Vdc	6 A	45 dB	70 dB	1,500 Vdc	Yes
QPI-11LZ	24/28 Vdc	5 – 50 Vdc	7 A [a]	65 dB	80 dB	707 Vdc	N/A
QPI-12LZ	48/60 Vdc	10 – 80 Vdc	7 A [a]	45 dB	70 dB	1,500 Vdc	N/A

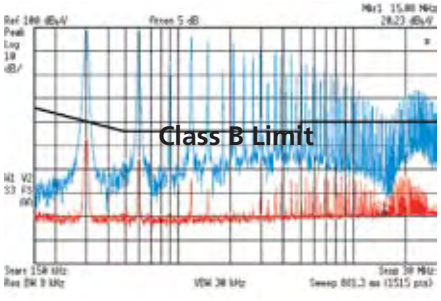
[a] *Parallelable for up to 14 A.*

Typical Configuration Not for design use; see data sheet



Models QPI-3LZ through QPI-8LZ

Performance



Conducted EMI scans showing QPI performance. Blue trace = no QPI; Red trace = with QPI.

Active Filters QPO Family

QPO-1LZ / QPO-2LZ Output Ripple Attenuator

Web ExpressCode: qpo

RoHS

The QPO output ripple attenuator products use proprietary active filtering to reduce power supply output ripple and noise (PARD) over 30 dB from 1 kHz to 500 kHz. QPOs improve transient response and ensure quiet point-of-load regulation. They also reduce the number of output capacitors to support dynamic loads. QPOs work with most DC-DC converters and switching power supplies. Output regulation is maintained using remote sensing or the trim input of the power supply.

Patents Pending

QPO Evaluation Boards Available pg. 47

For more information, go to picorpower.com

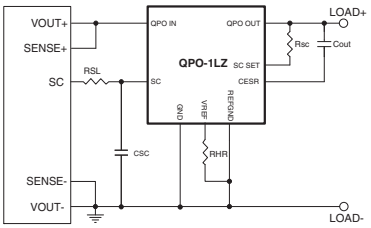
Features

- >30 dB PARD attenuation, 1 kHz to 500 kHz
- Supports precise point-of-load regulation
- Up to 99% efficient
- High density, low profile LGA package
- Reduces required number of output capacitors to support dynamic loads
- User selectable optimization of attenuation, power dissipation, and transient load response
- Compatible with most DC-DC converters

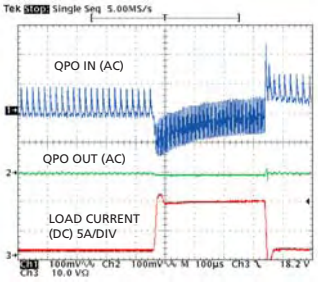
Part Numbering

Part Number	Input Voltage	Current Rating	Attenuation
QPO-1LZ	3 – 30 Vdc	10 A	> 30 dB PARD attenuation, 1 kHz to 500 kHz
QPO-2LZ	0.3 – 5.5 Vdc	20 A	> 20 dB PARD attenuation, 1 kHz to 500 kHz, Aux. Bus biased

Typical Application



Performance



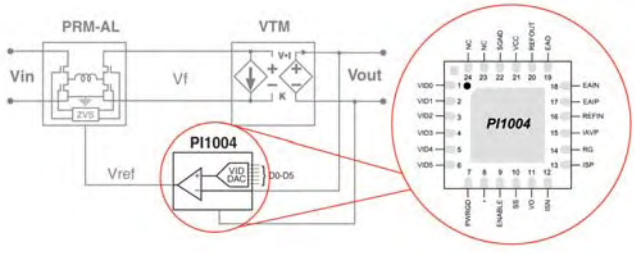
Web ExpressCode: polc

Programmable POL Controller PI1004-X

Picor's PI1004 combines a VID-controlled reference with control and supervisory functions to accurately set the regulator output voltage at the point of load for isolated and CPU DC-DC converters in desktop and server applications. The PI1004 feature set is intended to be used in conjunction with a variety of power architectures, including Factorized Power Architecture (FPA), to provide CPU power in accordance with Intel® VR10.X requirements. The PI1004 is available in two options, PI1004-1: Programmable VID offset current and no OVP output. PI1004-2: OVP output and no VID offset.

Features

- 0.5% initial output voltage accuracy
- Remote differential output voltage sense
- 6 Bit DAC, with 12.5 mV resolution
- 5 – 12 V operation
- Power good output with blanking
- Programmable adaptive voltage positioning (AVP)
- 24 pin, 4 x 4 mm QFN



FlatPAC Family 50 – 600 Watt Power System

Web ExpressCode: flatpac

RoHS

The FlatPAC is a complete, low-profile, agency-approved switching power supply. It combines Vicor's VI-200 Series of DC-DC converters and front-end subassemblies to provide from 50 – 600 W of output power from one to three outputs.

The FlatPAC design provides rapid turnaround on standard models. FlatPAC is available with BatMod current source module, Page 23.

Features

- Microprocessor-controlled front end
- Inputs: 115/230 Vac, autoranging
- FCC Part 15, Class B, EN55022, Class B
- 40 ms hold up
- Agency approvals: cULus, cTÜVus, CE Marked
- Module disable
- BUS OK and AC OK
- Finned or conduction-cooled package
- 22 Standard output voltages from 1 – 95 Vdc
- Low-noise ZCS / ZVS power topology
- Transient surge: EN61000-4-5
- Low profile only 1.37" (34,7 mm)
- Custom output voltages also available
- BatMod current-source option available

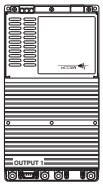
General Performance Refer to data sheet for specifications

Parameter	Specification
Number of outputs	1 to 3
Output power	Up to 600 W
Input voltage	90 – 132 Vac / 180 – 264 Vac
	47 – 63 Hz (400 Hz available; contact factory)
Conducted EMI	EN/FCC "B"
Set point	±1% max. (E-Grade 2%)
Load / line regulation	0.2% max. (E-Grade 0.5%)
Output ripple (pp)	150 mV or 3% max. (E-Grade 5%)
Trim range [a]	50 – 110%
Remote sense range	0.5 Vdc max.
OVP set point	125% typical
Current limit	115%
Maximum temperature	0 to 85°C baseplate

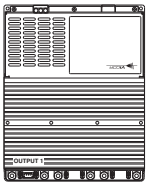
[a] 10, 12 and 15 V outputs, standard trim range ± 10%. Consult factory for wider trim range.

Chassis Configurations

- Single output
- 50 – 200 Watts
- 9.25" x 2.5" x 1.37" (234,8 x 63,5 x 34,8 mm)



- Single or dual outputs
- 100 – 400 Watts
- 9.25" x 4.9" x 1.37" (234,8 x 124,5 x 34,8 mm)



- Single, dual or triple outputs
- 150 – 600 Watts
- 9.25" x 7.3" x 1.37" (234,8 x 185,4 x 34,8 mm)

Part Numbering

V I - [M] [U] [3] [ ] [ ] - [C] [Q] [ ] [ ]

(VE) = RoHS Compliant

Family	Input	Out 1	Out 2 [b]	Out 3 [c]	Grade	Power 1	Power 2 [b]	Power 3 [c]
L = Single	U = Autoranging 90 – 132 and 180 – 264 Vac	Z = 2 V	M = 10 V	K = 40 V	E = 0°C	M = 600 W	U = 200 W	U = 200 W
M = Single		Y = 3.3 V	1 = 12 V	4 = 48 V	C = 0°C	P = 450 W	V = 150 W	V = 150 W
N = Single		0 = 5 V	P = 13.8 V	H = 52 V	I = –30°C	Q = 400 W	W = 100 W	W = 100 W
P = Dual		X = 5.2 V	2 = 15 V	F = 72 V		S = 300 W	X = 75 W	X = 75 W
Q = Dual		W = 5.5 V	N = 18.5 V	D = 85 V		U = 200 W	Y = 50 W	Y = 50 W
R = Triple		V = 5.8 V	3 = 24 V	B = 95 V		V = 150 W		
		T = 6.5 V	L = 28 V			W = 100 W		
		R = 7.5 V	J = 36 V			X = 75 W		
		All voltages available for output 1, 2, or 3				Y = 50 W		

For conduction-cooled package add –CC to the part number. For example, VI–LU0–CV–CC.

[b] For P, Q, R, PJ, and RJ only. Refer to output configuration chart above.

[c] For R and RJ only. Refer to output configuration chart above.

Web ExpressCode: pfcflatpac

PFC FlatPAC Single Output Power System

RoHS

The PFC FlatPAC uses Vicor's field-proven VI-HAM and Maxi DC-DC converters to deliver up to 575 watts of clean, reliable power. The PFC FlatPAC is a single-output power supply available with standard output voltages from 2 – 54 Vdc. It operates from an input of 85 – 264 Vac, includes active power factor correction (0.99 power factor), and meets EN61000-3-2 harmonic current limits. Internal filtering provides compliance to EN55022-A conducted EMI. It is available in Vicor's low profile 1.37" (34,8 mm) FlatPAC chassis, in either finned or conduction-cooled (CC) versions.

Features

- Input: 85 – 264 Vac
- Power factor: 0.99
- Single output: Up to 80 A or 575 W, 2 – 54 Vdc
- Low profile package: 1.37" x 4.9" x 9.25" (34,8 x 124,4 x 235 mm)
- Safety agency approvals: cULus, cTÜVus, CE Marked
- High efficiency
- Remote sense
- Current limit
- Thermal shut down
- OVP

General Performance Refer to data sheet for detailed specifications

Parameter	Rating	Unit	Notes
Input			
Voltage	85 – 264	Vac	
Frequency	47 – 63	Hz	
	47 – 440	Hz	I-Grade
Regulation line / load	0.5	%	10 to 100% load
Mechanical			
Weight	44.8 (1,304)	oz (g)	
Dimensions	1.37 x 4.9 x 9.25	inches	
	24,8 x 1,244 x 235	mm	
Operating temperature (case)			
C-Grade and E-Grade	0 to +85	˚C	
I-Grade	–30 to +85	˚C	
Storage temperature (case)			
E-Grade	–10 to +100	˚C	
C-Grade	–30 to +100	˚C	
I-Grade	–55 to +100	˚C	

Part Numbering Ordering, see back cover for contacts

V I - | **C M U** | **3** | **-** | **C** | **M** | **-** | ☐

(VE) = RoHS Compliant

Input	Output Voltage	Product Grade (°C)	Output Power	Options
Universal 85 – 264 Vac	Z = 2.0 V 3 = 24 V Y = 3.3 V L = 28 V O = 5.0 V J = 36 V 1 = 12 V 4 = 48 V 2 = 15 V G = 54 V	E = 0 to 85°C case C = 0 to 85°C case I = –30 to 85°C case	Vout = ≤5 V Vout ≥12 V Q = 80 A M = 575 W	-CC = Conduction Cooled

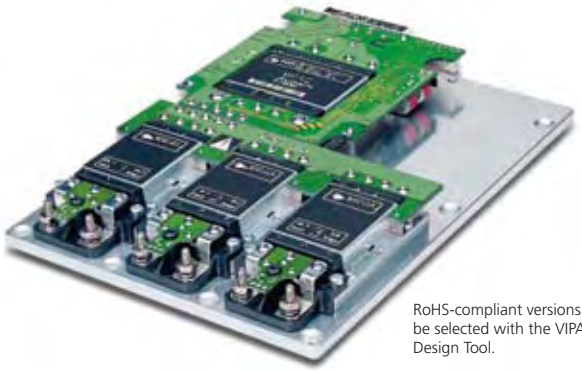
VIPAC Power System Choice of Chassis Configurations

Web ExpressCode: **vipac**

RoHS

The VIPAC is an integrated power system leveraging the latest advances in DC-DC converter technology and modular front ends. VIPAC combines application-specific power processing units (PPU), a choice of chassis styles and remotely located hold-up capacitors to provide fast, flexible, and highly reliable power solutions for a wide range of demanding applications.

