



VICOR PRODUCT CATALOG



V-I CHIPS

BRICKS

CONFIGURABLE PSUs

MIL-COTS

CUSTOM



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 Custom Module Design System. Vicor offers a wide range of solutions with 1 – 20 outputs and autoranging, PFC, or three-phase inputs. There are several chassis sizes to choose from with and without integral cooling fans. Also available from Vicor is a strong offering of front ends and filters to complete your design. Vicor's 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 Chips. 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 (regulation), VTMs (transformation and isolation) and BCMs (bus conversion) are available for a wide range of DC-DC conversion and Intermediate Bus Architecture applications. Mil-COTS versions are also available.

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 Vicor 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. Vicor's new Quality Center on vicorpower.com enables quality managers, purchasing agents, and designers to see comprehensive video of Vicor's facilities as well as generate customized ISO 9001:2000 reports about Vicor's quality systems.

Be assured that Vicor is always on a continuous quest for the best technical solution for you. And, 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.

V•I Chips

Bricks

Configurables

Custom



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In the News

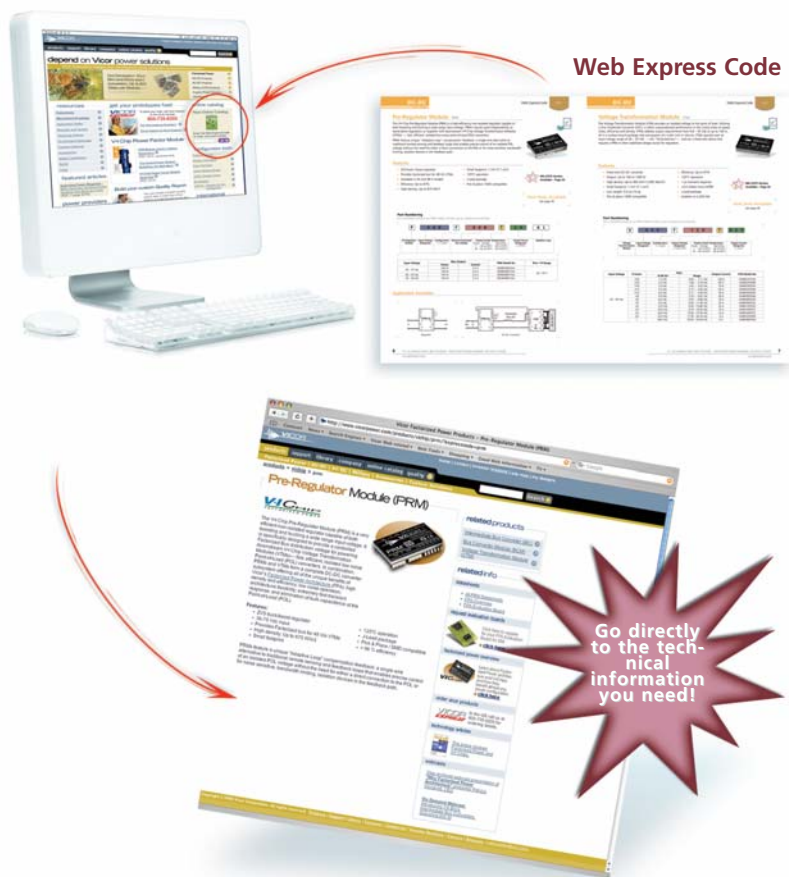
Vicor develops new products all the time, so, to keep everyone up-to-date, we've created a special area on vicorpower.com where you can always see "what's new." Just go to vicorpower.com and click on "What's New." It will take you to our new products page. From there you'll be able to link to detailed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

Web ExpressCode

Web ExpressCode provides quick access to detailed product information.

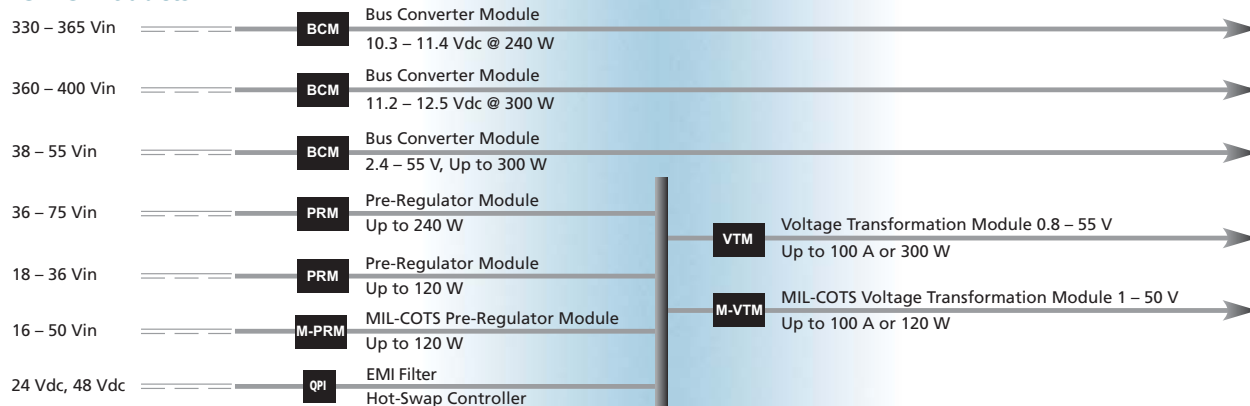
Web
ExpressCode

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.



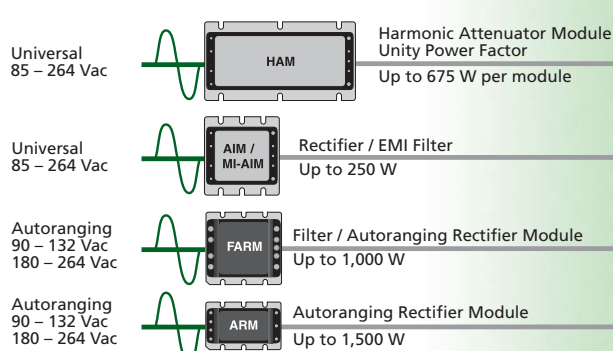
V•I Chip Solutions

DC-DC Products

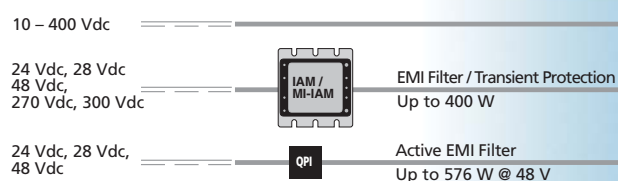


Component Power Solutions: VI-200 & VI-J00 Series

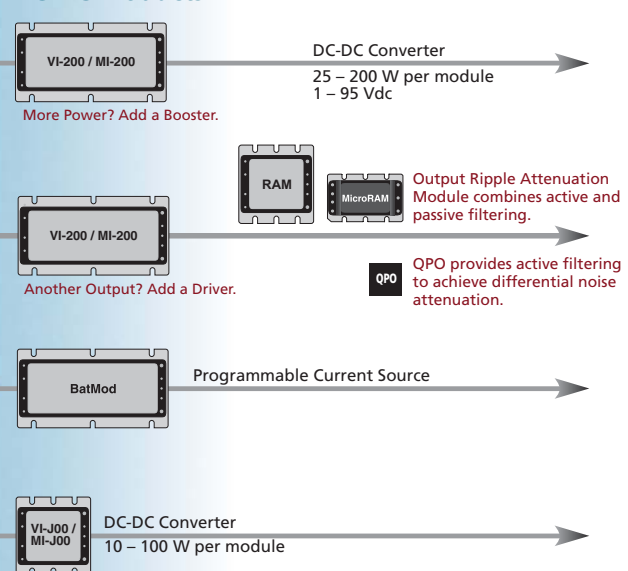
AC-DC Products



DC-DC Products

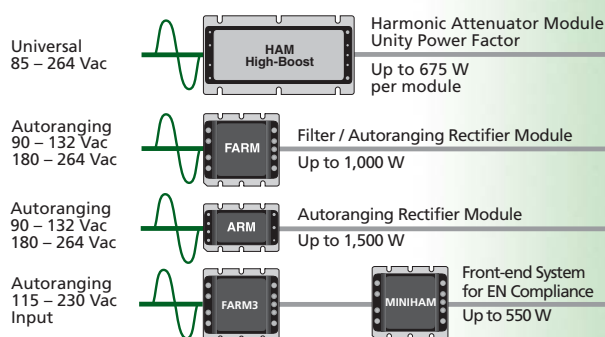


DC-DC Products

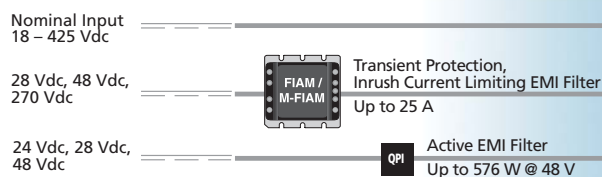


Component Power Solutions: Maxi, Mini, Micro & VICBrick Series

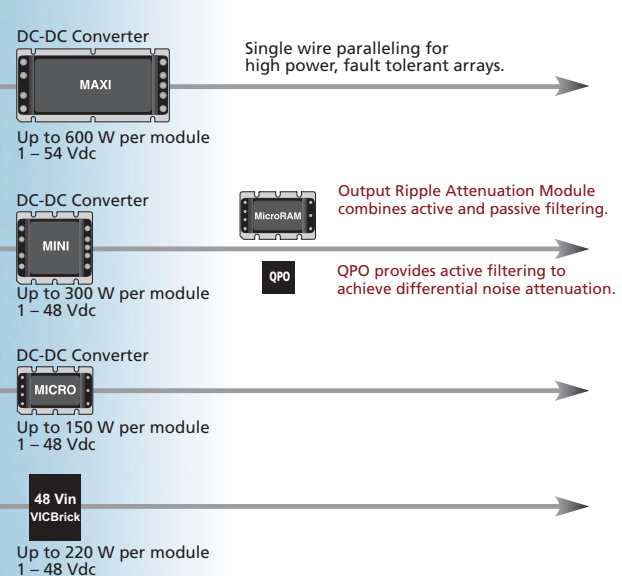
AC-DC Products



DC-DC Products



DC-DC Products



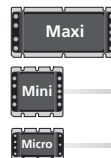
Configurable Power Solutions

VIPAC Power Systems

90 – 132 Vac
180 – 264 Vac
or
DC Input
36 – 75 Vdc



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



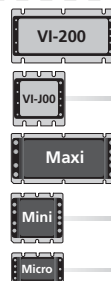
Up to
900 W

LoPAC Family

85 – 264 Vac



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



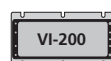
Up to
1,500 W

FlatPAC Family

90 – 132 Vac
180 – 264 Vac



1-3 Outputs using
VI-200 Series Modules



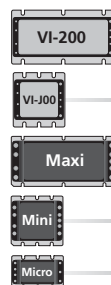
Up to 600 W

FlatPAC-EN

90 – 132 Vac
180 – 264 Vac



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



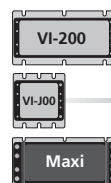
Up to
500 W
(425 W for
EN compliance)

MegaPAC Family

85 – 264 Vac
3Ø 208/240 Vac



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



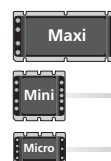
Up to
4,000 W

VIPAC Arrays

DC Inputs
24 Vdc, 48 Vdc,
300 Vdc, 375 Vdc



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



Parallel for
High Power

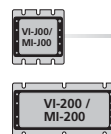
Up to
750 W

MegaMod Family (Chassis Mount)

DC Inputs
10 – 400 Vdc



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

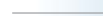


Up to 300 W

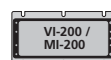
Up to 600 W

ComPAC Family

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



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



Up to 600 W

Front-end filtering optimized for communication and defense applications

V·I CHIP SOLUTION

48 V BCM Bus Converter Module



page 5



- ZVS / ZCS isolated Sine Amplitude Converter
- Input: 38 – 55 Vdc
- Output: Ten models, 3 to 48 V
- Power: Up to 300 W (450 W for 1 ms)
- Efficiency: Up to 97%
- High density: Up to 1,095 W/in³ (68 W/cm³)
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation
- Low weight: 0.5 oz (14 g)
- >3.5 million hours MTBF
- Low noise: No output filtering required
- J-Lead package pick & place / SMD compatible

48 V PRM Pre-Regulator Module



page 6



- 48 Vin ZVS buck / boost regulator
- Input: 36 – 75 Vdc
- Provides 26 – 55 Vdc output factorized bus for 48 Vin VTMs
- Efficiency: Up to 97%
- High density: Up to 875 W/in³ (55 W/cm³)
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation
- Low weight: 0.5 oz (14 g)
- J-Lead package pick & place / SMD compatible

VTM Voltage Transformation Module



page 7



- 48 Vin Sine Amplitude Converter
- 26 – 55 Vdc input range
- 0.8 – 55 Vdc outputs
- Efficiency: Up to 97%
- High density: Up to 365 A/in³ or 1,095 W/in³
- Up to 100 A or 300 W
- Small footprint: Up to 93 A/in² or 225 W/in²
- 125°C operation
- Low weight: 0.5 oz (14 g)
- Isolation to 2,250 Vdc
- <1 µs transient response
- Low noise: No output filtering required
- J-Lead package pick & place / SMD compatible