The PPU is the core element of the system and incorporates Vicor's autoranging FARM modular front end to provide transient protection, EMI filtering, and inrush current limiting. The PowerBench VIPAC Design Center enables designers to configure the PPU with up to three independently regulated outputs having power levels from 50 – 500 W and with as much as 900 W total output power.



RoHS-compliant versions can be selected with the VIPAC Design Tool.

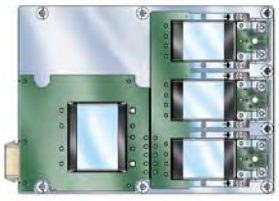
Features

- AC input: 115/230 Vac autoranging, 47 – 440 Hz
- Output voltages: 2 – 48 Vdc
  50 – 900 Watts total;
  1, 2, or 3 outputs
- Protective features:
  Inrush current limiting
  Input transient protection
  EMI filtering
- Choice of output terminations:
  LugMate or PlugMate
- Local or remote control
- Package style:
  Low-profile coldplate
  Optional finned heat sink
- Agency approvals:
  cULus, cTÜVus, CE Marked

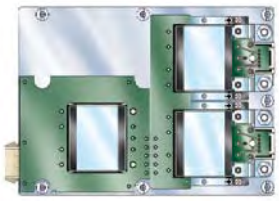
Configure your VIPAC Power System online with vicor POWERBENCH

vicorpower.com/vcad

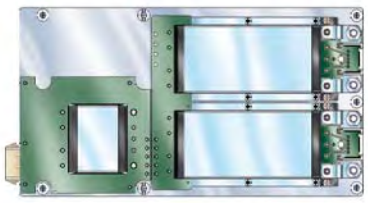
Chassis Configurations Dimensions vary with specific model configurations



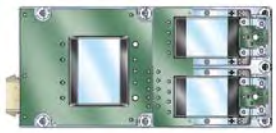
3 Micros
- Dual or triple output
- Up to 450 W
- 4.96" x 6.8" x 0.75"[a] (126,0 x 172,7 x 19,0 mm)



2 Minis
- Single or dual output
- Up to 500 W
- 4.96" x 6.8" x 0.75"[a] (126,0 x 172,7 x 19,0 mm)



2 Maxis
- Single or dual output
- Up to 900 W
- 4.96" x 9.15" x 0.75"[a] (126,0 x 232,4 x 19,0 mm)



2 Micros
- Single or dual output
- Up to 300 W
- 3.15" x 6.8" x 0.75"[a] (80,0 x 172,7 x 19,0 mm)

1 Mini
- Single output
- Up to 250 W
- 3.15" x 6.8" x 0.75"[a] (80,0 x 172,7 x 19,0 mm)

1 Maxi
- Single output
- Up to 500 W
- 3.15" x 9.15" x 0.75"[a] (80,0 x 232,4 x 19,0 mm)

1 Micro
- Single output
- Up to 150 W
- 3.15" x 6.8" x 0.75"[a] (80,0 x 172,7 x 19,0 mm)

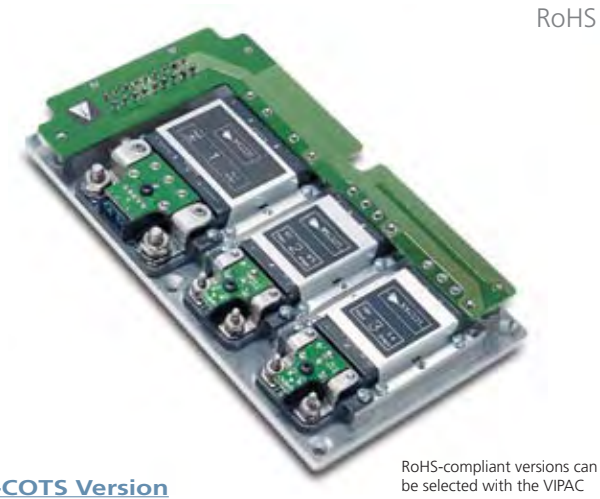
[a] *PlugMate version is 0.81" (20,5 mm) in height*

VIPAC Arrays DC Input Power System • 1 – 4 Outputs

Web ExpressCode: vipacarray

RoHS

The VIPAC Arrays are a highly flexible system of DC input power building blocks which can be configured with as many as four user-definable outputs on a low-profile, coldplate chassis. Using Vicor's VCAD design tool (vicorpower.com/vcad), designers are able to specify VIPAC Arrays with inputs of 24, 28, 48, 72, 110, 150, 300, 375 Vdc and outputs from 2 to 54 Vdc at power levels up to 600 watts per output. VIPAC Arrays are ideal for use in distributed and modular power systems where power density and reliable operation are critical. A current share option is available on single output models enabling them to be used in applications requiring high power / redundancy. Fully connectorized input and output terminations speed system installation and a versatile coldplate chassis simplifies thermal management.



RoHS-compliant versions can be selected with the VIPAC Design Tool.

Features

- Input voltage: 24, 28, 48, 72, 110, 150, 300 or 375 V
- Booster versions for higher output current applications
- Agency approvals: cTÜVus, CE Marked (300, 375 Vdc inputs only)

MIL-COTS Version Available

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Configure your VIPAC Array online with POWERBENCH

vicorpower.com/vcad

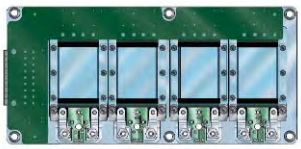
Chassis Configurations

Dimensions vary with specific model configurations

2 Minis
- Single or dual outputs
- Up to 600 W total
- 3.62" x 6.69" x 0.78"[a] (92,0 x 170,0 x 19,8 mm)

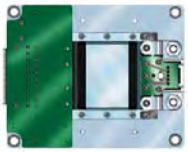
1 Micro, 2 Minis
- Dual or triple outputs
- Up to 750 W total
- 3.62" x 7.52" x 0.78"[a] (92,0 x 191,0 x 19,8 mm)

1 Mini, 2 Micros
- Single, dual or triple outputs
- Up to 600 W total
- 3.62" x 6.69" x 0.78"[a] (92,0 x 170,0 x 19,8 mm)

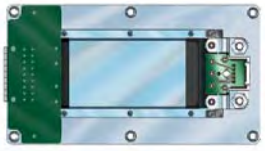


4 Micros
- Dual, triple or quad outputs
- Up to 600 W total
- 3.62" x 7.52" x 0.76"[a] (92,0 x 191,0 x 19,8 mm)

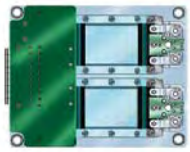
3 Micros
- Dual or triple outputs
- Up to 450 W total
- 3.62" x 6.69" x 0.76"[a] (92,0 x 170,0 x 19,8 mm)



1 Mini
- Single output
- Up to 300 W
- Current share option
- 3.62" x 4.39" x 0.78"[a] (92,0 x 112,0 x 19,8 mm)



1 Maxi
- Single output
- Up to 600 W
- Current share option
- 3.62" x 6.69" x 0.78"[a] (92,0 x 170,0 x 19,8 mm)



2 Micros
- Single or dual outputs
- Up to 300 W total
- 3.62" x 4.39" x 0.78"[a] (92,0 x 112,0 x 19,8 mm)

[a] *PlugMate version is 0.81" (20,5 mm) in height*

Web ExpressCode: compac

ComPAC Family 50 – 600 Watt Input Power System

RoHS

ComPAC delivers up to 600 W from one, two, or three outputs in a package just 0.99" (25,2 mm) in height with the field proven performance, high efficiency and high reliability inherent in Vicor's component level power converters. ComPAC meets British Telecom and European Norms for input surge withstand and meets conducted emissions of EN55022, Class B. ComPAC is offered with input voltage ranges optimized for industrial and telecommunication applications and provides extended input overvoltage capability, input reverse polarity protection, undervoltage lockout, and master disable. ComPAC is available with BatMod current source module, Page 23.

Conduction-cooled models available

Features

- Inputs: 24, 48, and 300 Vdc
- Any output: 1 – 95 Vdc
- Agency approvals: cULus, cTÜVus, CE Marked
- Efficiency: 80 – 90%
- Up to 10 W/in^3
- EMI / RFI specifications: Telcordia TR-TSY-000513, British Telecom BTR 2511
- EN55022, Class B: Conducted emissions
- Input surge withstand: British Telecom BTR 2511, EN61000-4-5
- Low-noise ZCS / ZVS power topology
- Optional high-performance heat sink
- Finned or conduction-cooled package

MIL-COTS Version Available

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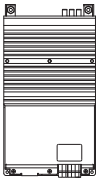
General Performance Refer to data sheet for specifications

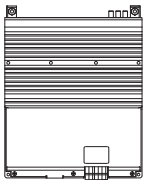
Parameter	Designator	Rating	Unit
Input voltage range	1	21 – 32	Vdc
	W	18 – 36	Vdc
	3	42 – 60	Vdc
	N	36 – 76	Vdc
	6	200 – 400	Vdc
Outputs		1, 2 or 3	
Output power		50 – 600	Watts
Output voltage(s)		1 – 95	Vdc
Operating temperature (case)			
E-Grade		–10 to +85	°C
C-Grade		–25 to +85	°C
I-Grade		–40 to +85	°C
M-Grade		–55 to +85	°C

Chassis Configurations

- Single output
- 50 – 200 Watts
- 9.25" x 2.5" x 0.99" (234,8 x 63,5 x 25,2 mm)



- Single or dual outputs
- 100 – 400 Watts
- 9.25" x 4.9" x 0.99" (234,8 x 124,5 x 25,2 mm)



- Single, dual, or triple outputs
- 150 – 600 Watts
- 9.25" x 7.3" x 0.99" (234,8 x 185,4 x 25,2 mm)

Part Numbering

V I - N C 3 4 ☐ ☐ - C M ☐ ☐

(VE) = RoHS Compliant

Family	Input	Out 1	Out 2 [a]	Out 3 [b]	Grade	Power 1	Power 2 [a]	Power 3 [b]
L = Single	1 = 24 V [c]	Z = 2 V	M = 10 V	K = 40 V	E = –10°C	M = 600 W	U = 200 W	U = 200 W
M = Single	W = 24 V	Y = 3.3 V	1 = 12 V	4 = 48 V	C = –25°C	P = 450 W	V = 150 W	V = 150 W
N = Single	3 = 48 V	0 = 5 V	P = 13.8 V	H = 52 V	I = –40°C	Q = 400 W	W = 100 W	W = 100 W
P = Dual	N = 48 V	X = 5.2 V	2 = 15 V	F = 72 V	M= –55°C	S = 300 W	X = 75 W	X = 75 W
Q = Dual	6 = 300 V	W = 5.5 V	N = 18.5 V	D = 85 V		U = 200 W	Y = 50 W	Y = 50 W
R = Triple		V = 5.8 V	3 = 24 V	B = 95 V		V = 150 W		
		T = 6.5 V	L = 28 V			W = 100 W		
		R = 7.5 V	J = 36 V			X = 75 W		
		All voltages available for output 1, 2, or 3				Y = 50 W		

[a] For P, Q, R, PJ, and RJ only. Refer to output configuration chart.
[b] For R and RJ only. Refer to output configuration chart .
[c] Max output power / module 150 W.

Note: *For conduction-cooled package add –CC to the part number. For example, VI–LWX–CV–CC.*

MegaMod Family Chassis–Mount VI-200 / VI-J00 Converters

Web ExpressCode: megamod

RoHS

MegaMod and MegaMod Jr. DC-DC converters incorporate one, two, or three Vicor VI-200 or VI-J00 converters in a modular package to provide a chassis-mounted alternative to board-mounted power supplies. MegaMods offer 50 – 600 W of power from 1 – 3 outputs. MegaMod Jrs. offer a total of 25 – 300 W from 1 – 3 outputs. Each output may be independently sensed, adjusted, and sequenced using the procedures outlined for VI-200 and VI-J00 converters in the Vicor Applications Manual. Download a PDF of the manual from the library section of vicorpower.com.

Features

- Inputs: 10 – 400 Vdc
- Any output: 1 – 95 Vdc
- Agency approvals: cULus, cTÜVus, CE Marked
- Efficiency: 80 – 90% (typical)
- Up to 27 W/in³
- Low profile: 0.62" (15,7 mm) high
- Low noise ZCS / ZVS power topology
- Temperature grades (MegaMod Jr.):
  E = –10 to +85°C (+100°C)
  C = –25 to +85°C (+100°C)
  I = –40 to +85°C (+100°C)
  M = –55 to +85°C (+100°C)
- ZCS power architecture
- Booster versions available for expanded output power (MegaMod only)

MIL-COTS Version Available

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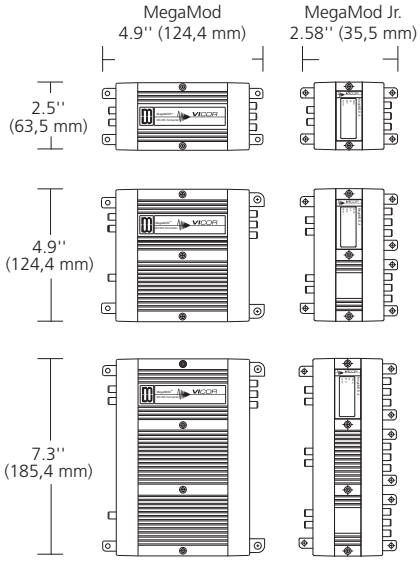
Chassis Configurations

Input Selection

12
18
24
36
48
72
110
150
300
150/300

Package



Output Power

- Single output
- 50 – 200 Watts — MegaMod: L
- 25 – 100 Watts — MegaMod Jr.: LJ

- Single or dual outputs
- 100 – 400 Watts — MegaMod: M, P
- 50 – 200 Watts — MegaMod Jr.: PJ

- Single, dual or triple outputs
- 100 – 600 Watts — MegaMod: N, Q, R
- 75 – 300 Watts — MegaMod Jr.: RJ

Part Numbering

V I - [L] [1] [3] [ ] [ ] - [E] [V] [ ] [ ]

(VE) = RoHS Compliant

Family	Input	Out 1	Out 2 [a]	Out 3 [b]	Grade	Power 1	Power 2 [a]	Power 3 [b]
L = Single	0 = 12 V	Z = 2 V	M = 10 V	K = 40 V	E = –10°C	M = 600 W	U = 200 W	U = 200 W
M = Single	V = 24 V	Y = 3.3 V	1 = 12 V	4 = 48 V	C = –25°C	P = 450 W	V = 150 W	V = 150 W
N = Single	1 = 24 V[c]	0 = 5 V	P = 13.8 V	H = 52 V	I = –40°C	Q = 400 W	W = 100 W	W = 100 W
P = Dual	W = 24 V	X = 5.2 V	2 = 15 V	F = 72 V	M= –55°C	S = 300 W	X = 75 W	X = 75 W
Q = Dual	2 = 36 V	W = 5.5 V	N = 18.5 V	D = 85 V		U = 200 W	Y = 50 W	Y = 50 W
R = Triple	3 = 48 V	V = 5.8 V	3 = 24 V	B = 95 V		V = 150 W	Z = 25 W	Z = 25 W
LJ = Single	N = 48 V	T = 6.5 V	L = 28 V			W = 100 W		
PJ = Dual	4 = 72 V	R = 7.5 V	J = 36 V			X = 75 W		
RJ = Triple	T = 110 V					Y = 50 W		
	5 = 150 V					Z = 25 W		
	6 = 300 V							
	7 = 150/300 V							
		All voltages available for output 1, 2, or 3						

[a] For P, Q, R, PJ, and RJ only. Refer to output configuration chart.
[b] For R and RJ only. Refer to output configuration chart.
[c] Max output power / module 150 W

28 V DC-DC V•I Chip Modules

Regulator & Voltage Transformer

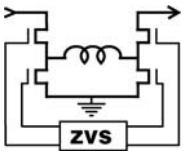
Web ExpressCode: mvichips

VTMs put isolated current multiplication and voltage division directly at the point of load (POL), and an upstream PRM (Regulator) controls the factorized bus voltage supplied to the VTM to provide line and load regulation. Together, the PRM and VTM chip set provides the full functionality of a DC-DC converter, but with breakthrough performance and flexibility in a rugged, miniature package.

The MIL-COTS PRM operates from a wide input range of 16 – 50 Vdc, meeting many of the ground vehicle and airborne requirements of MIL–STD–1275 and MIL–STD–704. Rated for 120 W, the 28 V PRM produces a nominal factorized bus voltage of 36 Vdc, controllable over the range of 26 – 50 Vdc. The downstream isolated VTM is available with twelve voltage division ratios from 1:1 to 1:32 and provides the user with flexibility to supply up to 100 A or 120 W at any output voltage from 1 – 50 Vdc in a surface-mount package occupying only 1 in^2.

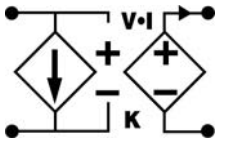
Features for PRM

- Input range: 16 – 50 Vdc
- 1.3 MHz switching frequency
- Efficiency: 95%
- –55°C to +125°C operation (Tj)
- ZVS buck-boost regulator



Features for VTM

- Isolated 1–50 Vdc output
- 1 µs transient response
- 3 MHz switching frequency
- Efficiency: Up to 96.5%
- –55 to +125°C operation (Tj)



MIL-COTS VI BRICKs PRM / VTM

Thermally Enhanced Package

Web ExpressCode: mvib

The **PRM** Regulator Module is a very efficient non-isolated regulator specifically designed to provide a controlled Factorized Bus distribution voltage for powering downstream VI BRICK Voltage Transformation Modules. In combination, VI BRICK PRMs and VTMs form a complete DC-DC converter subsystem offering all of the unique benefits of Vicor's Factorized Power Architecture (FPA): high density and efficiency; low noise operation; architectural flexibility; extremely fast transient response; elimination of bulk capacitance at the point of load (POL); in a thermally enhanced package.

The thermally enhanced **VTM** voltage transformer excels at speed, density and efficiency to meet the demands of advanced power applications. Combined with the PRM regulator they create a DC-DC converter with flexibility to provide isolation and regulation where needed. The PRM can be located with the VTM at the point of load or remotely in the back plane or on a daughtercard.

MIL-COTS Product Catalog

Designing with Component Power

Web ExpressCode: milcat

This document provides in-depth information on Vicor's line of MIL-COTS standard products, including DC-DC converters, custom solutions, and technical support.

- Environmental stress screening and MTBF
- Environmental qualification
- Custom configured modules
- Field tested... proven reliability

Visit **vicorpower.com**
and enter 'milcat' in the Web ExpressCode box.

Maxi, Mini & Micro Series DC-DC Converter Modules

Web ExpressCode: mbricks2

These high-density DC-DC power converters are available in three rugged packages with output power up to 600 W. Standard inputs of 24, 28, 48, 72, 110, 150, 300, and 375 Vdc; and outputs from 1 – 48 Vdc, make these converters extremely flexible for MIL-COTS applications.

Features

- Inputs: 24, 48, 300, and 375 Vdc
  NEW: 72, 110, 150, and wide input 28 Vdc
- Two operating temperature ratings:
  –40 to +100°C and –55 to +100°C
- MIL-STD-810 and MIL-STD-202 qualified
- Environmental stress screening

Final test data available at
vicorquality.com

MI-200 & MI-J00 Series DC-DC Converter Modules

Web ExpressCode: mbricks1

Vicor's field-proven MIL-COTS power components have gained a reputation for quality and reliability among military power system designers. With thousands of standard models available, designers can rapidly meet performance, schedule, and budget objectives for just about any power solution.

Features

- Inputs per MIL-STD-704D/E/F: 28 and 270 Vdc
- Input per MIL-STD-1399A: 155 Vdc
- Output voltages: 2 – 48 Vdc
- Output power: 10 – 100 W
- MIL-STD-810 and MIL STD-202 qualified
- NAVMAT component derating guidelines
- Power density: Up to 25 W/in^3
- 75 and 100 W booster modules available

MI-AIM AC Front-end Module

Web ExpressCode: maim

The MI-AIM works in conjunction with Vicor's MI-x7x module family and is ideal for systems requiring AC rectification and transient protection.

Features

- 115 Vac nom, 60/400 Hz operation
- MIL-STD-461D EMI (CE102) @ 60 Hz
- MIL-STD-704A transient protection
- MIL-STD-810 and MIL-STD-202 qualified

MIL-COTS Filters

Web ExpressCode: muram

MicroRAM Output Ripple Attenuator Module

Vicor's MicroRAM output ripple attenuation module combines both active and passive filtering to achieve greater than 40 dB of noise attenuation from 60 Hz to 1 MHz. The MicroRAM operates over a range of 3 – 30 Vdc, is available in either 20 or 30 A models, and is compatible with all Vicor DC-DC converters.

Features

- >40 dB ripple attenuation from 60 Hz to 1 MHz
- 20 and 30 Amp ratings
- Operation: –55°C
- Input: 3 – 30 Vdc

Web ExpressCode: mfiam

M-FIAM Filter Input Attenuator Module

The M-FIAM is a DC front-end module that provides EMI filtering and transient protection. The M-FIAM3 and 5B enables designers using Vicor 24 and 300 V Maxi, Mini and Micro DC-DC converters to meet conducted emission / susceptibility per MIL-STD-461E and input transients per MIL-STD-704E/F. The M-FIAM7 is compatible with 28 Vdc V•I Chip modules and is compliant to MIL-STD-461E, MIL-STD-704A-F, MIL-STD-1275A/B/D and DO-160E.

Features

M-FIAM3 & M-FIAM5B

- MIL-STD-461E conducted emissions / susceptibility
- MIL-STD-704E/F transient protection
- Compatible with 24 & 300 Vdc input Maxi, Mini & Micro DC-DC converters

M-FIAM7

- MIL-STD-461E conducted emissions / susceptibility
- MIL-STD-704A-F, MIL-STD-1275A/B/D & DO-160E transient protection
- Compatible with 28 Vdc V•I Chip modules

MVA-FIAM5B

- Coldplate connector mounting option for M-FIAM5B

Web ExpressCode: miam

MI-IAM Input Attenuator Module

The MI-IAM provides EMI filtering to MIL-STD-461C/D/E and transient protection to the most severe levels of MIL-STD-704A-F, MIL-STD-1275A/B/D and DO-160E using MI-200 or MI-J00 DC-DC converters.

Features

- Input: 28 or 270 Vdc
- MIL-STD-704A-F, MIL-STD-1275A/B/D & DO-160E transient protection
- MIL-STD-461C/D/E conducted emissions / susceptibility
- MIL-STD-810 and MIL-STD-202 qualified
- Compatible with MI-200 and MI-J00 DC-DC converters

MIL-COTS Configurable Power Supplies

MI-MegaMod Family Chassis-Mount DC-DC Converter

Web ExpressCode: mmega

DC input power converters delivering up to 300 W from one, two, or three outputs in a package just 0.62" in height.