MIL-COTS Version
Available – Page 24

MIL-COTS Version
Available – Page 24

High Voltage BCM Bus Converter Module



page 5



- ZVS / ZCS isolated Sine Amplitude Converter
- 330 – 365 Vdc to 11 Vdc @ 240 W
- 360 – 400 Vdc to 12 Vdc @ 300 W
- Efficiency: Up to 97%
- High density: Up to 1,095 W/in³
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation
- Isolation to 4,242 Vdc
- >2.6 million hours MTBF
- Low noise: No output filtering required
- Low weight: 0.5 oz (14 g)
- J-Lead package pick & place / SMD compatible

24 V PRM Pre-Regulator Module



page 6



- 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 438 W/in³ (27 W/cm³)
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation
- Low weight: 0.5 oz (14 g)
- J-Lead package pick & place / SMD compatible

QPI for V·I Chips Input Filter Module



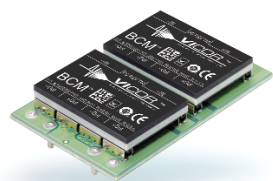
page 22



- 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

BRICK SOLUTION

VICBrick IBC Intermediate Bus Converter



page 8



- Up to 600 W
- 96% efficiency @ 9.6 Vdc
- 600 W @ 55°C, 400 LFM
- 125°C operating temperature
- 400 W/in³ power density
- 38 – 55 Vdc input range
- 3.5 MHz switching frequency

VICBrick DC-DC Converter



page 9



- 36 – 75 Vdc input
- 100°C operation
- High efficiency
- Low noise
- Low profile: 0.35" in height
- Up to 84 A/in³ or 185 W/in³
- Industry standard footprint

VI-200 / VI-J00 DC-DC Converter



page 10



- 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

MIL-COTS Version
Available – Page 25

Maxi / Mini / Micro DC-DC Converter



page 14



- 24 V input: 18 – 36 Vdc
- 48 V input: 36 – 75 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/in³

MIL-COTS Version
Available – Page 25

QPI Family Input Filter Modules



page 20



- >60 dB CM attenuation at 250 kHz
- >80 dB DM attenuation at 250 kHz
- Up to 14 A
- Efficiency: >99% at full load
- Surface-mount, LGA package
- Designed to support EN Class B
- Integrated hot-swap in select models
- Current rating supports ATCA® blades

QPO Family Output Filter Modules



page 21



- >30 dB PARD attenuation, 1 kHz to 500 kHz
- 3 – 30 and 0.5 – 5.5 V input models
- Up to 20 A
- Supports precise point-of-load regulation
- Reduces required number of output capacitors to support dynamic loads
- User selectable optimization of attenuation, power dissipation, and transient load response

Front-end Modules



pages
16 - 17



- 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

MIL-COTS Version
Available – Page 25

Input Filter Modules



page 22



- 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

MIL-COTS Version
Available – Page 26

Output Filter Modules



page 23



- 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

MIL-COTS Version
Available – Page 26

CONFIGURABLE SOLUTION

VIPAC AC-DC or DC-DC Power Solution

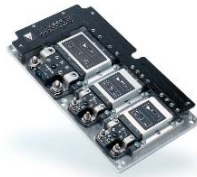


page 28



- Input voltage ranges: 115/230 Vac or 36 – 75 Vdc
- Output voltages: 2 – 48 Vdc
- Output power: Up to 900 W
- Single, dual, or triple outputs
- Efficiency: 80 – 90%
- Local or remote control
- Agency approvals: CE Marked, cTÜVus, cULus

VIPAC Arrays DC Input Power System



page 29



- Input voltages: 24, 48, 300 or 375 Vdc
- Output voltages: 2 – 48 Vdc
- Output power: 50 – 600 W
- Array power: Up to 750 W
- Single, dual, triple or quad outputs
- Rugged, low profile, coldplate chassis
- High-temperature capability
- Agency approvals: CE Marked, cTÜVus, cULus



FlatPAC AC-DC Power Solution



page 30



- 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

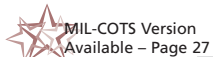
ComPAC DC-DC Input Power Solution



page 31



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



MegaMod Chassis-mount DC-DC Converter



page 32



- 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
- Agency approvals: CE Marked, cTÜVus, cULus



PFC FrontEnd Output Front-end Power Supply



page 34



- Input voltage ranges: 85 – 264 Vac and 100 – 385 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
- Agency approvals: CE Marked, cTÜVus

PFC FlatPAC Single-Output Power System



page 35



- Input voltage range: 85 – 264 Vac
- Output power: Up to 600 W
- 2 – 54 Vdc
- High efficiency
- Current limit
- Remote sense
- Agency approvals: CE Marked, cTÜVus, cULus

LoPAC Family Switcher Power Supplies



page 36



- 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/in³
- Agency approvals: CE Marked, cTÜVus

MegaPAC Family User-Config. Power Supplies



page 38



- 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
- Agency approvals: CE Marked, cTÜVus

CONFIGURABLE SOLUTION

FlatPAC-EN AC-DC Power Solution



page 40



- Input voltage ranges:
85 – 132/180 – 264 Vac
180 – 264 Vdc
- Output voltages: 2 – 95 Vdc
- Output power: Up to 500 W
- Up to 4 user-specifiable outputs
- Autosense / remote sense
- Agency approvals:
CE Marked, cTUVus

DC MegaPAC DC-DC Power Switcher



page 41

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

RackGuard Redundant Input Power Supply



page 41

- AC Input voltage:
115/230 Vac, Autoranging
- DC Input voltage:
48 V (38 – 72 V) or 150 V (105 – 200 V)
- Output: 4 to 48 V
- Output power: 600 W
- Agency approvals:
CE Marked, cTUVus, cULus

Javelin MIL-COTS Power Supply



page 42

- 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
- Agency approvals:
CE Marked, cTUVus, cULus

PowerBank AC-DC Low Profile Power Supply



page 42

- 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 at full load
- Agency approvals:
CE Marked, cTUVus, cULus

Badger MIL-COTS Power Supply



page 42

- Input voltage ranges:
85 – 264 Vac and 85 – 380 Vdc
- Output power: Up to 2,200 W
- Up to 4 non-isolated outputs
- Operating temperature:
-20°C to +75°C
- DIN rail mountable
- Agency approvals:
CE Marked, cTUVus, cULus



MIL-COTS Version



MIL-COTS Version

CUSTOM SOLUTION

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 in a modular, building-block design approach that offers low cost, quick turnaround, and reliable performance.

For more information on custom solutions, see pages 43 – 44.

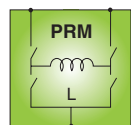


The V•I Chip Advantage Density, Efficiency, Flexibility, and Speed

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.

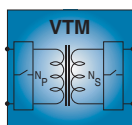
V•I Chips increase power system flexibility by separating or factorizing a DC-DC converter into two components. One component provides a regulation function (PRM), and another provides transformation and isolation (VTM / BCM). This allows the power system designer to select only the functions that are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

Regulation

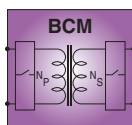


Pre-Regulator Module

Transformation & Isolation



Voltage Transformation Module



Bus Converter Module

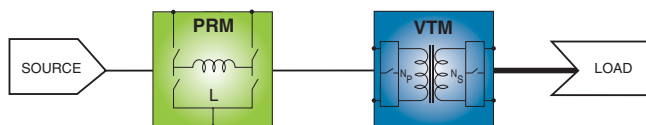


Product shown at actual size.

DC-DC Conversion Using PRM and VTM

System solution with low component count

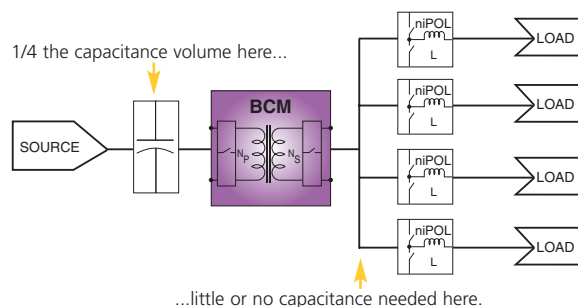
- VTM isolation and transformation at the point of load
- PRM regulation can be collocated with or remote from the VTM
- Efficiency: Up to 93%
- High power density: Up to 430 W/in³



Bus Conversion Using BCMs

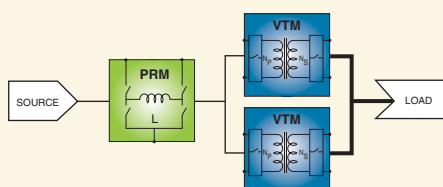
Enable dense IBA Power Systems

- High density bus converter > 1,000 W/in³
- Efficiency: Up to 97%
- Minimize total system capacitance



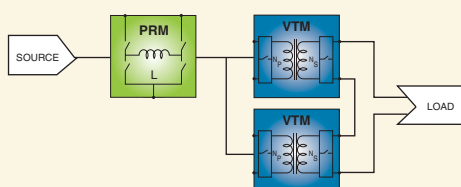
High Current Low Voltage Supply

- Enable twice the current in half the space
- Up to 240 W or 200 A



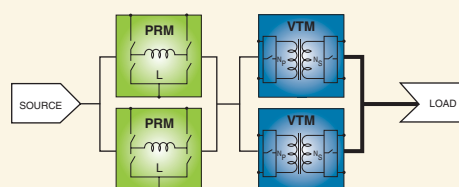
High Voltage Outputs

- 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



Bus Converter Module BCM

The Bus Converter Module (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 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

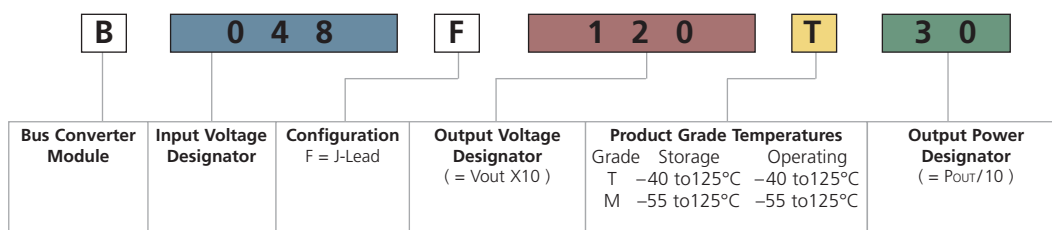
- Fixed-ratio bus converter
- Available in 48, 352, and 384 V inputs
- High density: Up to 1,095 W/in³
- Isolation to 4,242 Vdc
- Efficiency: Up to 97%
- No output filtering required
- Output power: Up to 300 W
- Small footprint: 1.1in² (7.1 cm²)
- Pick & place / SMD compatible
- 125°C operation
- >3.5 million hours MTBF

Heat Sinks Available

See page 49

Part Numbering

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



Input Voltage	K Factor	Vout		Max Power	BCM Model No.
		@ 48 Vin	Range		
38 – 55 Vdc	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	6.33 – 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 – 27.50 Vdc	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

Input Voltage	K Factor	Vout		Max Power	BCM Model No.
		@ Nom. Vin	Range		
330 – 365 Vdc	1/32	11.0 Vdc	10.30 – 11.4 Vdc	240 W	B352F110T24
360 – 400 Vdc	1/32	12.0 Vdc	11.25 – 12.5 Vdc	300 W	B384F120T30

Pre-Regulator Module PRM

The V•I Chip Pre-Regulator Module (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 Voltage Transformation Modules (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.



Features

- ZVS buck / boost regulator
- Provides factorized bus for 48 Vin VTMs
- Available in 24 and 48 V models
- Efficiency: Up to 97%
- High density: Up to 875 W/in³
- Small footprint: 1.1 in² (7.1 cm²)
- 125°C operation
- J-Lead package
- Pick & place / SMD compatible



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Available – Page 24

Heat Sinks Available

See page 49

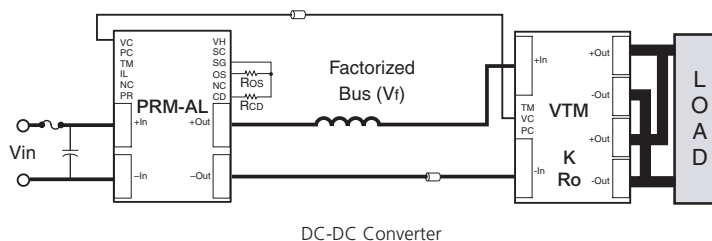
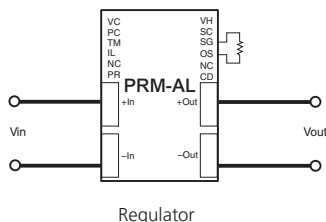
Part Numbering

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	Nominal Factorized Bus Voltage	Product Grade Temperatures Grade Storage Operating T -40 to125°C -40 to125°C M -55 to125°C -55 to125°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	4.2 A	P048F048T12AL	
38 – 55 Vdc	170 W	3.5 A	P045F048T17AL	
18 – 36 Vdc	120 W	2.5 A	P024F048T12AL	

Application Examples



Voltage Transformation Module VTM

The Voltage Transformation Module (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.