Features

- Standard inputs: 28, 155 & 270 Vdc
- Output voltages: 2 – 48 Vdc
- Power density: Up to 13.5 W/in^3
- 1, 2 or 3 outputs: Up to 300 W

MI-ComPAC DC-DC Configurable Power Supply

Web ExpressCode: mcompac

The MI-ComPAC is a complete single, dual, or triple output DC-DC power supply that delivers up to 300 W from inputs of 28 or 270 Vdc.

Features

- Complete single, dual, or triple output power supply 50 – 300 W
- MIL-STD-704A-F, MIL-STD-1275A/B/D & DO-160E transient protection
- MIL-STD-461C/D/E conducted emissions / susceptibility
- Conduction-cooled models available

MIL-COTS VIPAC Arrays Chassis Mount DC-DC Converter

Web ExpressCode: mvipacary

VIPAC Arrays are a highly flexible input power systems that can be configured with up to four user-defined outputs, with power capability, up to 650 W.

Features

- Inputs: 24, 300 Vdc
- Configurable multi outputs; Up to 650 W
- –55°C operation
- MIL-STD-810F shock & vibration

28 Vdc MIL-COTS VIPAC DC-DC Configurable Power Supply

Web ExpressCode: mvipac

The 28 Vdc VIPAC can be specified with up to 3 outputs in a choice of connections with voltages as low as 3.3 Vdc to as high as 48 Vdc and power levels from 50 to 400 watts per output for MIL-COTS applications.

Features

- Input: 28 Vdc, MIL-STD-704E/F
- MIL-STD-461E EMI
- –55°C operation
- Profile as low as 0.75 in. (19,0 mm)
- MIL-STD-810F shock & vibration

VME450™ DC-DC Configurable Power Supply

Web ExpressCode: vme450

Powered with Vicor V•I Chips, this single-slot VME power supply is small, light weight and very efficient.

Features

- 28 Vdc per MIL-STD-704F
- MIL-STD-461E EMI
- 4 Output voltages, 550 W
- –40°C to +85°C

LoPAC Family Switcher Power Supplies

RoHS

The LoPAC Family consists of three power supplies available as one-, two-, or three-slot packages. For maximum flexibility, they are configured with standard Vicor DC-DC converters. These modules cover the entire range of outputs from 2 – 95 Vdc (higher through series arrays) and 25 – 600 W per output, as well as an array of non-standard voltages. Depending on the configuration, the LoPACs can provide up to six user-specifiable isolated outputs.

Features

- Near unity power factor
- Power factor corrected
- Output power: Up to 1,500 W
- Up to 6 user-specifiable outputs
- Power density: Up to 11 W/in^3
- Fan cooled
- Autosense feature
- Agency approvals: cTÜVus, CE Marked
- Choice of full, half, or quarter brick

LoPAC Family Accessories

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Configure a LoPAC online with POWERBENCH

vicorpower.com/vspoc

General Performance Refer to data sheet for detailed specifications

Product	Dimensions	Input Voltage	Number of Slots	Number of Outputs	Maximum Output Power @ 230 Vac	Maximum Output Power @ 115 V	Modules per Slot
PFC Mini	12.2" x 6" x 1.72" (309,9 x 152,4 x 43,6 mm)	85 – 264 Vac 100 – 380 Vdc	3	6	1,500 W	800 W	1 Full or 2 Half
PFC Micro	10.4" x 5.06" x 1.86" (264,1 x 128,5 x 47,3 mm)	85 – 264 Vac 100 – 300 Vdc	2	6	800 W	500 W	1 Full or 2 Half or 3 Quarter
PFC MicroS	7.95" x 5.06" x 1.86" (201,9 x 128,5 x 47,3 mm)	85 – 264 Vac 100 – 300 Vdc	1	3	600 W	500 W	1 Full or 2 Half or 3 Quarter

Note: For detailed information, review specific product design guides available online at vicorpower.com

Part Numbering Ordering, see back cover for contacts

P M	X_1	–	X_2	X_3	X_4	–	XXXX	$-X_5$	$-X_6$
Product Prefix PM = PFC Mini PC = PFC Micro PS = PFC MicroS	**Number of Outputs** 1 – 6		**Number of VI-200 / VI-J00 Series Modules**	**Number of Maxi, Mini or Micro Series Modules**	**Optional Factory Assigned**		**Factory Assigned**	**Optional Factory Assigned** 2 = FasTrak[a] G = RoHS	**Optional Codes** LL = Low Leakage[a] QF = Quiet Fan[a]

[a] PFC Mini Only

Standard Single-Output Configurations

PFC Mini [b]	Vout	Amps	Watts
PM1-03B-48-2	48	31.2	1,500
PM1-03B-28-2	28	53.6	1,500
PM1-03B-24-2	24	62.5	1,500
PM1-03B-15-2	15	100	1,500
PM1-03B-12-2	12	125.0	1,500
PM1-03B-05-2	5	240.0	1,200

[b] *Replace -2 with -G for RoHS compliant*

PFC Micro [c]	Vout	Amps	Watts
PC1-02B-48	48	16.7	800
PC1-02B-28	28	28.6	800
PC1-02B-24	24	33.3	800
PC1-02B-15	15	53.3	800
PC1-02B-12	12	66.7	800
PC1-02B-05	5	160.0	800

[c] *Add -G to end of part number for RoHS compliant*

PFC MicroS [d]	Vout	Amps	Watts
PS1-01-48	48	12.5	600
PS1-01-28	28	21.4	600
PS1-01-24	24	25.0	600
PS1-01-15	15	40.0	600
PS1-01-12	12	50.0	600
PS1-01-05	5	80.0	400

[d] *Add -G to end of part number for RoHS compliant*

VANTAGE Line – Westcor's Affordable Power Supply Option

Get the Westcor "advantage" of complete power supplies at a **15% discount**. Westcor's VANTAGE Line of power supplies was developed with all of the user configurability, field configurability, power density, and high efficiency that Westcor offers and with only minor specification changes. ***Call a local Vicor Representative, or for your nearest Rep location go to*** *vicorpower.com/contact_us*

Web ExpressCode: flatpacen

FlatPAC-EN Power Supply

RoHS

The FlatPAC-EN is capable of providing up to 500 W (425 W for EN compliance) from up to four isolated outputs. The FlatPAC-EN can be configured with standard Vicor DC-DC converter modules. Like all other configurable power supplies offered by Vicor, the optimum FlatPAC-EN solution can be factory configured based on the exact voltage and power requirements of the customer.

Features

- EN61000-3-2 harmonic current compliance
- Output power: Up to 500 W (425 W for EN compliance)
- Power density: >7 W/in³
- Ultra low profile: 1.4" (35,6 mm) height
- RS-232 microcontroller interface
- Rugged: Meets MIL-STD-810E, category 10 for vibration
- Agency approvals: cTÜVus, CE Marked
- Choice of full-, half- and quarter-brick modules with outputs from 2 – 95 Vdc and 25 – 500 watts, as well as an array of non-standard output voltages
- Conduction or convection cooled (same model)

FlatPAC-EN Accessories

Page 52

General Performance Refer to data sheet for detailed specifications

Product	Dimensions	Input Power	Output Power	Number of Outputs
FlatPAC-EN	9.2" x 5.0" x 1.4" (233,7 x 127 x 35,6 mm)	90 – 132 / 180 – 264 Vac 250 – 380 Vdc	500 W (425 W for EN compliance)	1 – 4

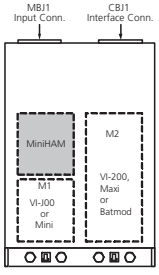
Part Numbering Ordering, see back for phone numbers

FL	X_1	–	X_2	X_3	-	XXXX	$-X_4$	$-X_5$
Product Prefix FL = FlatPAC-EN	**Number of Outputs** 1 – 4		**Number of VI-200 / VI-J00 Series Modules**	**Number of Maxi, Mini or Micro Series Modules**		**Factory Assigned**	**Optional Factory Assigned** G = RoHS	**Optional Codes**

Configure a FlatPAC-EN online with VICOR POWERBENCH

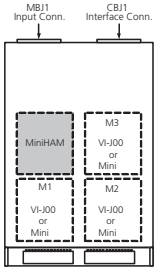
vicorpower.com/vspoc

Layout Configurations

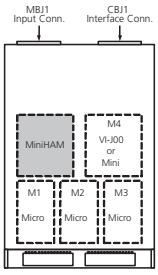


Single or Dual Outputs
Assumes either a full brick and / or half brick is used.

Stud Connectors
For a single output configuration, either M1 or M2 is used.



Triple Outputs
Assumes only half bricks are used. Two 18-pin Molex Connectors.



Quadruple Outputs
Assumes only half and / or quarter bricks are used. Two 18-pin Molex Connectors.

Note: The type of output connector a FlatPAC-EN has depends on which modules are used. For example, if a two output configuration uses two half bricks (instead of a full brick and half brick) this two output configuration will have the 18 pin Molex connectors, not stud connectors.

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AC-DC Westcor Division Configurable Power Supply

Web ExpressCode: megapac

MegaPAC Family User & Field Configurable Power Supplies

RoHS

The MegaPAC family consists of eight fan-cooled, configurable power supplies that enable users to factory configure almost any set of output requirements by combining appropriate slide-in output assemblies called ConverterPACs, with the appropriate chassis. The MegaPAC chassis has a standardized feature-laden front end with slots to accept the ConverterPACs. Models are available with single or three-phase AC inputs. MegaPACs will also operate from high-voltage DC input. Features include EMI/RFI filtering, enable / disable, general shut down, output sequencing and AC OK.

Features

- Output power: 200 – 4,000 Watts
- User-configurable outputs
- DC input capability
- Power factor corrected (some models)
- Up to 20 outputs
- Low ripple 10 mV p-p or 0.15%, whichever is greater (some models)
- Fan cooled
- Efficiency: >80%
- Agency approvals: cTÜVus, CE Marked
- Low leakage option available (some models)
- Current sharing available

MegaPAC Family Accessories

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Configure a MegaPAC online with POWERBENCH

vicorpower.com/vspoc

General Performance Refer to data sheet for detailed specifications

Product	Dimensions	Input Voltage	Output Power	# of Outputs	Slot Configurations
Mini MegaPAC	9.5" x 6.0" x 3.4" (241,3 x 152,4 x 86,4 mm)	90 – 132/180 – 264 Vac; Strappable 260 – 380 Vdc	1,000 W @ 115 Vac or 230 Vac	1 – 10 (5 slots)	ModuPAC, JrPAC, DualPAC, RAMPAC, BatPAC
Autoranging MegaPAC	11.9" x 6.0" x 3.4" (302,3 x 152,4 x 86,4 mm)	90 – 132/180 – 264 Vac 260 – 380 Vdc	1,200 W @ 115 Vac 1,600 W @ 230 Vac	1 – 16 (8 slots)	ModuPAC, JrPAC, DualPAC, RAMPAC, BatPAC
4 kW MegaPAC-EL	17.0" x 7.5" x 4.9" (431,8 x 190,5 x 124,5 mm)	208 or 240 Vac; 3-Phase 260 – 352 Vdc	2,000 W – 4,000 W, (3Ø) 1,500 W, (1Ø)	1 – 20 (10 slots)	QPAC, DualQPAC, JrQPAC, QPAC (XQ)
PFC MegaPAC/HP	12.3" x 6.0" x 3.4" (312,4 x 152,4 x 86,4 mm)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 2,400 W @ 230 Vac	1 – 13 (8 slots)	BatPAC, ModuPAC, JrPAC, DualPAC, RAMPAC, FinPAC
PFC MegaPAC-EL/HPEL	15.6" x 6.0" x 3.4" (396,2 x 152,4 x 86,4 mm)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 2,400 W @ 230 Vac	1 – 13 (8 slots)	QPAC, DualQPAC, JrQPAC, FinQPAC
4 kW MegaPAC	14.0" x 7.5" x 4.9" (355,6 x 190,5 x 124,5 mm)	208 or 240 Vac; 3-Phase 260 – 352 Vdc	2,000 W – 4,000 W, (3Ø) 1,500 W, (1Ø)	1 – 20 (10 slots)	ModuPAC, JrPAC, DualPAC, RAMPAC, BatPAC, UniPAC

Note: *For detailed information, review specific product design guides available online at vicorpower.com*

Part Numbering Ordering, see back cover for contacts

M P	X_1	–	X_2	X_3	XXXX	$-X_4\ X_5$	$-X_6$	$-X_7$
Product Prefix MP = Chassis using VI-200 / VI-J00 Series Modules only MX = Chassis using VI-200 / VI-J00 Series and / or Maxi Series Modules only MM = Chassis using VI-200 / VI-J00 Series Modules only (Strappable)	**Number of Outputs** 1 – 20		**Classis Type** 1 = 115 – 230 Vac Strappable 4 = 3-Phase 7 = PFC 9 = Autoranging	**Number of Modules**	**Factory Assigned**	**Optional Codes** 4 kW MegaPAC and MegaPAC-EL only	**Optional Codes** 2 = FasTrak G = RoHS	**Optional Codes** EL = Extended Length LL = Low Leakage

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ConverterPACs Output Power Up to 600 Watts

Web ExpressCode: cpacs

ConverterPACs incorporate VI-200 or VI-J00 and / or Maxi Vicor DC-DC converter bricks. For additional power, ConverterPACs can be paralleled. Some ConverterPACs are available for low-noise applications (VXI options, RamPACs and QPACs) and as current sources (BatPACs). All ConverterPACs can be easily removed in the field by loosening a single screw and sliding the unit out of the chassis.

VI-200 / VI-J00 ConverterPACs [a] Output Power Up to 200 Watts

Web ExpressCode: cpacs1

For general electrical specifications for VI-200 / VI-J00 ConverterPACs, see module specifications on the VI-200 / VI-J00 data sheets in the library section of our website.

ModuPAC (M)
Up to 200 W

JuniorPAC (J)
Up to 100 W

RamPAC (R)
Up to 100 W

BatPAC (B)
Up to 200 W
programmable current source

DualPAC (D)
Dual outputs:
Up to 100 W / output

QPAC (L)
Up to 200 W

DualQPAC (LD)
Up to 100 W / output

JrQPAC (LJ)
Up to 100 W

Maxi ConverterPACs [a] Output Power Up to 600 Watts

Web ExpressCode: cpacs2

For general electrical specifications for Maxi ConverterPACs, see module specifications on the data sheets in the library section of our website.

UniPAC (XU)
Up to 500 W

FinPAC (PZ)
Up to 600 W

QPAC (XQ)
Up to 500 W

FinPAC (PZL)
Up to 600 W

[a] RoHS compliant ConverterPACs have a "G" added to their prefix (except the PZL where the RoHS version will be GPL).

Vicor CUSTOM

Web ExpressCode: **custom**

Custom Power Solutions Designed To Fit Your Specific Needs

Vicor Integration Architects (VIAs): Small company responsiveness, large company resources

The sole focus of VIAs (Vicor subsidiaries) is designing...and manufacturing turnkey custom power systems. VIAs maintain the flexibility of small entrepreneurial companies while taking advantage of Vicors technical and business resources to deal effectively with your most challenging power problems. Our total focus is on the power solution that best satisfies your needs.

Providing custom power solutions for:


COMMUNICATIONS


INDUSTRIAL


DATACOM


TEST EQUIPMENT


MEDICAL


MILITARY / AEROSPACE


TRANSPORTATION

Vicor Integration Architects (VIAs)

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Granite Power Technologies
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Mission Power Solutions
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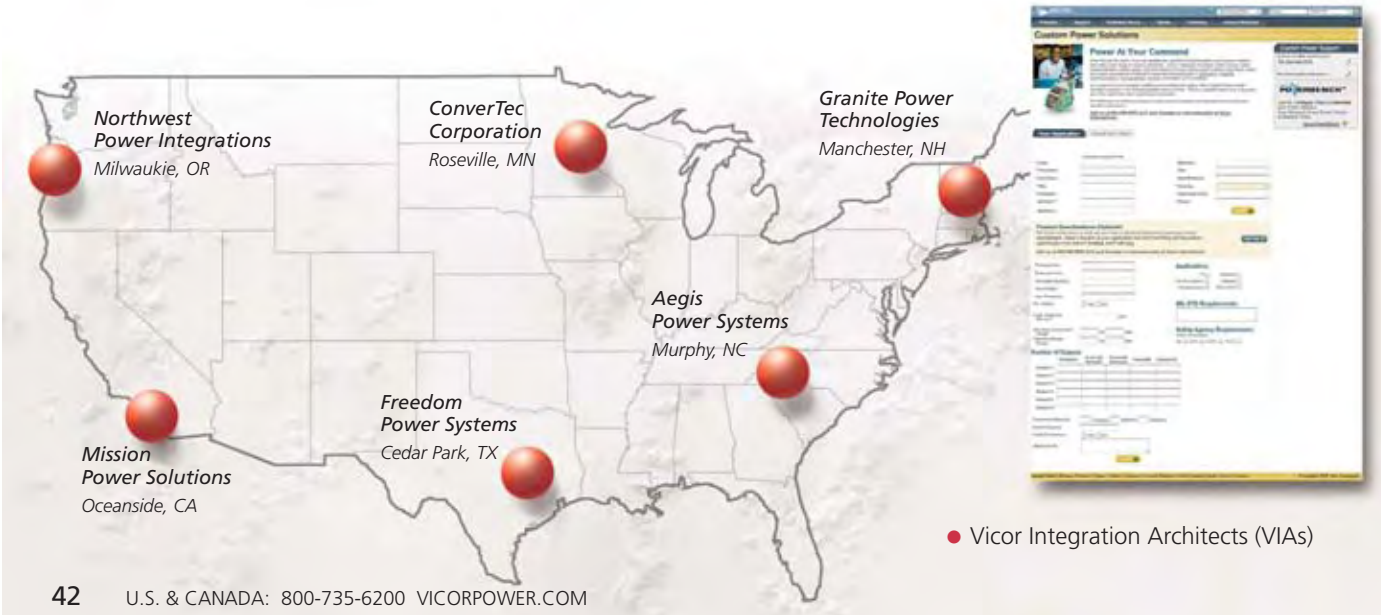
Northwest Power Integrations
Tel: 1 503 652 6161
email: info@npi-inc.com
npi-inc.com

Vicor Custom Locations: See our website page for complete details



● Vicor Integration Architects (VIAs)

Vicor CUSTOM

Web ExpressCode: **custom**

Capabilities Overview

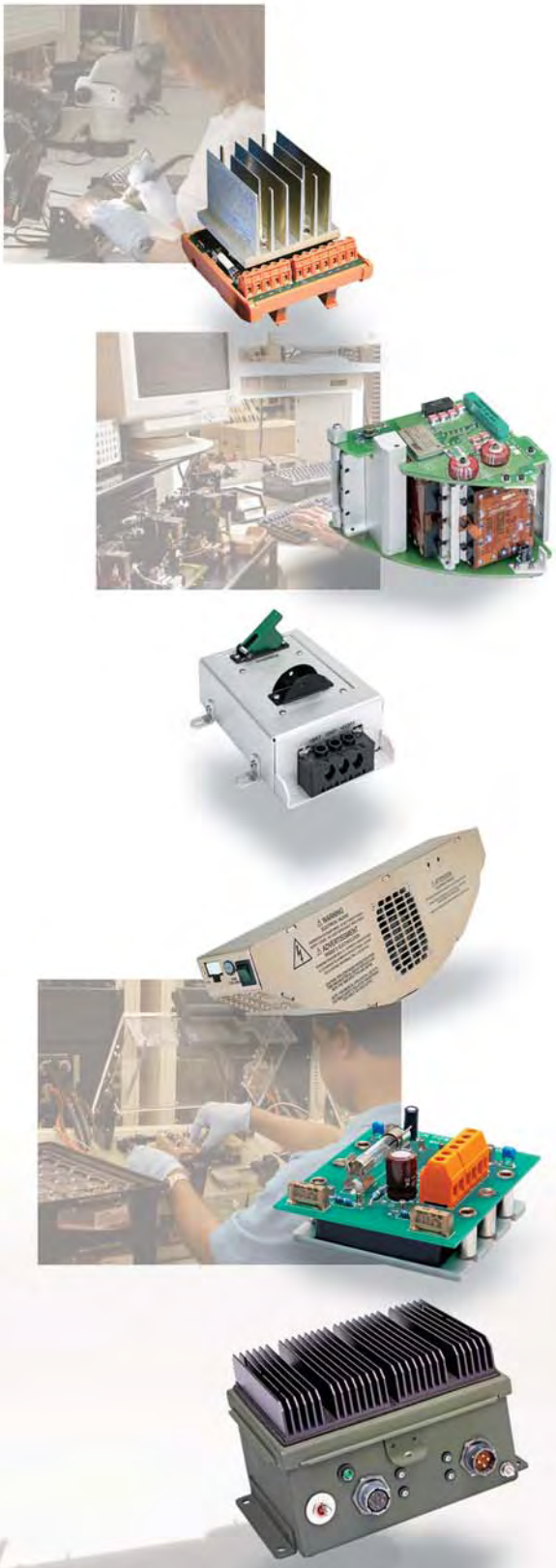
VIAs, in conjunction with Vicor, have the capability to design, prototype, mass produce and certify a complete power system.

Design: Electrical and mechanical

Prototype: By utilizing Vicor's standard power components, delivery of prototype units can be very fast and in some cases, just a matter of weeks.

Mass production: Capacity to manufacture thousands of power systems per year.

Reliability / Certification: HALT (Highly Accelerated Life Test)
Temperature Cycling
Burn In
Thermal Shock
Humidity
Accelerated Life Test
Power Cycling
Vibration
EMI
Transient Immunity
Altitude
Explosive Atmosphere
Mechanical Shock
Acceleration

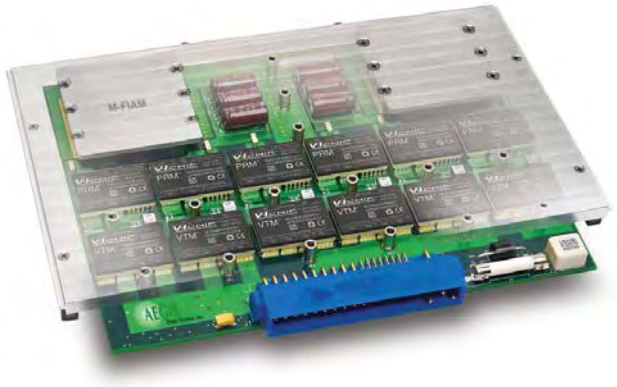


Vicor Custom Off-the-Shelf Configurable Power Supplies

VME450™ From Aegis Power Systems

Web ExpressCode: **vme450**

The single-slot VME450 power supply — filtered 28 Vdc, four output (3.3, 5, ±12 V), 550 W — is a MIL-COTS solution that is compliant to the vibration requirements of MIL-STD-810F and EMI per MIL-STD- 461E. When compared to VME power supplies using conventional technology, the one-slot VME450 provides users with higher efficiency (85%), lower weight (2.4 pounds), and higher power (up to 550 W).