Features

- Fixed ratio DC-DC converter
- Output: Up to 100 A / 300 W
- High density: Up to 365 A/in³ (1,095 W/cm³)
- Small footprint: 1.1in² (7.1 cm²)
- Low weight: 0.5 oz (14 g)
- Pick & place / SMD compatible
- Efficiency: Up to 97%
- 125°C operation
- 1 μs transient response
- >3.5 million hours MTBF
- J-Lead package
- Isolation to 2,250 Vdc



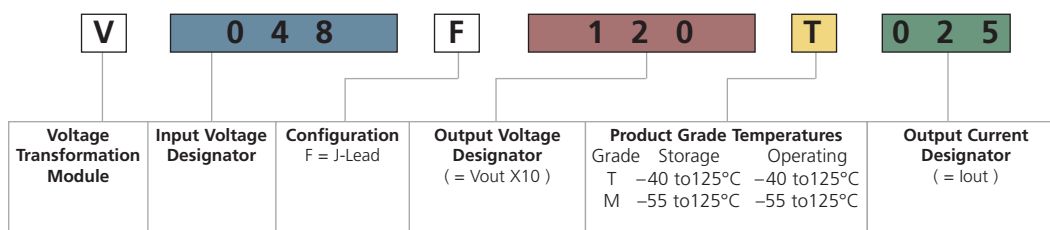
**MIL-COTS Version
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Heat Sinks Available

See page 49

Part Numbering

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



Input Voltage	K Factor	Vout		Output Current	VTM Model No.
		@ 48 Vin	Range		
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	3.3 Vdc	2.17 – 4.00 Vdc	60 A	V040F033T060
	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	4.33 – 8.98 Vdc	30 A	V048F080T030
	1/5	9.6 Vdc	6.00 – 11.00 Vdc	25 A	V048F096T025
	1/4	12.0 Vdc	6.50 – 13.80 Vdc	25 A	V048F120T025
	1/3	16.0 Vdc	8.70 – 18.30 Vdc	15 A	V048F160T015
	1/2	24.0 Vdc	13.00 – 27.50 Vdc	12 A	V048F240T012
	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

Intermediate Bus Converters IBC

These "VICBrick" Intermediate Bus Converter (IBC) modules use Vicor's V•I Chip Bus Converter Modules (BCM) to achieve the highest performance for Intermediate Bus Architecture applications. Operating from a 38 – 55 Vdc input, 9 different fixed-ratio outputs are available from 3 to 48 Vdc. You can choose the intermediate bus voltage that is optimal for your system and load requirements.

These quarter-bricks are available with a single BCM, rated up to 300 W or 70 A, or with dual BCMs, capable of 600 W or 100 A. Dual output pins are used for output currents over 50 A.



Features

- Up to 600 W
- 96% efficiency @ 9.6 Vdc
- 600 W @ 55°C, 400 LFM
- 100°C operating temperature
- Power density: 500 W/in³
- 38 – 55 Vdc input range
- 3.5 MHz switching frequency
- Fast dynamic response
- Parallelable, with fault tolerance
- Industry standard quarter-brick footprint

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

I	0 4 8	C	0 3 0	T	0 2 1	P	2
Format I = IBC	Nominal Input Voltage	C = Quarter Brick	Nominal Output Voltage (x10)	Product Grade Temperatures T = -40 to 125°C	Output Power (÷10)	Enable Polarity P = "+" M = "-"	Package Style

Output Voltage	Full Load Watts	Output Amps	Bus Converter Model No.	Number of BCMs	K Factor (Transformation Ratio)	Full Load Efficiency (%)	R _{OUT} (mΩ)	Max Load Capacitance
3.0	150	50.0	I048C030T015P1	1	1/16	94.5	2.0	31,000 μF
	210	70.0	I048C030T021P2	1		94.3	2.0	31,000 μF
	300	100.0	I048C030T030P2	2		94.1	1.0	62,000 μF
4.0	200	50.0	I048C040T020P1	1	1/12	93.7	2.3	17,000 μF
	400	100.0	I048C040T040P2	2		93.5	1.2	34,000 μF
6.0	240	40.0	I048C060T024P1	1	1/8	94.8	4.0	7,600 μF
	480	80.0	I048C060T048P2	2			2.0	15,200 μF
9.6	240	25.0	I048C096T024P1	1	1/5	96.3	10.0	3,000 μF
	480	50.0	I048C096T048P1	2			5.1	6,000 μF
12.0	300	25.0	I048C120T030P1	1	1/4	96.0	13.0	1,000 μF
	600	50.0	I048C120T060P1	2		96.0	6.5	2,000 μF
16.0	240	15.0	I048C160T024P1	1	1/3	95.7	20.0	900 μF
	480	30.0	I048C160T048P1	2			10.0	1,800 μF
24.0	300	12.5	I048C240T030P1	1	1/2	95.0	42.0	470 μF
	600	25.0	I048C240T060P1	2			21.0	940 μF
32.0	300	9.4	I048C320T030P1	1	2/3	95.0	67.0	200 μF
	600	18.7	I048C320T060P1	2			34.0	400 μF
48.0	300	6.3	I048C480T030P1	1	1	96.3	150.0	100 μF
	600	12.5	I048C480T060P1	2			75.0	200 μF

DC-DC Converters VICBrick

These VICBricks are quarter-brick sized, high-performance DC-DC converters that conform to industry-standard footprints and pin-outs, while delivering unprecedented performance in power density, efficiency, transient response, and cost. This superior performance is enabled by the revolutionary V•I Chip technology with its Sine Amplitude Converter topology. Dual output pins are used for output currents over 50 A.



Features

- 36 – 75 Vdc input
- 100°C operation
- High efficiency
- Low noise
- Only 0.36" in height
- Up to 84 A/in³ or 185 W/in³
- Industry-standard footprint
- Positive or negative logic enable
- 2,250 Vdc basic insulation

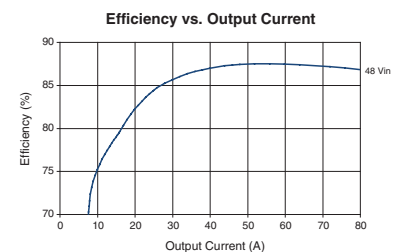


Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

D	0 4 8	C	0 3 3	T	0 1 8	M	2 N
Format	Nominal Input Voltage	C = Quarter Brick	Nominal Output Voltage (x10)	Product Grade Temperatures T = -40 to 125°C	Output Power (÷10)	Enable Polarity P = "+" M = "-"	Package Style

Input Range	Model Number	Output			Typ. Full Load Efficiency (%)
		Vnom	I _{max}	Trim Range	
36 – 75 Vdc	D048C010T010M2N	1	100	0.81 – 1.5 Vdc	83
	D048C012T012M2N	1.2	100		84
	D048C015T012M2N	1.5	80	1.08 – 2.19 Vdc	87
	D048C018T014M2N	1.8	80		88
	D048C025T017M2N	2.5	70	1.63 – 3.32 Vdc	89
	D048C030T016M2N	3.0	55		90
	D048C033T018M2N	3.3	55	2.17 – 4.0 Vdc	91
	D048C050T018M1N	5.0	36		92
	D048C100T018M1N	10.0	18	6.5 – 13.4 Vdc	92
	D048C120T022M1N	12.0	18.3		92
	D048C150T020M1N	15.0	13.3	8.67 – 17.9 Vdc	92
	D048C240T022M1N	24.0	9.2		92
	D048C280T019M1N	28.0	6.8	17.4 – 36 Vdc	92
	D048C480T022M1N	48.0	4.6		92



Typical efficiency vs. output current
1.5 Vout VICBrick

DC-DC Converter Modules VI-200 and VI-J00 Series

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.



MIL-COTS Version
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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
- 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 environmental grades

General Performance Refer to data sheet for detailed specifications

Parameter	C-, I-, M-Grade	E-Grade
Input voltage and output voltage	See Chart A on page 11	
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*	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)

* 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.

Part Number Configuration Chart For VI-200 and VI-J00 DC-DC Converters

IMPORTANT NOTICE: PLEASE READ BEFORE STARTING

Below is the part numbering format for Vicor VI-200 and VI-J00 DC-DC converters and configurables. The power levels shown are not available for every input and output voltage combination. **Refer to Chart A for maximum output power.** If you need more power than a VI-J00 offers, use a VI-200. If you need more power than a VI-200 ("driver"), add parallel "booster" modules (of the same power level).

Click~A~Brick

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VI	-	J	6		1	-	C	W
Family		Series	Input		Output		Grade	Power
VI Non-RoHS		2 200	0 12 V	4 72 V	Z 2 V	M 10 V	K 40 V	U 200 W
VE RoHS		J J00	1 24 V	T 110 V	Y 3.3 V	1 12 V	4 48 V	V 150 W
		B Booster	W 24 V	5 150 V	O 5 V	P 13.8 V	H 52 V	W 100 W
			2 36 V	6 300 V	X 5.2 V	2 15 V	F 72 V	X 75 W
			3 48 V	7 150/300 V	W 5.5 V	N 18.5 V	D 85 V	Y 50 W
			N 48 V		V 5.8 V	3 24 V	B 95 V	Z 25 W
					T 6.5 V	L 28 V		
					R 7.5 V	J 36 V		

Chart A For input and output voltages not listed, consult factory. See back cover for all phone numbers.

■ VI-200 Series ■ VI-J00 Series

	Input Voltage	Output Current or Power Available Per Module																	
Des.	Nom. (Range)	<5 V						5 V						10 V and Higher					
		5 A Z	10 A Y	15 A X	20 A W	30 A V	40 A U	25 W Z	50 W Y	75 W X	100 W W	150 W V	200 W U	25 W Z	50 W Y	75 W X	100 W W	150 W V	200 W U
0	12 V (10 – 20 V)	<div></div>	<div></div>	<div></div>				<div></div>	<div></div>	<div></div>				<div></div>	<div></div>	<div></div>			
1	24 V (21 – 32 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
W	24 V wide (18 – 36 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
2	36 V (21 – 56 V)	<div></div>	<div></div>	<div></div>	<div></div>			<div></div>	<div></div>	<div></div>	<div></div>			<div></div>	<div></div>	<div></div>	<div></div>		
3	48 V (42 – 60 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
N	48 V wide (36 – 76 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
4	72 V (55 – 100 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
T	110 V (66 – 160 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
5	150 V (100 – 200 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
6	300 V (200 – 400 V)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
7	150/300 V (100 – 375 V)	<div></div>	<div></div>	<div></div>	<div></div>			<div></div>	<div></div>	<div></div>				<div></div>	<div></div>	<div></div>	<div></div>		

Certain output and power combinations are not available for a given input voltage range. Always check with the factory to verify your part number. For assistance with product selection or part numbers, call your local Vicor office, or visit the part number configurators at vicorpower.com.

Battery Charger BatMod

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, welders, 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.

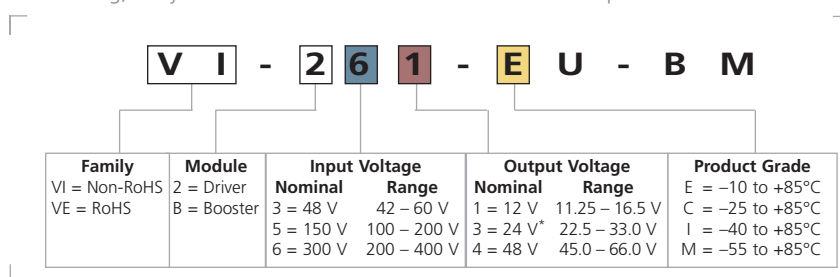
Features

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



Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.



* Available in 300 V input only.

General Performance Refer to data sheet for detailed specifications

Parameter		Remarks
Nominal input voltage	48 Vdc	42 – 60 V
	150 Vdc	100 – 200 V
	300 Vdc	200 – 400 V
Output current	0 – 14.5 A	12 V battery system
	0 – 7.25 A	24 V battery system
	0 – 3.6 A	48 V battery system
Current control input	1 – 5 V	Zero to max. current
Current monitor output	1 – 5 V	Zero to full load
Voltage control input	0 – 2.5 V	Zero to FS output
Output voltage set point	15 V, 30 – , 60 V +/-1%	12 V, 24 V, 48 V
Trimmable +10%, -25%		Output respectively
Dynamic characteristics	V-Mode: 300 µsec typ.	Vnom for 50 – 100% Load changes
	I-Mode: 250 µsec typ.	
Operating temp. / storage temp.	-10 to +85°C, -20 to +100°C	E-Grade
	-25 to +85°C, -40 to +100°C	C-Grade
	-40 to +85°C, -55 to +100°C	I-Grade
	-55 to +85°C, -65 to +100°C	M-Grade
Dielectric withstand	Input to output	3,000 Vrms
	Output to baseplate	500 Vrms
	Input to baseplate	1,500 Vrms

Packaging Options Chassis-mount housing for VI-200 and VI-J00 Series modules, see page 32.

SlimMod Flangeless package



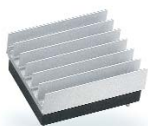
2.28" L x 1.80" W x 0.50" H
(57,9 x 45,7 x 12,7 mm)



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 11.

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 11.

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 11.