Features

- 28 Vdc per MIL-STD-704F
- Vin max range: 18 – 36 Vdc
- MIL-STD-461E conducted EMI
- Input power: 650 W
- Output power: 550 W
- 4 isolated outputs
- Temperature: –40 to +85˚C
- Utilizes Vicor's V•I Chips
- Single slot VME
- Lightweight: 2.4 lb.

DC-DC MegaPAC™ From Mission Power Solutions Division

Web ExpressCode: **dcmegapac**

The DC MegaPAC allows users to instantly configure highly-efficient DC-DC power supplies. A complete power supply is configured by selecting and inserting up to eight slide-in output assemblies called "ConverterPACs". ConverterPACs incorporate one or two Vicor DC-DC converters and are available in a wide array of outputs and power levels. If output requirements change, the user can simply unlock a single screw and replace the slide-in ModuPAC assembly with one that has the desired rating.

Features

- DC inputs: 12 – 72 V available
- Output power: Up to 16 outputs and 1,600 W total power (depending upon input voltage)
- Temperature rating: Full power to 45°C; half power to 65°C
- Dimensions: 3.4"H x 6.0"W x 12.0"L (86,3 x 152,4 x 304,8 mm)
- 9.25 lbs. fully configured
- Fan cooled
- Soft start for limiting inrush current
- Conducted EMI meets BTR 2511
- Remote sense capability and output overcurrent protection on all outputs
- Output overvoltage protection on most outputs
- Output overtemperature protection on all outputs
- Input over, under and reverse voltage protection
- Box-to-box paralleling capability
- Input temperature monitor, warning and shut down
- CE Marked

Vicor Custom Off-the-Shelf Configurable Power Supplies

Badger™ From Mission Power Solutions Division

Web ExpressCode: badger

The Badger is a rugged PFC multi-output power supply, capable of withstanding extreme environments and stresses often inherent with military applications.

General Specifications Typical unless otherwise noted

Product	Dimensions	Input Voltage	Max # of Outputs	Maximum Power	Cooling	Notes
Badger	2.55" x 7.0" x 13.75" (64,8 x 177,8 x 349,3 mm)	85 – 264 Vac	12	1,800 W	Internal fans	OCP, OVP, and OTP on all outputs

Javelin™ From Mission Power Solutions Division

Web ExpressCode: javelin

The Javelin is an AC input power supply with a single DC output, capable of up to 5,400 W, in a rugged package suitable for industrial and military applications.

General Performance Refer to data sheet for detailed specifications

Product	Dimensions	Input Voltage	Max # of Outputs	Maximum Power	Cooling
Javelin I	4.9" x 7.0" x 10.75" (124,5 x 177,8 x 273,05 mm)	85 – 254 Vac	1	600 – 1,800 W	Internal fans
Javelin II	4.9" x 7.0" x 9.5" (124,5 x 177,8 x 241,3 mm)	85 – 254 Vac	1	600 – 1,800 W	No fan
Javelin III	7.0" x 16.0" x 13.0" (177,8 x 406,4 x 330,2 mm)	85 – 254 Vac 3-Phase	1	1,800 – 5,400 W	Internal fans

PowerBank™ From Northwest Power Integrations Division

Web ExpressCode: powerbank

The PowerBank is a low-profile AC-DC switching power supply that offers up to six configurable outputs at up to 1,500 Watts.

General Performance Refer to data sheet for detailed specifications

Product	Dimensions	Input Voltage	Max # of Outputs	Maximum Power	Cooling	Notes
PB1004PFC	1.74" x 8.08" x 10.28" (44,2 x 205,2 x 261,1 mm)	85 – 264 Vac	4	1,000 W	Internal fans	Low power stand-by output
PB1005AC	1.68" x 7" x 10.5" (42,7 x 177,8 x 266,7 mm)	115/230 Vac 300 Vdc	5	1,000 W	Internal fans	SEMI F47 compatible
PB1506PFC	1.75" x 12.6" x 16.84" (44,5 x 320,04 x 427,7 mm)	90 – 264 Vac	6	1,500 W	Internal fans	Two aux. low power outputs
PBC1002AC	2.5" x 7.38" x 9" (63,5 x 187,5 x 228,6 mm)	115/230 Vac	2	1,000 W	Cond., conv., liquid	Customizable baseplate / heat sink
PBC1002PFC	2" x 6.5" x 13.5" (50,8 x 165,1 x 342,9 mm)	90 – 264 Vac	2	1,000 W	Cond., conv., liquid	Customizable baseplate / heat sink

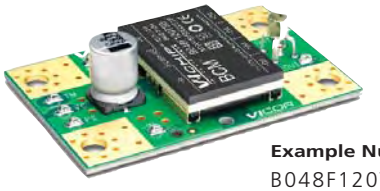
Evaluation Boards V•I Chip Products

V•I Chip BCM

Web ExpressCode: bcmeb

RoHS

The BCM Evaluation Board has been designed to facilitate the verification of the V•I Chips superior performance in the areas of power density, efficiency (over a wide load range), fast response and quiet, low-noise operation. Adding the suffix "EB" to the BCM model number designates the Evaluation Board. For example the B048F120T30-EB specifies a 48 V to 12 V at 300 W BCM mounted to an Evaluation Board.



Example Number
B048F120T30-EB

48 V Bus Converter

Web ExpressCode: bcmvb

RoHS

V•I Chip Bus Converter Validation Boards are available for testing the performance of the 48 V Bus Converter Modules (BCM) for Intermediate Bus Architecture (IBA) applications. The Validation Boards include one or two BCMs mounted on a standard quarter-brick footprint to facilitate testing in your existing system.

Example Number
I048C015T014P2

PRM & VTM

Web ExpressCode: viceb

RoHS

The PRM and VTM Evaluation Boards allow the user to develop an understanding of Factorized Power Architecture (FPA™) using the PRM and VTM chip set. Simply select the PRM Evaluation Board to match your input voltage and VTM Evaluation Board to provide the desired output voltage and current and plug them together.

Example Number
P045F048T32AL-CB

Example Number
V048F040T050-CB

High Voltage BCM

Web ExpressCode: bcmsb bcmpb

RoHS

The HV BCM Evaluation Board is used for powering, testing and evaluating the 380 Vdc input BCMs. The HV BCM Evaluation Board is available as a Parallel Array Board with a 12 Vdc, 100 A output or as a Series Array Board with a 48 Vdc 25 A and / or 12 Vdc, 25 A with up to 1,200 watts total.

Series Array
Example Number
B384F120T30-SB

Parallel Array
Example Number
B384F120T30-PB

Evaluation Boards DC-DC VI BRICK Products

VI BRICK

Web ExpressCode: vibeb

RoHS

VI BRICK evaluation boards are available to verify the performance and simplify testing of VI BRICK modules. There are separate boards for the VI BRICK – PRM, VTM, BCM, and DC-DC converters.

Description	Part Number
VI BRICK PRM evaluation board VI BRICK VTM evaluation board VI BRICK BCM evaluation board VI BRICK DC-DC evaluation board	Add "-CB" suffix to the VI BRICK specific part #

Evaluation Boards DC-DC Brick / EMI Filters / Output Filters & *Cool-ORing* Products

Web ExpressCode: mmmeb

Maxi, Mini & Micro

RoHS

- Three styles: Maxi, Mini or Micro
- Inboard and onboard compatible
- Easy I/O and control connections
- Includes fusing and capacitors
- Can be paralleled for higher power arrays

Description	Part Number
Maxi board style	24644R
Mini board style	24645R
Micro board style	24646R

Web ExpressCode: qpieb qpoeb

QPI Active EMI Filters & V•I Chip Optimized Filters

The QPI / QPO filter evaluation boards provide a quick and easy way to evaluate the EMI / EMC performance of the filters with a broad range of DC-DC converters. Available QPI input EMI filter boards include: boards compatible with V•I Chip evaluation boards, DOSA pin-out compatible evaluation boards, and universal style use "EVAL1" evaluation boards. QPO output ripple attenuator boards are available in a universal "EVAL1" configuration or with sockets compatible with Vicor Mini and Micro DC-DC converters.

Part Number	Description
QPI-3-CB1[a]	QPI-3LZ for 24 V input DC-DC up to 7 A
QPI-4-CB1[a]	QPI-4LZ for 48 V input DC-DC up to 14 A
QPI-5-CB1[a]	QPI-5LZ for 24 V input DC-DC up to 7 A
QPI-6-CB1[a]	QPI-6LZ for 48 V input DC-DC up to 14 A
QPI-7-CB1[a]	QPI-7LZ for 24 V input DC-DC up to 7 A, *w/ integrated Hot-Swap*
QPI-8-CB1[a]	QPI-8LZ for 48 V input DC-DC up to 14 A, *w/ integrated Hot-Swap*

[a] *The part numbers above are compatible with mounting DOSA compliant DC-DC converters. For universal plug in evaluation boards substitute CB1 with EVAL1.*

QPI V•I Chip Optimized Filter Evaluation Boards

QPI-9-CB1	QPI-9LZ for 24 V input V•I Chips up to 7 A, *w/ integrated Hot-Swap*
QPI-10-CB1	QPI-10LZ for 48 V input V•I Chips up to 7 A, *w/ integrated Hot-Swap*
QPI-11-CB1	QPI-11LZ for 24 V input V•I Chips up to 7 A
QPI-12-CB1	QPI-12LZ for 48 V input V•I Chips up to 7 A

QPO Active Output Filters

Part Number	Description
QPO-1-EVAL1	QPO-1LZ, 3 – 30 V input up to 10 A
QPO-1-EVAL3	QPO-1LZ, board with sockets for Vicor Mini DC-DC converter
QPO-1-EVAL5	QPO-1LZ, board with sockets for Vicor Micro DC-DC converter
QPO-2-EVAL1	QPO-2LZ, 0.5 – 5.5 V input up to 20 A

Web ExpressCode: coreb

Cool-ORing Discrete & Full-Function Active ORing Solutions

The *Cool-ORing* evaluation boards offer a quick and easy way for the user to complete functional testing of Picor's *Cool-ORing* solutions. These evaluation boards demonstrate solutions satisfying a range of Active ORing requirements, covering several typical redundant bus voltages. The user can chose to evaluate a discrete implementation or a high density integrated solution depending on system level requirements. The user can use the evaluation board to measure steady state efficiency as well as test dynamic performance of the *Cool-ORing* product under system level fault conditions.

Part Number	Description
PI2001-EVAL1	PI2001 using 3 x 3 mm TDFN package & SO-8 MOSFET in high-side configuration
PI2121-EVAL1	PI2121 configured for a high-side ground referenced application
PI2125-EVAL2	PI2125 configured for a high-side floating application

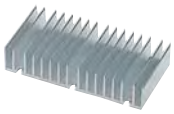
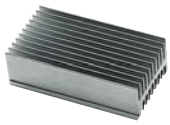
NOTE: *Both PI2121-EVAL1 and PI2125-EVAL2 are compatible with the PI2123 solution.*

ACCESSORIES

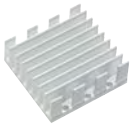
Mounting & Thermal Management

Web ExpressCode: **mounting1**

All parts are RoHS compliant unless otherwise noted

	Longitudinal Fins	Transverse Fins	Longitudinal Fins	Transverse Fins	Longitudinal Fins	Transverse Fins
VI-200	 0.90" Fin (22,8 mm) 30089	 0.90" Fin (22,8 mm) 30090	 0.70" Fin (17,7 mm) 30775	 0.70" Fin (17,7 mm) 30193	 1.45" Fin (36,8 mm) 30780	 0.40" Fin (10,1 mm) 30194

	Longitudinal Fins	Transverse Fins	Transverse Fins
VI-J00	 0.90" Fin (22,8 mm) 30191	 0.90" Fin (22,8 mm) 30771	 0.40" Fin (10,1 mm) 30140

	Maxi Heat Sinks		Mini Heat Sinks		Micro Heat Sinks	
	Threaded	**Through Hole**	**Threaded**	**Through Hole**	**Threaded**	**Through Hole**
Longitudinal Fins	 0.4" Fin (10,1 mm) 30482 0.9" Fin (22,8 mm) 30188	 0.4" Fin (10,1 mm) 30718 0.9" Fin (22,8 mm) 30181	 0.4" Fin (10,1 mm) 32188 0.9" Fin (22,8 mm) 30189	 0.4" Fin (10,1 mm) 30195 0.9" Fin (22,8 mm) 30182	 0.4" Fin (10,1 mm) 32174 0.9" Fin (22,8 mm) 30190	 0.4" Fin (10,1 mm) 30719 0.9" Fin (22,8 mm) 30183
Transverse Fins	 0.4" Fin (10,1 mm) 30778 0.9" Fin (22,8 mm) 30196	 0.4" Fin (10,1 mm) 30720 0.9" Fin (22,8 mm) 30723	 0.4" Fin (10,1 mm) 30184 0.9" Fin (22,8 mm) 30269	 0.4" Fin (10,1 mm) 30721 0.9" Fin (22,8 mm) 30724	 0.4" Fin (10,1 mm) 32173 0.9" Fin (22,8 mm) 30270	 0.4" Fin (10,1 mm) 30722 0.9" Fin (22,8 mm) 30725

V•I Chip Heat Sinks & Push-Pins

For use with PRM, VTM and BCM V•I Chip Power Components

Heat Sink (includes thermal interface)	Part Number	Push-Pins	Part Number (incudes spring)
Transverse Fins, 11 mm	32438	0.051" – 0.069" PCB	32434
Transverse Fins, 6.3 mm	32439	0.070" – 0.104" PCB	32435
Longitudinal Fins, 11 mm	32440	0.105" – 0.132" PCB	32436
Longitudinal Fins, 6.3 mm	32441	0.133" – 0.156" PCB	32437

Low-profile side-fin heat sinks – Height only 0.125" (3,1 mm) above module baseplate

0.55" (13,9 mm) Side Fins 30096

0.55" (13,9 mm) Side Fins 32190

0.55" (13,9 mm) Side Fins 30095

ACCESSORIES

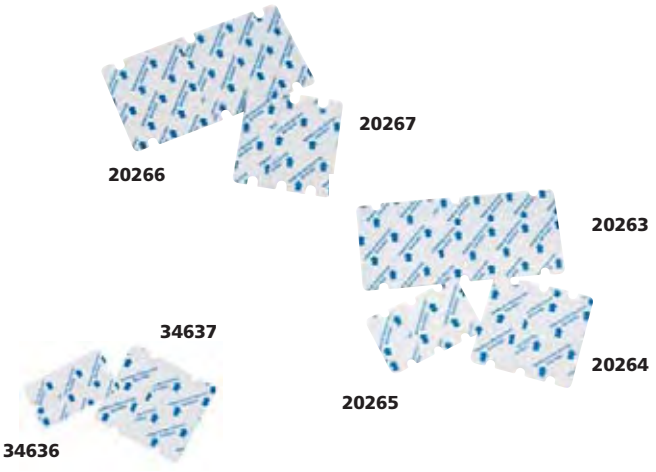
Thermal Management

Web ExpressCode: mounting2

ThermMate™ Thermal Pads

For use with Vicor modules, ThermMate thermal pads are a "dry" alternative to thermal compound and are pre-cut to the outline dimensions of the module.

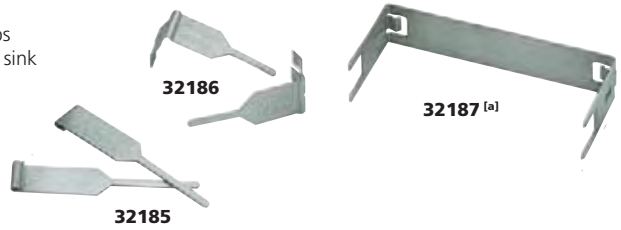
Thermal Pad	Part Number	Thickness
VI-200 (10 pc. pkg.)	20266	0.007" (0,17 mm)
VI-J00 (10 pc. pkg.)	20267	0.007" (0,17 mm)
Maxi (10 pc. pkg.)	20263	0.007" (0,17 mm)
Mini (10 pc. pkg.)	20264	0.007" (0,17 mm)
Micro (10 pc. pkg.)	20265	0.007" (0,17 mm)
VI BRICK – PRM / VTM / BCM Size "A" (10 pc. pkg.)	34636	0.007" (0,17 mm)
VI BRICK – DC-DC Converter Size "B" (10 pc. pkg.)	34637	0.007" (0,17 mm)



Grounding Clips

For use with FinMod and SlimMod packaging options (Page 23). Grounding clips provide a convenient means for making electrical connection between the heat sink assembly and the printed circuit board.

Use With...	Part Number
F1 and F2	32185
F3 and F4	32186
SlimMods	32187[a]



[a] *Not RoHS compliant*

Mounting Standoffs

Web ExpressCode: standoffs

Module Standoffs

For mechanical mounting of VI-200 and VI-J00 Series modules. Also provides grounding of the module from the baseplate to the printed circuit board. (Sold individually)

Description	Part Number
0.525" (13,3 mm) Long 0.25" (6,3 mm) Hex	10692-01

Standoffs and screws

Bulk and single-module kits compatible with all standard mounting configurations.

Sockets

Sockets are available for all Vicor VI-200 and VI-J00 modules and are intended for applications requiring ease of module installation or removal. Vicor modules have nine pins, seven of which are 0.040" and two are 0.080".

Pin Size	Finish	Part Number
0.040" (1,01 mm)	Electro-tin	30074
0.080" (2,03 mm)	Electro-tin	30075

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Minimum order quantities may apply.

ACCESSORIES

Web ExpressCode: **sockets**

ModuMate Socket Maxi, Mini & Micro Series

SurfMate: Surface mount sockets [a]

		Full brick (Maxi)			Half brick (Mini)			Quarter brick (Micro)			Use module pin style [b]
Board Thickness	Mounting Style	Input	Output	5 Sets	Input	Output	5 Sets	Input	Output	5 Sets	
All	Surface mount	22100	22101	16017	22100	22102	16021	22103	22104	16025	S, F

1. 
2. 
3. 

InMate: Through hole sockets [a]

All sockets are supplied on InMate headers to assure proper alignment during installation

		Full brick (Maxi)			Half brick (Mini)			Quarter brick (Micro)			Use module pin style [b]
Board Thickness	Mounting Style	Input	Output	5 Sets	Input	Output	5 Sets	Input	Output	5 Sets	
Nominal 0.062" (1,57 mm)	Inboard	18374	18382	18362	18374	18384	18366	18376	18386	18370	S, F
Min / Max 0.055" / 0.071" (1,3 mm) (1,8 mm)	Onboard	18378	18388	18364	18378	18390	18368	18380	18392	18372	N, G
Nominal 0.094" (2,38 mm)	Inboard	18375	18383	18363	18375	18385	18367	18377	18387	18371	S, F
Min / Max 0.084" / 0.104" (2,1 mm) (2,64 mm)	Onboard	18379	18389	18365	18379	18391	18369	18381	18393	18373	N, G
Nominal 0.125" (3,17 mm) Min / Max 0.1125" / 0.1375" (2,85 mm) (3,5 mm)	Onboard	21539	21543	21510	21539	21544	21511	21540	21545	21512	N, G

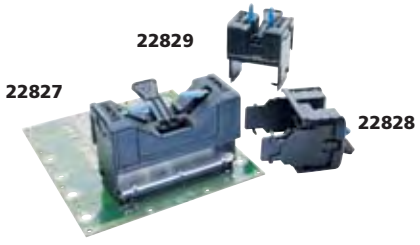
1. 
2. 
3. 
4. 

[a] For individual input / output purchases, a 35-piece minimum (and multiples) applies to Maxis / Minis and a 40-piece minimum for Micros.
[b] Page 15 for pin styles.

Module Exchange Tool

Used in facilitating the proper extraction of modules from InMate or SurfMate sockets.
Removal without using the Exchange Tool may cause damage to the sockets.

Description	Part Number
Maxi Exchange Tool	22827
Mini Exchange Tool	22828
Micro Exchange Tool	22829



ACCESSORIES

Magnetics

Web ExpressCode: chokes

PR Bus Isolation Transformer

Developed for isolation of PR Bus signal when used with VI BRICK parallel configurations. Consult Vicor for applications instructions.

Part Number
29768

VI-HAM Line Filter

The VI-HAM requires an external line filter. When used in conjunction with part number 30205, the VI-HAM / Filter combination will meet the requirements of worldwide EMI standards.

Part Number
30205

Inductors, Common Mode

These inductors provide a high level of attenuation of common-mode currents.

Inductance / Winding	DC Current / Resistance	Part Number
1000 µH	12 A / 6.5 mΩ	31743
3000 µH	7 A / 18 mΩ	31742
2163 µH	1 A / 42 m (low profile)	31943
1.3 mH	13 A / 14 mΩ	32006

Inductor, Output Sense Compensation

Inductance	Part Number
1 mH	36-00030 [a]

Inductor, Differential Mode, Input

Inductance / Winding	DC Current / Resistance	Part Number
22 µH	12 A / 5.8 mΩ	33206
1 mH	4 A / 250 mΩ	36-00036

Inductors, Differential Mode

Output inductors may be used to reduce differential output noise by approximately 20 dB.

Inductance	DC Current (max.)	Part Number
0.2 µH	40 A	30268
27 µH	12 A	32012
1.8 µH	10 A	32497

Common Mode Output Inductors

Inductance	DC Current (max.)	Part Number
420 µH	20 A	36-00037
350 µH	40 A	36-00029-01
1.27 mH	10 A	36-00029-04
70 µH	80 A	36-00029-06
110 µH	60 A	36-00029-07

[a] *Not RoHS compliant*

Capacitors

Web ExpressCode: caps

Capacitors, X-type

For filtering specifications of FCC Level A.

Description	Part Number
"X" Cap., 0.68 µF	11217
"X" Cap., 0.47 µF	03047
"X" Cap., 0.33 µF	00927
"X" Cap., 0.22 µF	04068
"X" Cap., 0.15 µF	03269
"X" Cap., 1.0 µF	02573

Capacitors, Y-type

For EMI / RFI considerations.

Description		Part Number
"Y" Cap., 1,500 pF		00770
"Y" Cap., 4,700 pF		01000
"Y" Cap., 0.01 µF		01501
"Y" Cap., 0.022 µF		03093
"Y" Cap., 4,700 pF	SMT version	25283
"Y" Cap., 1,500 pF	SMT version	30802

Capacitors, Hold up

Product	Description	Part Number
VI-AIM	270 µF, 200 V	30769
	270 µF, 400 V	30240
VI-HAM	470 µF, 450 V	30249
FARM / ARM	1,200 µF, 200 V	30275
	2,200 µF, 200 V	30483

Minimum order quantities may apply.

Components

Web ExpressCode: comp

MOVs

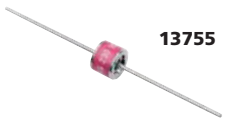
For use with front-end modules.

Description	Part Number
275 V MOV, 14 mm Disc	30076
68 V MOV, 10 mm Disc	30234-068
120 V MOV, 10 mm Disc	30234-120
200 V MOV, 10 mm Disc	30234-200
220 V MOV, 10 mm Disc	30234-220

Gas Discharge Tube

For use with the ENMods and VI-ARM.