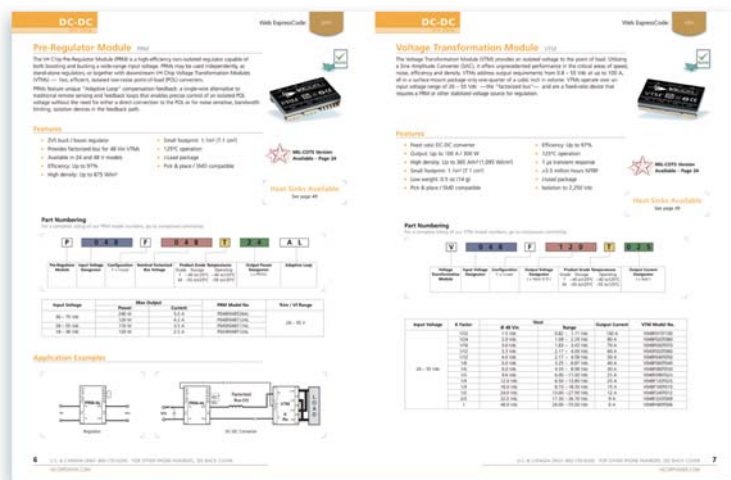
To order the BusMod separately:
Half-sized BusMod — P/N 18952
Full-sized BusMod — P/N 06322

Web ExpressCode Number

step 1 – Go to vicorpower.com

step 2 – Enter the express code from this product catalog into the Web ExpressCode box, shown on our homepage, to get quick and detailed information about each Vicor product.

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DC-DC Converter Modules Maxi, Mini and Micro 24, 48, 300 and 375 V

These 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.



**MIL-COTS Version
Available – Page 25**

Features

- 24 V input: 18 – 36 Vdc
- 48 V input: 36 – 75 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/in³
- 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
- Low parts count
- Low stress levels
- Low thermal impedance
- Cost effective
- 5 environmental grades



Module Mounting & Interconnect Options

See page 45

Click~A~Brick

vicorpower.com/cmds



General Performance Refer to data sheet for detailed specifications

Parameter		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 max.	Vout 95% of nominal
Short-circuit current	115% Iout max.	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
Size		
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	

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Part Numbering For Maxi, Mini and Micro Series DC-DC Converters



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



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



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

V	48	A	48	C	500	B	L	
Input Voltage		Package	Output Voltage	Product Grade	Output Power		Pin Style	Baseplate
		A = Maxi B = Mini C = Micro		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			Blank = Short solder L = Long solder S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	Blank = Slotted 2 = Threaded 3 = Thru hole

Consult factory for other input / output / power models.

24 Vin Series Output Power (Watts)

Output Voltage	Maxi	Mini	Micro
3.3 Vdc	264	150	75/50
5.0 Vdc	400	200	100/50
12.0 Vdc	400	200	100/50
15.0 Vdc	400	200	100/50
24.0 Vdc	400	200	100/50
28.0 Vdc	400	200	100/50
48.0 Vdc	400	200	100/50

375 Vin Series

Output Power (Watts)

Output Voltage	Maxi	Mini	Micro
2.0 Vdc	160	100	50
3.3 Vdc	264	150	75
5.0 Vdc	400	200	100
12.0 Vdc	600	300	150
15.0 Vdc	600	300	150
24.0 Vdc	600	300	150
28.0 Vdc	600	300	150
48.0 Vdc	600	300	150
54.0 Vdc	600		

300 Vin Series

Output Power (Watts)

Output Voltage	Maxi	Mini	Micro
2.0 Vdc	160	100	50
3.3 Vdc	264	150	75/50
5.0 Vdc	400	200	100/50
12.0 Vdc	500	250	150/75
15.0 Vdc	500	250	150/75
24.0 Vdc	500	250	150/75
28.0 Vdc	500	250	150/75
48.0 Vdc	500	250	150/75

48 Vin Series

Output Power (Watts)

Output Voltage	Maxi	Mini	Micro
2.0 Vdc	N/A	100	50
3.3 Vdc	264	150	75
5.0 Vdc	400	200	100/75/50
12.0 Vdc	500	250	150
15.0 Vdc	500	250	150
24.0 Vdc	500	250	150
28.0 Vdc	500	250	150
48.0 Vdc	500	250	150

* T-Grade storage temp. is -40°C; H-Grade storage temp. is -55°C

Evaluation Boards Evaluation of Maxi, Mini and Micro DC-DC Converters

- 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	Price
Maxi board style	24644	\$39.95
Mini board style	24645	\$39.95
Micro board style	24646	\$39.95



AC Input Harmonic Attenuator Module HAM

The Harmonic Attenuator Module (HAM) accepts an input of 85 – 264 Vdc. 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 48, offers a high-density power solution meeting EN61000-3-2.

Features

- Up to 675 W power output
- 85 – 264 Vac input
- 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

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

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	E = 600 W M = 600 W L = 675 W*

If power requirements exceed 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.

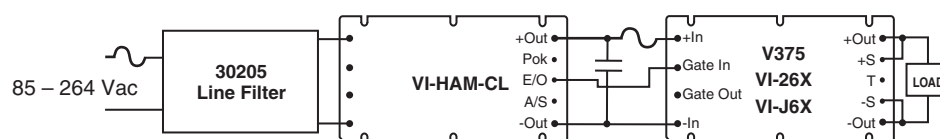
* Compatible with V375 Series

General Performance Refer to data sheet for detailed specifications

Parameter		Notes
AC line input	85 to 264 Vac	No strapping
	47 to 63 Hz	No damage below low line
Output power	Up to 675 W	
Efficiency	92%	
Power factor	0.99	
Total harmonic distortion*	<8.5%	
Output ripple	7 Vp-p	Cout = 1000 µF, 600 W
Inrush current	20 A peak	No external circuitry
Hold-up capacitance	420 – 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 @ 2 mA	
Thermal shut down	90 to 100°C baseplate	
Short-circuit protection	Yes	
Weight	6 oz (170 g)	

* With sinusoidal input voltage ITHD – VTHD = THD

Typical Configuration Not for design use; see data sheet for more information



AC Input Module AIM

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 25

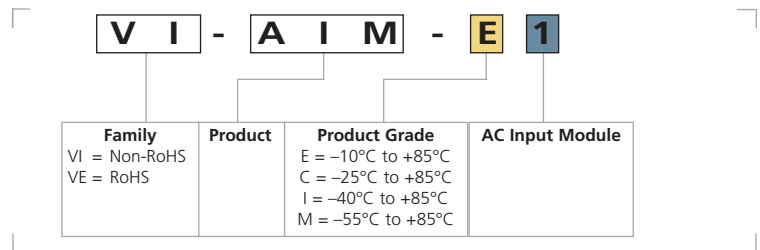


Features

- Universal input: 85 to 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

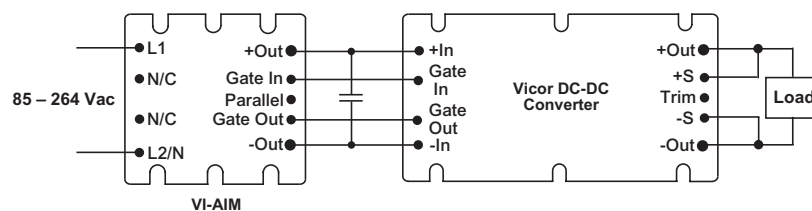
For ordering, call your nearest Vicor office. See back cover for all phone numbers.



General Performance Refer to data sheet for detailed specifications

Parameter		Notes
AC line input	85 to 264 Vac	No strapping
	47 to 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



Modular AC Front-end System ENMods

The ENMod system is an AC front-end solution for 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

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

E N 1 C 1 1			
Product Type*	Product Grade (°C)	Pin Style**	Baseplate
	E = -10 to +100 C = -20 to +100 T = -40 to +100*** H = -40 to +100***	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Thru hole

* EN1 product includes one each MiniHAM and FARM3, same product grade, pin and baseplate style.

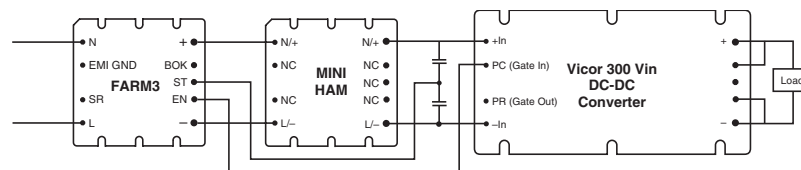
** Pin styles S & N are compatible with ModuMate interconnect systems for socketing and surface mounting.

*** T-Grade storage temp. is -40°C; H-Grade storage temp. is -55°C

General Performance Refer to data sheet for detailed specifications

Parameter		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 μ s line to earth
		1 kV – 50 μ s 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



Autoranging Rectifier Module ARM

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

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

V I - A R M - C 1 2

Product	Product Grade	Type	Pin Style
	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	1 = 500 W / 750 W 2 = 1,000 W / 1,500 W	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS

* T-Grade storage temp. is -40°C; H-Grade storage temp. is -55°C

Filter/Autoranging Rectifier Module FARM



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.

farm

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

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* H = -40 to +100°C* M = -55 to +100°C	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Thru hole

* 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	ARM-()22	FARM1()21	FARM2()21
Input voltage	90 – 132 Vac		90 – 132 Vac	
	180 – 264 Vac		180 – 264 Vac	
Input frequency (C-Grade)	47 – 63 Hz		47 – 63 Hz	
Input frequency (T-Grade)	47 – 880 Hz		47 – 880 Hz	
Output power				
115 Vac input	500 Watts	1,000 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	
Inches (mm)	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)	

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

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-3 through QPI-8 are designed to work with most switch-mode power supplies. The QPI-9 through QPI-12 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-11 and QPI-12 are half size 12,5 x 25 x 4,5 mm SiPs.

Features

- Up to 60 dB CM attenuation at 250 kHz
- Up to 80 dB DM attenuation at 250 kHz
- Efficiency: >99% at full load
- Surface-mount LGA package
- Integrated hot-swap in selected models
- Supports PICMG® 3.0 ATCA requirements

Advanced TCA®


Patents Pending

QPI Evaluation Boards Available

For more information,
go to picorpower.com



Part Numbering

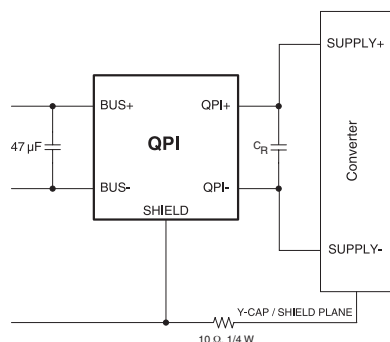
Part Number (Z = RoHS)	Input Voltage	Nominal Range	Current Rating	CM Attenuation @ 250 kHz	DM Attenuation @ 250 kHz	Hipot	Hot-Swap
QPI-3L(Z)	24/28 Vdc	10 – 40 Vdc	7 A	60 dB	80 dB	707 Vdc	N/A
QPI-4L(Z)	48/60 Vdc	30 – 80 Vdc	7 A	40 dB	70 dB	1,500 Vdc	N/A
QPI-5L(Z)	24/28 Vdc	10 – 40 Vdc	14 A	60 dB	80 dB	707 Vdc	N/A
QPI-6L(Z)	48/60 Vdc	30 – 80 Vdc	14 A	40 dB	80 dB	1,500 Vdc	N/A
QPI-7L(Z)	24/28 Vdc	18 – 38 Vdc	6 A	50 dB	80 dB	707 Vdc	Yes
QPI-8L(Z)	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-9L(Z)	24/28 Vdc	18 – 38 Vdc	6 A	65 dB	80 dB	707 Vdc	Yes
QPI-10L(Z)	48/60 Vdc	32 – 76 Vdc	6 A	45 dB	70 dB	1,500 Vdc	Yes
QPI-11L(Z)	24/28 Vdc	5 – 50 Vdc	7 A*	65 dB	80 dB	707 Vdc	N/A
QPI-12L(Z)	48/60 Vdc	10 – 80 Vdc	7 A*	45 dB	70 dB	1,500 Vdc	N/A

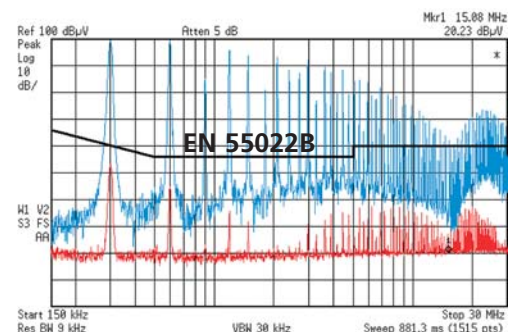
* Parallelable for up to 14 A.

Typical Configuration Not for design use; see data sheet



Models QPI-3 through QPI-8

Performance



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

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

The QPO output ripple attenuator SiP (System-in-Package) 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.

Features

- >30 dB PARD attenuation, 1 kHz to 500 kHz
- 25 x 25 x 4,5 mm SiP, LGA mounting
- Supports precise point-of-load regulation
- 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



Patents Pending

QPO Evaluation Boards Available

For more information, go to picorpower.com

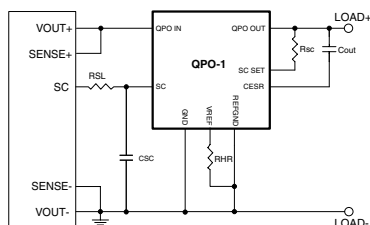
Part Numbering

Part Number (Z = RoHS)

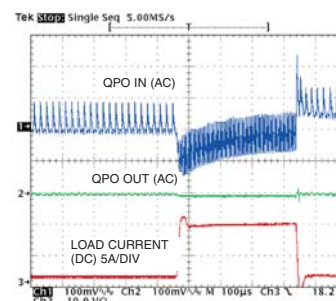
Description

QPO-1L(Z)	3 – 30 Vdc input, 10 A, > 30 dB PARD attenuation, 1 kHz to 500 kHz
QPO-2L(Z)	0.5 – 5.5 Vdc input, 20 A, > 20 dB PARD attenuation, 1 kHz to 500 kHz, Aux. Bus biased

Typical Application



Performance

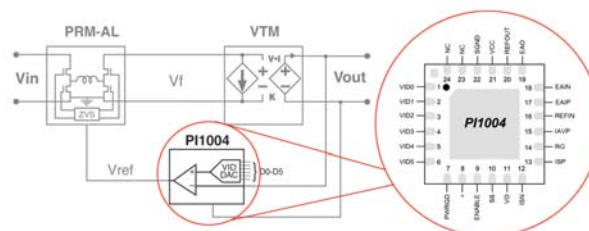


Programmable POL Controller PI1004-X

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 to 12 V operation
- Power good output with blanking
- Programmable adaptive voltage positioning (AVP)
- 24 pin, 4 x 4 mm QFN



Filter Input Attenuator Module FIAM

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
- 36 – 76 Vdc input
- 10 and 20 Amp versions
- Agency approvals: cULus, cTÜVus, CE Marked



Defense / MIL-COTS
Version – Page 26

General Performance Not for design use; see data sheet

Parameter

Input voltage	36 to 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 size	2.28" x 2.2" x 0.5" (57,9 x 55,9 x 12,7 mm)

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

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* 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 = Thru hole

* T-Grade storage temp. is -40°C; H-Grade storage temp. is -55°C

Input Attenuator Module IAM

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)



iam



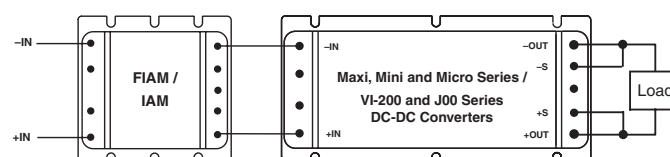
Defense / MIL-COTS
Version – Page 26

IAM Models and General Performance

Model	Min.	Typ.	Max.	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

Typical Configuration Output response to an input transient



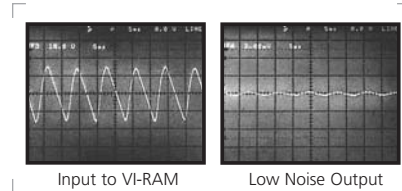
Block diagram for either FIAM and IAM modules,
see product specific data sheet for connection diagram

Ripple Attenuator Module RAM

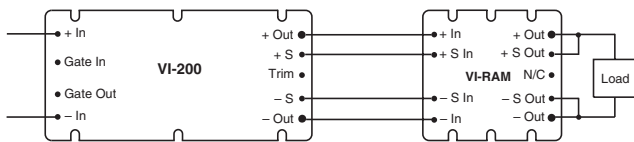
Combining active and passive filtering, the RAM attenuates both low-frequency input power source fundamental and harmonics, and high-frequency switching components in the frequency range of DC to 20 MHz, while exhibiting efficiencies of 93 – 99%. No adjustments are required, and remote sense and output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

Features

- Reduces output ripple to <3 mV pp (VI-200)
- Compatible with any VI-200 / VI-J00 based product: 5 to 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

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

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

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

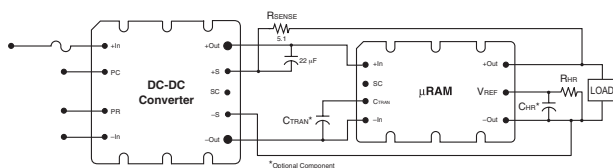
Features

- Integrated OR'ing 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



MIL-COTS Version
Available – Page 26

Typical Configuration Not for design use; see data sheet



Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

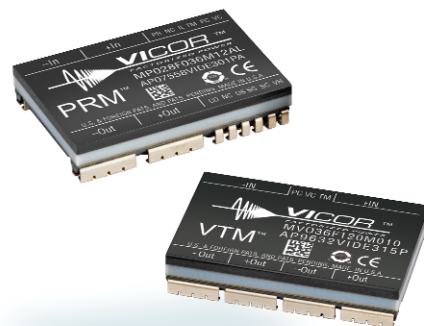
μ R A M - 2 C 2 1				
Product	Type	Product Grade (°C)	Pin Style	Baseplate
	2 = 20 Amps 3 = 30 Amps	C = -20 to +100 T = -40 to +100* H = -40 to +100* M = -55 to +100	1 = Short 2 = Long S = Short ModuMate N = Long ModuMate F = Short RoHS G = Long RoHS	1 = Slotted 2 = Threaded 3 = Thru hole

* T-Grade storage temp. is -40°C; H-Grade storage temp. is -55°C

28 V DC-DC V•I Chip Modules Pre-Regulator Modules and Voltage Transformation Modules

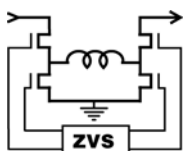
Voltage Transformation Modules (VTMs) put isolated current multiplication and voltage division directly at the point of load (POL), and an upstream Pre-Regulator Module (PRM) controls the factorized bus voltage supplied to the VTM to provide line and load regulation. Together, the PRM and VTM chip set 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 to 50 Vdc in a surface-mount package occupying only 1 in².



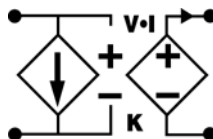
Features for PRM

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



Features for VTM

- Isolated 1–50 Vdc output
- 1 μ s transient response
- 3 MHz switching frequency
- Efficiency: Up to 96.5%
- –55 to 125°C operation



MIL-COTS Product Catalog Designing with Component Power

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

milcat



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

Includes complete information on these and other products.

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

DC-DC Converter Modules Maxi, Mini and Micro Series

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

Features

- 24, 48, 300, and 375 Vdc inputs
- 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
vicorpower.com



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

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

- 28 and 270 Vdc inputs per MIL-STD-704D/E/F
- 155 Vdc input per MIL-STD-1399A
- Output voltages from 2 – 48 Vdc
- 10 to 100 W output power
- MIL-STD-810 and MIL STD-202 qualified
- NAVMAT component derating guidelines
- Up to 25 W/in³ power density
- 75 and 100 W booster modules available



AC Front-end Module MI-AIM

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



Output Ripple Attenuator Module MicroRAM

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 to 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
- 3 – 30 Vdc input



Filter Input Attenuator Module M-FIAM

The M-FIAM is a DC front-end module that provides EMI filtering and transient protection. The M-FIAM enables designers using Vicor 24 and 300 V Maxi, Mini and Micro DC-DC converters to meet conducted emission / conducted susceptibility per MIL-STD-461E; and input transients per MIL-STD-704E/F.

Features

- MIL-STD-461E conducted emissions / susceptibility
- MIL-STD-704E/F transient protection
- MIL-STD-810 and MIL-STD-202 qualified
- Compatible with 24 and 300 Vdc input Maxi, Mini and Micro DC-DC converters



Input Attenuator Module MI-IAM

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

Features

- 28 and 270 Vdc per MIL-STD-704A and MIL-STD-1275A/B
- MIL-STD-461C/D/E conducted emissions / susceptibility
- MIL-STD-810 and MIL-STD-202 qualified
- Compatible with MI-200 and MI-J00



Chassis-Mount DC-DC Converter MI-MegaMod Family

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 of 28, 155, and 270 Vdc
- Output voltages from 2 – 48 Vdc
- Up to 13.5 W/in³
- 1, 2 or 3 outputs, up to 300 W



DC Power Supply MI-ComPAC

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.

mcompac

Features

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



Chassis Mount DC-DC Converter VIPAC Arrays

VIPAC Arrays are a highly flexible 24 and 300 Vdc input power system that can be configured with up to four user-defined outputs, with power capability, up to 750 W.

mvipac

Features

- 24 and 300 Vdc inputs
- –55°C operation
- Rugged, low profile, coldplate chassis
- Configurable multi outputs up to 750 W

Configure your
MIL-COTS VIPAC Arrays online at

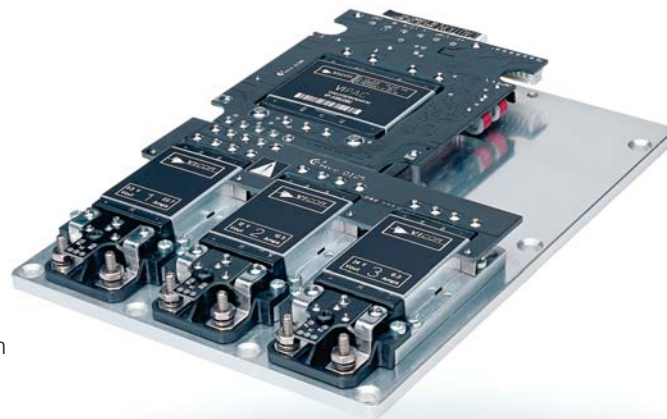
vicorpower.com/vcad



AC-DC or DC-DC Configurable Power Supply VIPAC Power System

Vicor's 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, in AC input versions, 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 may be specified for operation from 48 Vdc or 115/230 Vac. The PPU incorporates Vicor's FIAM (for DC input) or autoranging FARM (for AC input) modular front end to provide transient protection, EMI filtering, and inrush current limiting. The web-based VIPAC Design Center enables designers to configure the PPU with up to three independently regulated outputs having power levels from 50 to 500 W and with as much as 900 W total output power.



Features

- AC input: 115/230 Vac autoranging, 47 – 440 Hz
- DC input: 48 Vdc
- Output voltages: 2 – 48 Vdc
- Output power: 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, cTUVus, CE Marked



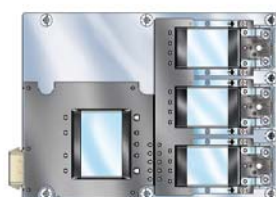
RoHS-compliant versions can be selected with the VIPAC Design Tool.

**Configure your
VIPAC Power System
online at**

vicorpower.com/vcad



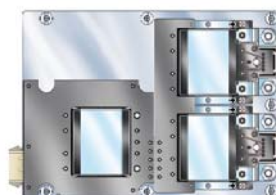
Chassis Configurations Dimensions vary with specific model configurations



- 3 Micros**
- 4.96" x 6.8" (126,0 x 172,7 mm)
 - Dual or triple output
 - Up to 450 W



- 2 Micros**
- 3.15" x 6.8" (80,0 x 172,7 mm)
 - Single or dual output
 - Up to 300 W



- 2 Minis**
- 4.96" x 6.8" (126,0 x 172,7 mm)
 - Single or dual output
 - Up to 500 W



- 1 Mini**
- 3.15" x 6.8" (80,0 x 172,7 mm)
 - Single output
 - Up to 250 W



- 2 Maxis**
- 4.96" x 9.15" (126,0 x 232,4 mm)
 - Single or dual output
 - Up to 900 W



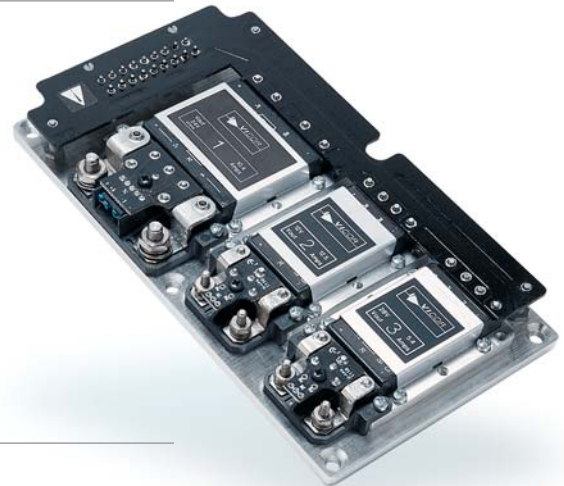
- 1 Maxi**
- 3.15" x 9.15" (80,0 x 232,4 mm)
 - Single output
 - Up to 500 W



- 1 Micro**
- 3.15" x 6.8" (80,0 x 172,7 mm)
 - Single output
 - Up to 150 W

DC Input Power System • 1 – 4 Outputs VIPAC Arrays

VIPAC Arrays are a highly flexible system of DC input, power building blocks that 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, 48, 300, or 375 Vdc and outputs from 2 to 48 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.