Part Number	Spark Over (DC)
13755	220 V
26107	75 V



13755

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ACCESSORIES

Connector Kits FlatPAC, FlatPAC-EN, LoPAC, MegaPAC & PFC FrontEnd products

Web ExpressCode: **connects**

All parts are RoHS compliant unless otherwise noted

FlatPAC Accessories

Input and Output Retrofit Kits

Description	Part Number
Input connector	14136 [a]
Output connector	14137 [a]

Input and Output Mating Connectors

Description	Part Number
Input connector, 6 pin [b]	33100
Output connector, 5 pin [b]	16385 [a]

[a] Not RoHS compliant
[b] Insertion tool for use with FlatPAC input / output connectors are available from AMP, Inc., part number 58074-1. Manual hand tool, part number 58246-1, interchangeable head.

LoPAC Accessories

Connector Kits

Description	Part Number
PFC Mini	19-130047
PFC Micro, PFC MicroS	19-130044

Current Share Boards

Description	Part Number
LoPACs using VI-200 and VI-J00 Series modules	CSB01
LoPACs using Maxi, Mini and Micro Series modules	CSB02

PFC FrontEnd Accessories

Description	Part Number
Din Rail Mounting Kit	19-130060
Connector Kit	19-130059
VIPAC Array Adapter	19-130064

MegaPAC Accessories

Connector Kits

Description	Part Number
Single-phase input	19-130040
Three-phase input	19-130041
DualPAC / Dual QPAC output ConverterPacs	19-130042
Air block	96-00032-01

Current Share Boards

Description	Part Number
MegaPACs using VI-200 and VI-J00 Series modules	CSB01
MegaPAC using Maxi modules	CSB02

MegaPAC chassis and ConverterPACs can be purchased separately for scalable systems and / or spares.

Bus Bars

Description	Part Number
2 holes	88-00033-01
3 holes	88-00033-02
4 holes	88-00033-03
5 holes	88-00033-04
Series bus bar	88-00043

FlatPAC-EN Accessories

Connector Kit

Description	Part Number
FlatPAC-EN	19-130044

Current Share Boards

FlatPAC-EN using VI-200 and VI-J00 Series modules	CSB01
FlatPAC-EN using Maxi, Mini and Micro Series modules	CSB02

QUALITY Technical Information

Web ExpressCode: qual

Quality System

We use the "Plan-Do-Check-Act" model (PDCA) to foster continuous improvement. We focus on key performance metrics that are continuously measured and reviewed. This enables us to be proactive in improving our technology, our products, our processes, and our service to our customers.

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Customize and Create a Report

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Quality Library See and hear quality systems at work

- White papers on specific quality issues
- ISO 9001:2000 certificates
- RoHS compliant information
- Contact our quality team

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RoHS Technical Information

Web ExpressCode: rohs

RoHS Compliance

Vicor Corporation has a strong commitment to protecting our environment. As an ISO 9001:2000 registered company and a member of the global community, we are dedicated to meeting government regulations, international standards, and our customers' requirements. To those ends, we have developed and currently maintain Environmental Management Systems (EMS) and the requisite controlled business, design, and manufacturing processes to service our worldwide customer base.

ISO 9001:2000 Certified

Vicor is dedicated to developing and maintaining design and manufacturing processes to competitively service our world-wide customer base that meet government regulations, international standards, and our customers requirements.

VICORPOWER.COM

Use the Power of the Web

Develop your power solution by going to vicorpower.com. It's one of the premiere power-conversion sites on the web. Vicorpower.com is especially designed to get you the information you need quickly. And, through Vicor's unique mass-customization capabilities, we can provide you with exactly the power specifications you want at a price that's always affordable. Whether it's converters, user-configurable or custom power, Vicor has the high-value solution.

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- Design Guides and Application Notes
- Data sheets and mechanical drawings for all Vicor products
- PowerBench product configurators and a converter simulator that specifically analyzes your best options
- Technical seminars with synchronized video, PowerPoint, and access to related resources
- Webcasts on technical subjects of interest
- Application demonstrations
- Online Product & Military catalog with direct links to product pages, data sheets, and mechanical drawings
- Dedicated quality site with detailed factory tour and a custom quality report generator
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MECHANICAL DRAWINGS

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CONFIGURATORS

QUALITY CENTER

Feel free to contact Applications for any technical questions you may have at 1-800-927-9474 or Customer Service for price and delivery at 1-800-735-6200. For all other phone numbers, please consult back cover.

PowerBench™ Online Product Configurator Tools

Web ExpressCode: pwrb

Do-It-Yourself Power Design Custom Design Systems

Design your own DC-DC converter or configurable power supply – online – anytime using Vicor's custom configurators. Designs that you create are saved in your "**My Designs**" account for future review and editing. You register only once to access all Vicor's custom configurators via the "**Single Sign-On**" feature.

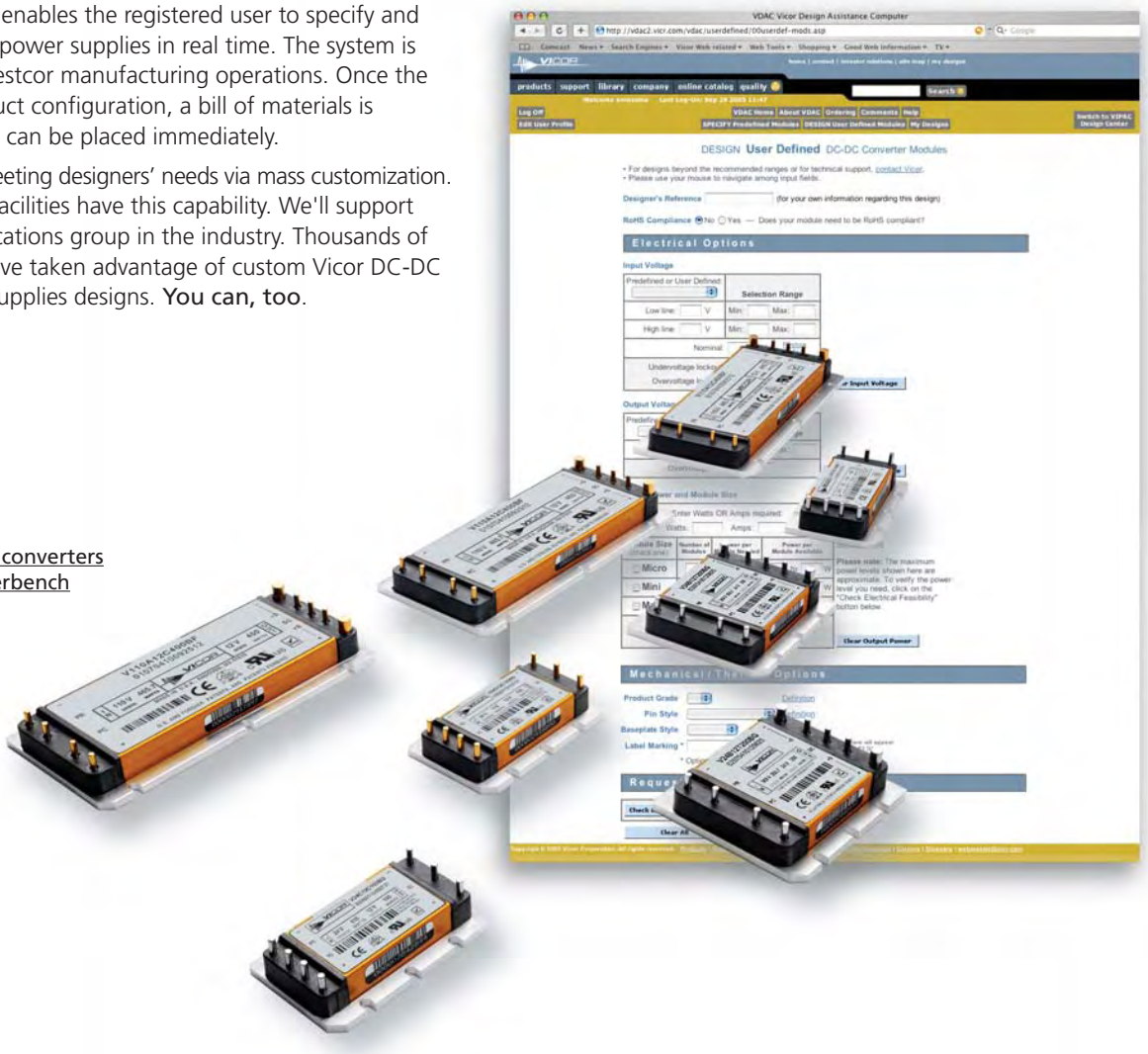
With Vicor's PowerBench **Custom Module Design System** you can design your own DC-DC converters using our proprietary simulator or using hundreds of predefined designs. You simply specify design parameters such as input voltage range, output voltage set point, output power, packaging, and environmental options. A true expert system, our Custom Module Design System generates a variety of valid designs, ranks them all, and selects the optimum one. A unique part number, unit price, and delivery schedule will be returned to you. You can even order online.

PowerBench's **VCAD™** is a patented system that enables users to specify online, the design of Vicor's VIPAC family from available input voltages, output configuration, thermal features, mechanical configurations, and an optional power up / power down sequencing feature.

PowerBench's **VSPOC™** enables the registered user to specify and verify complete AC-DC power supplies in real time. The system is fully integrated with Westcor manufacturing operations. Once the user approves the product configuration, a bill of materials is generated and an order can be placed immediately.

Vicor is committed to meeting designers' needs via mass customization. All our manufacturing facilities have this capability. We'll support you with the best applications group in the industry. Thousands of designers worldwide have taken advantage of custom Vicor DC-DC converters and power supplies designs. **You can, too**.

SINGLE SIGN-ON



VICOR POWERBENCH

Custom Module Design System

Design your own DC-DC converters at vicorpower.com/powerbench

My Designs

An online tool for storing the designs you create

Locations Around The World

Web ExpressCode: support1

Vicor understands that technical support is critical to our customers. As a result, the Vicor Applications Engineering staff is comprised of technically competent, highly experienced field applications engineers who provide our customers with detailed technical support — within 24 hours — anywhere in the world. Our Applications Engineers, each with a thoroughly equipped lab, are established in locations across the globe ready to assist you in the pursuit of the optimum power solution.

Specifically, Vicor Field Applications Engineers offer:

- Evaluation and recommendation on specific customer design issues backed by a team of factory based Product Line Engineers.
- Answers to your technical questions by phone, fax, email, or via the Vicor website.
- Assistance with component-based power system design and power architecture assessment.
- Support for user needs through visits to your facility or at the FAE's lab.
- Technical presentations / seminars, both scheduled and on demand, at your site or elsewhere.
- A comprehensive library of up-to-date design guides, application notes, and technical articles easily accessible on the Vicor website.

This highly skilled team – assembled to include a wide range of engineering experience – has helped users develop component power solutions for thousands of applications in nearly every market segment.

Contact the Vicor Applications Group and experience Vicor's special commitment to your design. There's one goal at Vicor: to help you optimize your power design quickly and affordably. Our worldwide applications engineering staff is ready to give you technical support — NOW!

We can easily be reached by telephone or email, in North America at 800-927-9474, in Europe at 00 800 8426 7000 or in Asia at +852-2956-1782 and by email: apps@vicorpower.com.

SUPPORT Customer Support Specialists

Web ExpressCode: support

Ready to assist with all your power needs

Our worldwide staff of customer support representatives and applications engineers is at your service to assist in determining the most appropriate power solutions for your system and to assure the quickest delivery of prototype quantities.

Customer Support Representative can:

- Provide price and delivery information
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- Arrange a visit to your site by a Vicor Applications Engineer or Sales Representative
- Fulfill literature requests
- Process purchase order requirements
- Provide order status information.

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In Europe call 00-800-8426-7000.

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