Features

- Input voltage: 24, 48, 300 or 375 V
- Booster versions for higher output current applications
- Agency approvals: cULus, cTUVus, CE Marked
- Dimensions: 4.6" x 2.4" x 0.5" (116,9 x 61,0 x 12,7 mm)



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

**Configure your
VIPAC Array online at**

vicorpower.com/vcad



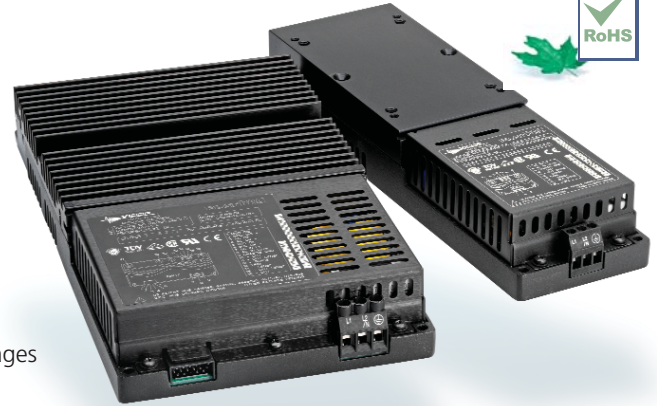
Chassis Configurations Dimensions vary with specific model configurations

	2 Minis <ul style="list-style-type: none"> ■ Single or dual outputs ■ 3.62" x 6.69" ■ (92,0 x 170,0 mm) ■ Up to 600 W total 	A		1 Micro, 2 Minis <ul style="list-style-type: none"> ■ Dual or triple outputs ■ Up to 750 W total ■ 3.62" x 7.52" ■ (92,0 x 191,0 mm) 	E
	1 Mini, 2 Micros <ul style="list-style-type: none"> ■ Single, dual or triple outputs ■ Up to 600 W total ■ 3.62" x 6.69" ■ (92,0 x 170,0 mm) 	B		4 Micros <ul style="list-style-type: none"> ■ Dual, triple or quad outputs ■ Up to 600 W total ■ 3.62" x 7.52" ■ (92,0 x 191,0 mm) 	F
	3 Micros <ul style="list-style-type: none"> ■ Dual or triple outputs ■ Up to 450 W total ■ 3.62" x 6.69" ■ (92,0 x 170,0 mm) 	C		1 Mini <ul style="list-style-type: none"> ■ Single output ■ Up to 300 W ■ Current share option ■ 3.62" x 4.39" ■ (92,0 x 112,0 mm) 	G
	1 Maxi <ul style="list-style-type: none"> ■ Single output ■ Up to 600 W ■ Current share option ■ 3.62" x 6.69" ■ (92,0 x 170,0 mm) 	D		2 Micros <ul style="list-style-type: none"> ■ Single or dual outputs ■ Up to 300 W total ■ 3.62" x 4.39" ■ (92,0 x 112,0 mm) 	H

50 – 600 Watt AC-DC Power System FlatPAC Family

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 to 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, see p.12.



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, cTUVus, 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
- Conduction-cooled models available
- Low profile only 1.37" (34,7 mm)
- Custom output voltages also available
- BatMod current-source option available

Configure a FlatPAC Part Number

see page 33

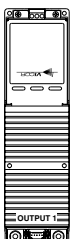
General Performance Refer to data sheet for detailed specifications

Parameter

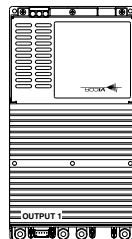
Number of outputs	1 to 3
Output power	Up to 600 W
Input voltage	90 – 132 Vac / 180 – 264 Vac
	47 – 63 Hz (400 Hz available; contact factory)
Conducted EMI	EN/FCC "B"
Set point	±1% max. (E-Grade 2%)
Load / line regulation	0.2% max. (E-Grade 0.5%)
Output ripple (pp)	150 mV or 3% max. (E-Grade 5%)
Trim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

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

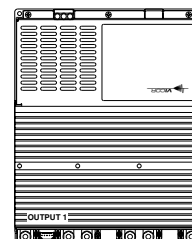
Chassis Configurations



- 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)

50 – 600 Watt DC Input Power System ComPAC Family

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, see p.12.



MIL-COTS Version
Available – Page 27



Conduction-cooled
ComPAC models available

Features

- Inputs: 24, 48, and 300 Vdc
- Any output: 1 to 95 Vdc
- Agency approvals: cULus, cTUVus, CE Marked
- Efficiency: 80 – 90%
- Up to 10 W/in³
- 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
- Conduction-cooled models available
- Optional high-performance heat sink

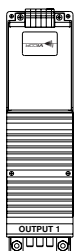
General Performance Refer to data sheet for detailed specifications

Parameter	Rating	Unit
Input voltage range	18 – 36	Vdc
	21 – 32	Vdc
	42 – 60	Vdc
	36 – 76	Vdc
	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

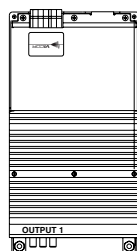
Configure a ComPAC Part Number

see page 33

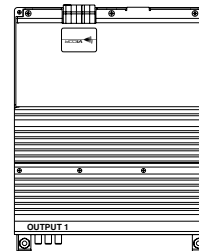
Chassis Configurations



- 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)

Chassis-Mount VI-200 / VI-J00 Converters Full and Half-sized MegaMods

MegaMod and MegaMod Jr. DC-DC converters incorporate one, two, or three Vicor VI-200 or VI-J00 MiniMod 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.



MIL-COTS Version
Available – Page 27



Features

- Inputs: 10 to 400 Vdc
- Any output: 1 to 95 Vdc
- Agency approvals: cULus, cTUVus, CE Marked
- Efficiency: 80 – 90% (typical)
- Up to 27 W/in³
- Low profile: 0.62" 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)

Configure a MegaMod Part Number

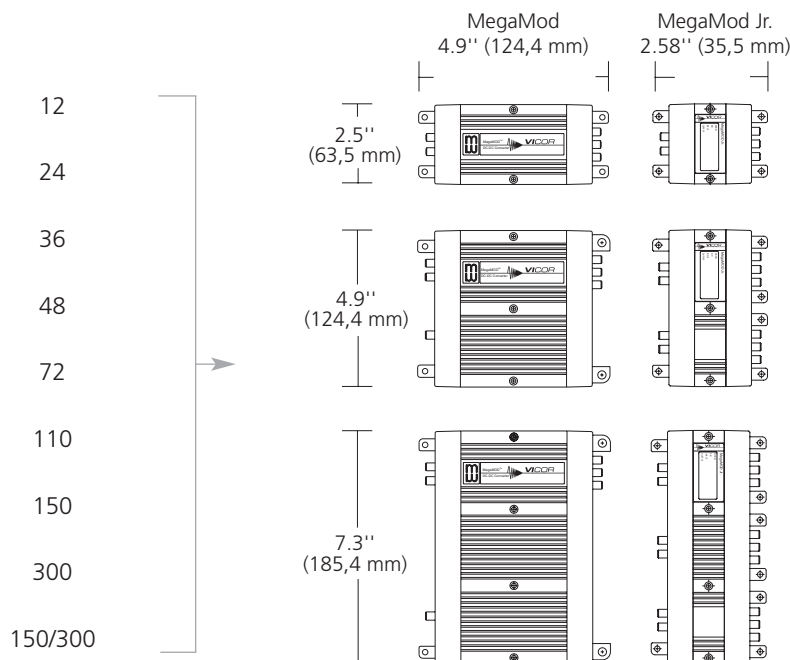
see page 33

Chassis Configurations

Input Selection

Package

Output Power



- Single output
- 50 – 200 Watts — MegaMod
- 25 – 100 Watts — MegaMod Jr.
- Single or dual outputs
- 100 – 400 Watts — MegaMod
- 50 – 200 Watts — MegaMod Jr.
- Single, dual or triple outputs
- 100 – 600 Watts — MegaMod
- 75 – 300 Watts — MegaMod Jr.

Part Number Configuration Chart For FlatPAC Family, CompAC Family, and MegaMod Family

Output Configurations for FlatPACs, CompACs and MegaMods

	Family Style	Module	Total Number Internal Modules	Modules Per Output		
				OUT 1	OUT 2	OUT 3
Single outputs:	L	VI-200	1	1	—	—
	M	VI-200	2	2	—	—
	N	VI-200	3	3	—	—
	P	VI-200	2	1	1	—
Dual outputs:	PJ	VI-200	2	1	1	—
	Q	VI-200	3	2	1	—
Triple outputs:	R	VI-200	3	1	1	1
	RJ	VI-200	3	1	1	1

The chart to the left shows the number of modules per output for MegaMod product families. Refer to Chart A, on page 11, for a complete listing of available output voltages and to determine the maximum output power available for each internal module, with your specific input / output voltage combination.

If your power requirements exceed the limits shown here, call Vicor Express or your local Vicor office for information regarding booster versions. See back cover for all telephone numbers.

FlatPAC Family Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.



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

All voltages available for output 1, 2, or 3

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

CompAC Family Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.



Family	Input	Out 1	Out 2*	Out 3**	Grade	Power 1	Power 2*	Power 3**
L = Single	1 = 24 V***	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 V	V = 150 W	V = 150 W
N = Single	3 = 48 V	O = 5 V	P = 13.8 V	H = 52 V	I = –40°C	Q = 400 V	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 V	X = 75 W	X = 75 W
Q = Dual	6 = 300 V	W = 5.5 V	N = 18.5 V	D = 85 V		U = 200 V	Y = 50 W	Y = 50 W
R = Triple		V = 5.8 V	3 = 24 V	B = 95 V		V = 150 V		
		T = 6.5 V	L = 28 V			W = 100 V		
		R = 7.5 V	J = 36 V			X = 75 V		
						Y = 50 V		

All voltages available for output 1, 2, or 3

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

MegaMod Part Numbering

Some output voltages and power combinations are not available for a given input voltage. Always check with the factory to verify your part number.

For ordering, call your nearest Vicor office. See back cover for all phone numbers.



Family	Input	Out 1	Out 2*	Out 3**	Grade	Power 1	Power 2*	Power 3**
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	1 = 24 V***	Y = 3.3 V	1 = 12 V	4 = 48 V	C = –25°C	P = 450 V	V = 150 W	V = 150 W
N = Single	W = 24 V	O = 5 V	P = 13.8 V	H = 52 V	I = –40°C	Q = 400 V	W = 100 W	W = 100 W
P = Dual	2 = 36 V	X = 5.2 V	2 = 15 V	F = 72 V	M = –55°C	S = 300 V	X = 75 W	X = 75 W
Q = Dual	3 = 48 V	W = 5.5 V	N = 18.5 V	D = 85 V		U = 200 V	Y = 50 W	Y = 50 W
R = Triple	N = 48 V	V = 5.8 V	3 = 24 V	B = 95 V		V = 150 V	Z = 25 V	Z = 25 V
LJ = Single	4 = 72 V	T = 6.5 V	L = 28 V			W = 100 V		
PJ = Dual	T = 110 V	R = 7.5 V	J = 36 V			X = 75 V		
RJ = Triple	5 = 150 V					Y = 50 V		
	6 = 300 V					Z = 25 V		
	7 = 150/300 V							

All voltages available for output 1, 2, or 3

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

** For R and RJ only. Refer to output configuration chart above.

*** Max output power / module 150 W.

375 V Output FrontEnd PFC FrontEnd*

The PFC FrontEnd is low-profile, 1 RU enclosed chassis-mount AC front end that may be used with any 375 Vin Vicor module, VIPAC Array, or other module to create a complete, high-density AC-DC power supply. Accepting universal input voltages of 85 to 264 Vac, and 100 to 385 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/in³.

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.



Features

- Power Factor Corrected (PFC)
- Low profile 1.72" (43,6)
- Output power up to 2,200 Watts
- 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

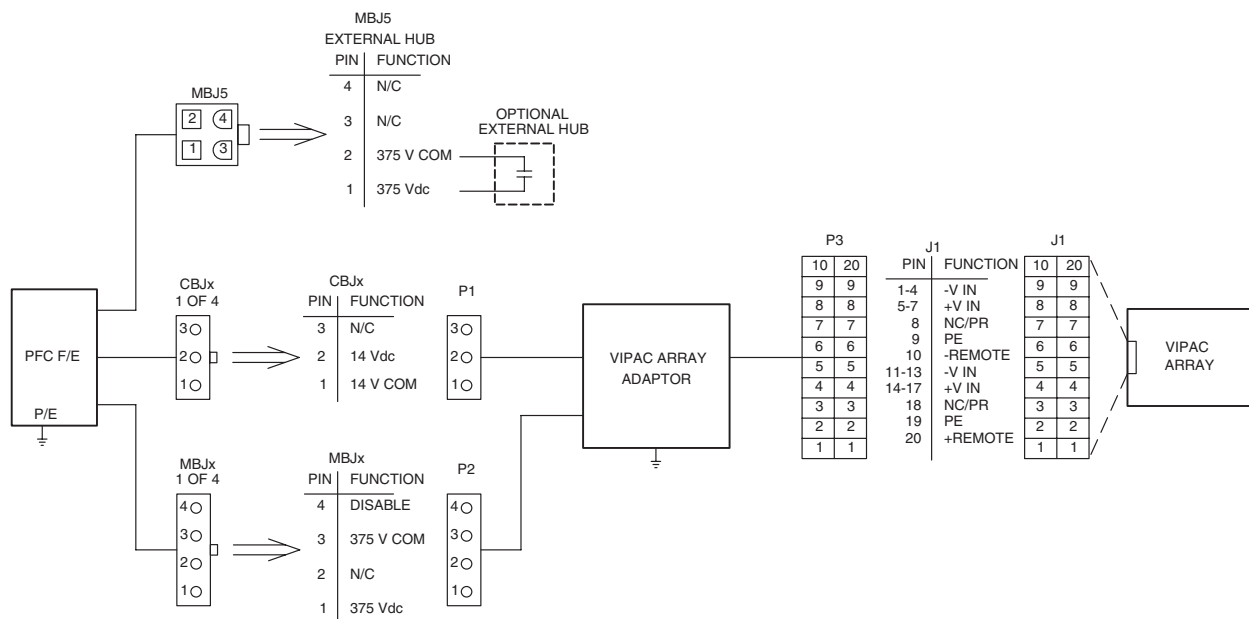
Part Number

F E 3 7 5

General Performance Refer to data sheet for detailed specifications

Product	Size	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	2,200 W @ 230 Vac	4 (non-isolated)
		47 – 500 Hz		
		100 – 380 Vdc	1,100 W @ 115 Vac	375 Vdc

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



* Available Q2, 2006. Consult Factory.

AC-DC PFC Single Output Power System PFC FlatPAC

The PFC FlatPAC uses Vicor's field-proven VI-HAM and Maxi DC-DC converters to deliver up to 600 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 600 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, cTUVus, 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)	
Size	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)			
C-Grade and E-Grade	30 to +100	°C	
I-Grade	–55 to +100	°C	

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

V	I	-	C	M	U	3	C	M	-	-	
Input		Output Voltage			Product Grade (°C)			Output Power		Options	
Universal 85 – 264 Vac		0 = 5.0 V 4 = 48 V 1 = 12 V Z = 2.0 V 2 = 15 V Y = 3.3 V 3 = 24 V J = 36 V L = 28 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 = 600 W		-CC = Conduction Cooled	

AC-DC Switcher Power Supplies LoPAC Family – PFC Mini, PFC Micro and PFC MicroS

The LoPAC Family consists of three power supplies and are 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, 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
- Choice of full, half, or quarter brick
- Up to 6 user-specifiable outputs
- Power density: Up to 11 W/in³
- Autosense feature
- Agency approvals: cTUVus, CE Marked
- Fan cooled

**Configure a LoPAC
online at**

vicorpower.com/vspoc



Standard Single-Output AC-DC Switchers



PFC Mini*	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-12-2	12	125.0	1,500
PM1-03B-05-2	5	240.0	1,200

* Replace -2 with -G for RoHS compliant

PFC Micro*	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-12	12	66.7	800
PC1-02B-05	5	160.0	800

* Add -G to the end of the part number for RoHS compliant

PFC MicroS*	Vout	Amps	Watts
PS1-01-48	48	12.5	600
PS1-01-28	28	21.4	600
PS1-01-24	24	25.0	600
PS1-01-12	12	50.0	600
PS1-01-05	5	80.0	400

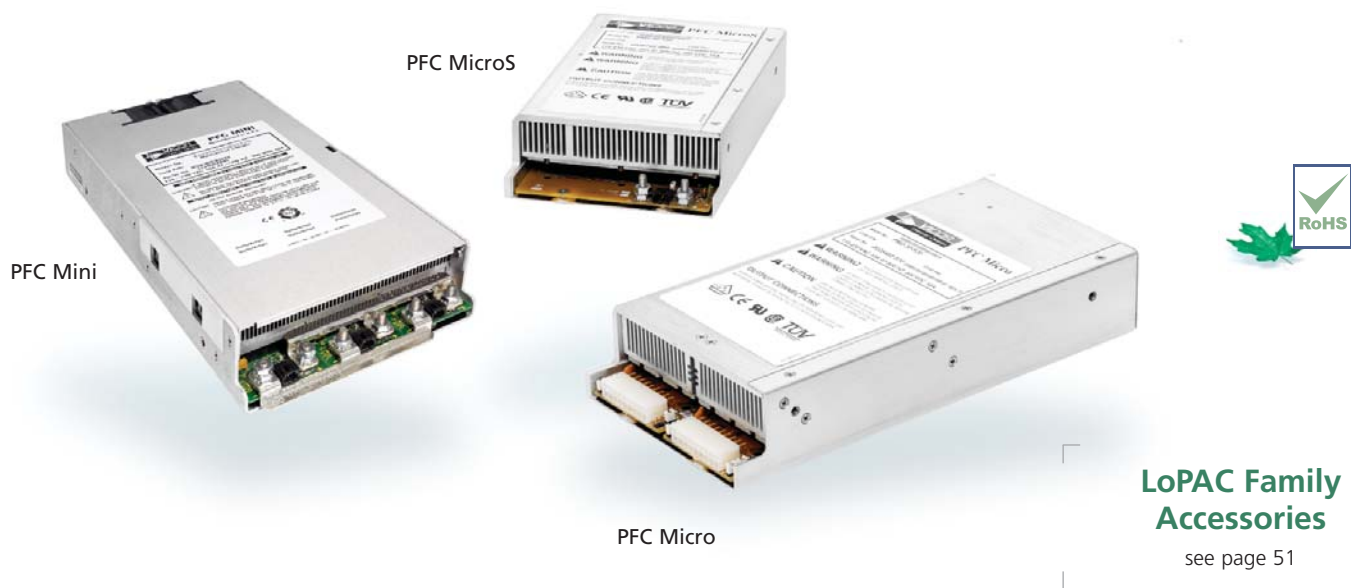
* Add -G to the end of the part number for RoHS compliant

Low Profile PFC – 1.72" (43,7 mm) / 1.86" (47,2 mm)

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all numbers.

P M	X₁	–	X₂	X₃	-X₄	XXXX	-X₅	-X₆
Product Prefix PM = PFC Mini PC = PFC Micro PS = PFC MicroS	Number of Output Voltages		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 = FastTrak G = RoHS	Optional Codes LL = Low Leakage QF = Quiet Fan



LoPAC Family Accessories

see page 51

General Performance Refer to data sheet for detailed specifications

Product	Size	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	Full or 2 Half or 3 Quarter

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

New Affordable Power Supply Option The VANTAGE Line

Now you can have the Westcor "advantage" of power supplies at a **15% discount** (complete power supplies). 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.

Applicable on all new design-ins starting March 21, 2006

You can configure your complete VANTAGE power supply NOW by visiting VSPOC (Vicor System Product Online Configurator), the flexible, easy-to-use power supply configurator at vicorpower.com/vspoc



For more information, call your local Vicor Representative. For your nearest Rep location go to vicorpower.com/contact_us

User-configurable Power Supply • 1 – 20 Outputs

MegaPAC Family

The MegaPAC family from Westcor 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

- 200 to 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 model)
- Current sharing available

Configure your
MegaPAC online at

vicorpower.com/vspoc



General Performance

Refer to data sheet for detailed specifications

Product	Size	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)	115/230 Vac; Strappable 260-380 Vdc	1,000 W @ 115 Vac or 230 Vac	1–10 Outputs (5 slots)	ModuPAC(M), JrPAC(J), DualPAC(D), RAMPAC(R), BatPAC(B)
Autoranging MegaPAC	11.9" x 6.0" x 3.4" (302,3 x 152,4 x 86,4)	115/230 Vac; Autoranging 260-380 Vdc	1,200 W @ 115 Vac 1,600 W @ 230 Vac	1–16 Outputs (8 slots)	ModuPAC(M), JrPAC(J), DualPAC(D), RAMPAC(R), BatPAC(B)
PFC MegaPAC	12.3" x 6.0" x 3.4" (312,4 x 152,4 x 86,4)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 1,600 W @ 230 Vac	1–16 Outputs (8 slots)	ModuPAC(M), JrPAC(J), DualPAC(D), RAMPAC(R), BatPAC(B)
PFC MegaPAC-EL	15.6" x 6.0" x 3.4" (396,2 x 152,4 x 86,4)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 1,600 W @ 230 Vac	1–16 Outputs (8 slots)	QPAC(L), JrQPAC(LJ), DualQPAC(LD)
4 kW MegaPAC-EL	17.0" x 7.5" x 4.9" (431,8 x 190,5 x 124,5)	208 or 240 Vac; 3-Phase 260 – 352 Vdc	2,000 W - 4,000 W, (3Ø) 1,500 W, (1Ø)	1–20 Outputs (10 slots)	QPAC(L), DualQPAC(LD), JrQPAC(LJ), QPAC(XU)
PFC MegaPAC-HP	12.3" x 6.0" x 3.4" (312,4 x 152,4 x 86,4)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 2,400 W @ 230 Vac	1–13 Outputs (8 slots)	BatPAC(B), ModuPAC(M), JrPAC(J), DualPAC(D), RAMPAC(R), FinPAC(PZ)
PFC MegaPAC-HPEL	15.6" x 6.0" x 3.4" (396,2 x 152,4 x 86,4)	85 – 264 Vac 100 – 380 Vdc	1,200 W @ 115 Vac 2,400 W @ 230 Vac	1–13 Outputs (8 slots)	QPAC(L), DualQPAC(LD), JrQPAC(LJ), FinQPAC(PZL)
4 kW MegaPAC	14.0" x 7.5" x 4.9" (355,6 x 190,5 x 124,5)	208 or 240 Vac; 3-Phase 260 – 352 Vdc	2,000 W - 4,000 W, (3Ø) 1,500 W, (1Ø)	1–20 Outputs (10 slots)	ModuPAC(M), JrPAC(J), DualPAC(D), RAMPAC(R), BatPAC(B), UniPAC(XQ)

MegaPAC Series

Low Noise Series

High Power Series

* FinPACs and FinQPACs require two slots

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

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

MP	X ₁	–	X ₂	XXXX	–X ₃	–X ₄ X ₅	–X ₆
Product Prefix MP = PFCs, Autoranging or 3-Phase using VI-200 / VI-J00 Series Modules only MX = PFCs, Autoranging or 3-Phase using VI-200 / VI-J00 Series and/or Maxi Series Modules only MM = Strappable	Number of Output Voltages		Optional Codes 1 = Autoranging / Strappable 4 = 3-Phase 7 = PFC 9 = Autoranging	Factory Assigned	Optional Codes 2 = FasTrak G = RoHS	Optional Codes	Optional Codes EL = Extended Length LL = Low Leakage

ConverterPACs Output power up to 600 Watts

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 Output power up to 200 Watts

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

bricks1



ModuPAC (M)
RoHS Compliant (GM)
Up to 200 W



JuniorPAC (J)
RoHS Compliant (GJ)
Up to 100 W



RamPAC (R)
RoHS Compliant (GR)
Up to 100 W



BatPAC (B)
RoHS Compliant (GB)
Up to 200 W
programmable current source



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



QPAC (L)
RoHS Compliant (GL)
Up to 200 W



DualQPAC (LD)
RoHS Compliant (GLD)
Up to 100 W / output



JrQPAC (LJ)
RoHS Compliant (GLJ)
Up to 100 W

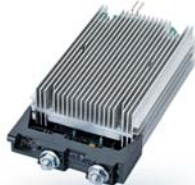
Maxi ConverterPAC Output power up to 600 Watts

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

bricks2



UniPAC (XU)
RoHS Compliant (GXU)
Up to 500 W



FinPAC (PZ)
RoHS Compliant (GPZ)
Up to 600 W



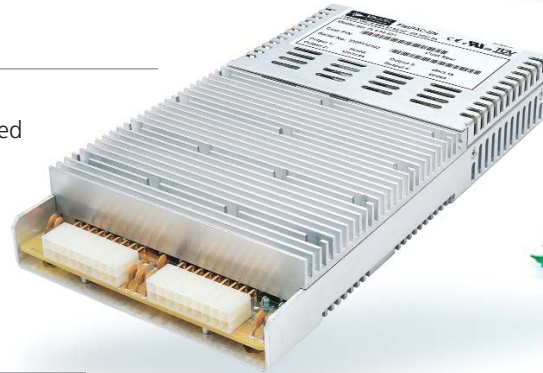
QPAC (XQ)
RoHS Compliant (GXQ)
Up to 500 W



FinQPAC (PZL)
RoHS Compliant (GPL)
Up to 600 W

AC-DC Power Supply FlatPAC-EN

With a power density greater than 7 W/in³, 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 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 to 95 Vdc and 25 to 500 Watts, as well as an array of non-standard output voltages
- Special extended temperature range (-E) and low leakage (-LL) versions available
- Conduction or convection cooled (same model)

FlatPAC-EN Accessories

see page 51

General Performance Refer to data sheet for detailed specifications

Product	Size	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)	85 – 132 / 180 – 264 Vac 250 – 380 Vdc	500 W (425 W for EN compliance)	1 – 4

Part Numbering

For ordering, call your nearest Vicor office. See back cover for all phone numbers.

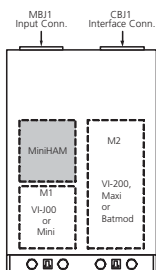
FL	X₁	–	X₂	X₃	–XXXX	–X₄	–X₅
Product Prefix FL = FlatPAC-EN	Number of Output Voltages		Number of VI-200 / VI-J00 Series Modules	Number of Maxi, Mini or Micro Series Modules	Factory Assigned	Optional Factory Assigned 2 = FastTrak G = RoHS	Optional Codes LL = Low Leakage

Configure a FlatPAC-EN online at

vicorpower.com/vspoc

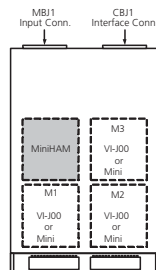


Layout Configurations

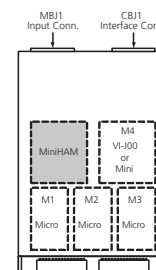


Single or Dual Outputs
Assumes either a full brick and / or half brick is used.

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.

DC-DC Power Supply DC MegaPAC™

The DC MegaPAC DC-DC switcher allows users to instantly configure highly-efficient 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 of 12 to 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
- Size: 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

AC and DC Redundant Input Power Supply Rackguard™

The AC input is 115/230 Vac autoranging, 50 – 60 Hz. There are two DC input options: 48 V (38 – 72 V) or 150 V (105 – 200 V). Consisting of two configurable and independent outputs of 400 W and 200 W, the supply delivers a full-load output power of 600 W.



rackguard

Features

- AC input: 115/230 Vac, autoranging
- DC input: 48 V (38 – 72 V) or 150 V (105 – 200 V)
- Output: 24 to 48 V
- Total power: 600 W
- Convection cooling
- Dimensions: 17" L x 9.57" W x 4.87" H (431,8 x 243,07 x 123,6 mm)

MIL-COTS PFC Power Supply 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	Size	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	1,500 W	Internal fans	OCP, OVP, and OTP on all outputs

MIL-COTS Power Supply 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.



javelin

General Specifications Refer to data sheet for detailed specifications

Product	Size	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

AC-DC Low Profile Power Supply 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.



powerbank

General Specifications Refer to data sheet for detailed specifications

Product	Size	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

Custom Power Solutions Designed To Fit Your Specific Needs

Vicor VIAs: Small company responsiveness, large company resources

Each of the six Vicor Integration Architects (VIAs), located throughout the United States, designs and manufactures turnkey custom power systems. VIAs maintain the flexibility of a small entrepreneurial company while taking advantage of the technical and business resources of Vicor to deal effectively with the most challenging power problems. Their total focus is on the power solution that best satisfies the needs of each customer.



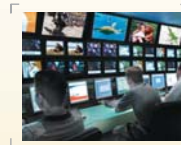
VIAs provide custom power solutions for:



COMMUNICATIONS



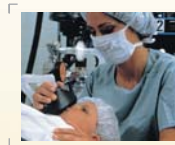
INDUSTRIAL



DATAKOM



TEST EQUIPMENT



MEDICAL DIAGNOSTICS



MIL-COTS



TRANSPORTATION

Vicor Integration Architects

Aegis Power Systems
North Carolina

ConverTec Corporation
Minnesota

Freedom Power Systems
Texas

Granite Power Technologies
New Hampshire

Mission Power Solutions
California

Northwest Power Integrations
Oregon

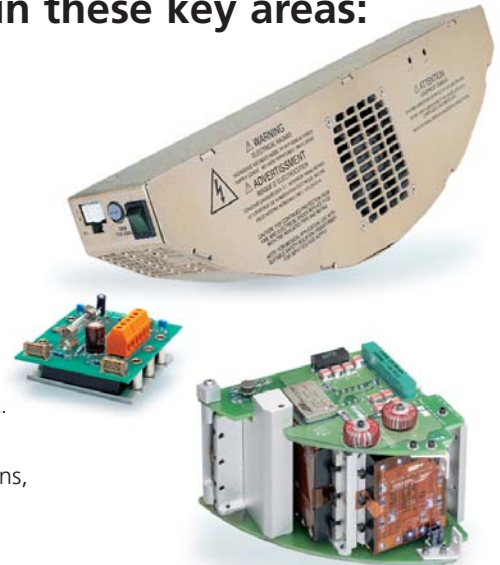


★ = Vicor Integration Architects (VIAs)

Every Vicor Integration Architect has developed high-level technical expertise and design and manufacturing skills in these key areas:

VIAs have:

- Built custom applications for satellite transceivers, PBX, digital phones, and microwave radio and are up-to-date on the changing requirements of the communications industry for powerful and quick-to-build power systems.
- Developed customized power supplies for use in harsh environments and industrial conditions. Applications have included avionics, telemetry systems, and control systems.
- Developed a variety of custom supplies for EDP. Applications have included full computer systems, portable workstations, and redundant disk arrays.
- Developed ruggedized power systems and supplies specifically for test equipment. Applications have included portable and automated test fixtures.
- Designed and built custom power supplies for a wide range of medical applications, including scanners, x-ray systems, and other medical equipment and tools.
- Extensive experience with military COTS and aerospace applications and can provide module-based custom solutions quickly and cost effectively.



Based on Vicor high-density, low-noise DC-DC converter modules every VIA design exists to solve your unique requirements in the shortest possible time. ***Need fault tolerance? Hot swap? High power? Have size and weight constraints? Demanding thermal or noise requirements? NOT A PROBLEM.***



In addition to manufacturing your custom solution, VIAs arrange for agency approvals. By basing their designs on Vicor component power modules, VIAs can provide prototypes and production quantities of your power supply in far less time and with far less risk than conventional discrete approaches.

Vicor's VARs - Custom Turnkey Power Solutions Worldwide

Throughout Europe and Asia Pacific, Vicor and its distributors operate in partnership with Vicor's Value-Added Resellers (VARs). These companies have the same experience, manufacturing capabilities, and quality focus as Vicor's VIAs in creating custom turnkey power systems. Typical applications include:

- | | |
|--------------------------------|--|
| ■ Industrial controllers | ■ Mobile tracking radar |
| ■ Test equipment | ■ Shipboard communications and networking |
| ■ Super computers | ■ Railroad telemetry |
| ■ RAID storage | ■ Transportation control |
| ■ Satellite transceivers | ■ In-flight entertainment |
| ■ Network encryption | ■ Field-portable gas chromatograph / mass spectrometer |
| ■ Avionics | ■ Battery charger |
| ■ Missile guidance and control | |




For information on component-based custom systems designed and manufactured to meet your specific requirements, go to vicorpower.com

ModuMate Sockets

For Maxi, Mini and Micro Series







SurfMate: Surface mount sockets*

Board Thickness	Mounting Style	Full brick (Maxi)			Half brick (Mini)			Quarter brick (Micro)			Use module pin style**
		Input	Output	5 Sets	Input	Output	5 Sets	Input	Output	5 Sets	
All	Surface mount	P/N 22100 \$5.18	P/N 22101 \$6.82	P/N 16017 \$65.00	P/N 22100 \$5.18	P/N 22102 \$6.82	P/N 16021 \$65.00	P/N 22103 \$4.90	P/N 22104 \$4.10	P/N 16025 \$50.00	S, F
<div>1. </div> <div>2. </div> <div>3. </div>											

InMate: Thru hole sockets*

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

Board Thickness	Mounting Style	Full brick (Maxi)			Half brick (Mini)			Quarter brick (Micro)			Use module pin style**
		Input	Output	5 Sets	Input	Output	5 Sets	Input	Output	5 Sets	
Nominal 0.063"	Inboard	P/N 18374 \$3.56	P/N 18382 \$5.35	P/N 18362 \$50.00	P/N 18374 \$3.56	P/N 18384 \$5.35	P/N 18366 \$50.00	P/N 18376 \$3.89	P/N 18386 \$3.01	P/N 18370 \$38.75	S, F
Min / Max 0.055" / 0.071"	Onboard	P/N 18378 \$3.56	P/N 18388 \$5.35	P/N 18364 \$50.00	P/N 18378 \$3.56	P/N 18390 \$5.35	P/N 18368 \$50.00	P/N 18380 \$3.89	P/N 18392 \$3.01	P/N 18372 \$38.75	N, G
Nominal 0.094"	Inboard	P/N 18375 \$3.56	P/N 18383 \$5.35	P/N 18363 \$50.00	P/N 18375 \$3.56	P/N 18385 \$5.35	P/N 18367 \$50.00	P/N 18377 \$3.89	P/N 18387 \$3.01	P/N 18371 \$38.75	S, F
Min / Max 0.084" / 0.104"	Onboard	P/N 18379 \$3.56	P/N 18389 \$5.35	P/N 18365 \$50.00	P/N 18379 \$3.56	P/N 18391 \$5.35	P/N 18369 \$50.00	P/N 18381 \$3.89	P/N 18393 \$3.01	P/N 18373 \$38.75	N, G
Nominal 0.125" Min / Max 0.1125" / 0.1375"	Onboard	P/N 21539 \$3.56	P/N 21543 \$5.35	P/N 21510 \$50.00	P/N 21539 \$3.56	P/N 21544 \$5.35	P/N 21511 \$50.00	P/N 21540 \$3.89	P/N 21545 \$3.01	P/N 21512 \$38.75	N, G
<div>1. </div> <div>2. </div> <div>3. </div> <div>4. </div>											

* For individual input / output purchases, a 35-piece minimum (and multiples) applies to Maxis / Minis and a 40-piece minimum for Micros.

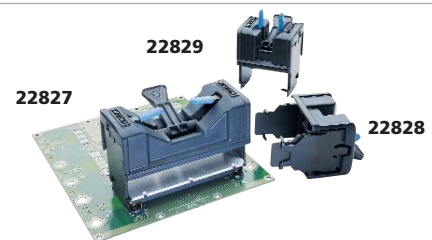
** See p. 15 for pin styles.

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	Price (1 – 9)
Maxi Exchange Tool	22827	\$150.00
Mini Exchange Tool	22828	\$150.00
Micro Exchange Tool	22829	\$150.00



Components



All parts are RoHS compliant unless otherwise noted.

Diodes and Rectifiers

Fwd. Characteristics	Peak Rev. Voltage	Case	Part Number	Price
Diode: Used for isolating signals (i.e., Gate In / Gate Out).				
1 Amp	800 V	DO-41	00670	\$1.07
1 V @ 10 mA	100 V	DO-35	30647	\$0.10

Schottky Barrier Rectifier:

1 Amp	20 V		26108	\$0.50
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OR'ing Diodes: Used for fault-tolerant applications.

0.4 V @ 30 A @ 100°C	35 V	TO-220-Dual	02838	\$3.74
0.38 V @ 80 A @ 100°C	15 V	D-61-8	10122	\$19.26

Bridge Rectifiers: Used to rectify AC line.

8 Amps	600 V		03261	\$3.10
35 Amps	600 V		30660	\$10.43

Zener Diode(1.5KE51A): Use with ENMod system.

51 V	41A-04	30262-051	\$1.00
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Optocouplers: For logic disable.

Toshiba TLP595G (or TLP795G)		13468*	\$10.70
6N139		26106	\$2.00
HCPL-0701 Darlington		26109	\$3.00



Oscilloscope Test Jacks (for 0.095" diameter probe)

Recommended for common-mode noise measurements.

Description	Part Number	Price
Shielded, horizontal	01830	\$5.88
Shielded, vertical	06207	\$5.35

MOVs

For use with Front-end Modules.

Description	Part Number	Price
275 V MOV, 14 mm Disc	30076	\$1.00
68 V MOV, 10 mm Disc	30234-068	\$1.00
120 V MOV, 10 mm Disc	30234-120	\$1.00
200 V MOV, 10 mm Disc	30234-200	\$1.00
220 V MOV, 10 mm Disc	30234-220	\$1.00

Gas Discharge Tube

For use with the ENMods and VI-ARM.

Part Number	Spark Over (DC)	Price
13755	220 V	\$2.67
30515	75 V	\$2.67



Phased Array Controller (PAC) chip

For use with arrays of up to 12 converters, the PAC chip provides phased operation to minimize overall noise.

Part Number	10 Piece price
30488	\$12.28

Order in 10 piece lots



Fuses and Fuse Holders

Standard design practices as well as safety agency conditions of acceptability often require appropriate fusing at the input of power conversion components.

Rating	Fuse Part Number	Price	Description (to be used with fuse holder)	Fuse Holder Part Number	Price
2 Amps / 450 Vdc	03360*	\$1.44	PC-Tron® Socket-Type (minimum order 100 pcs.)	03144	\$0.64
2.5 Amps / 450 Vdc	08395*	\$1.44		03144	
3 Amps / 250 Vdc	30243	\$1.44		03144	
5 Amps / 125 Vdc	30276	\$1.60		03144	
7 Amps / 125 Vdc	30236	\$1.12		—	
10 Amps / 125 Vdc	30247	\$1.12	Vertical mount with stability pins, 0.25" x 1.25"	—	
12 Amps / 250 Vdc	05147	\$0.90		09981	\$4.81
20 Amps / 250 Vdc	22409*	\$1.50	Horizontal mount, 0.25" x 1.25"	10660*	\$4.81
30 Amps / 125 Vdc	23196*	\$2.75			
6.3 Amps / 400 Vdc	22985	\$5.00			

PC-Tron® is a registered trademark of Bussman.



* Not RoHS compliant

Minimum order quantities may apply.

Capacitors



All parts are RoHS compliant unless otherwise noted.

Capacitors, Surface Mount Polymer Low ESR, Polymer 0.287" x 0.169" pkg.				Capacitors, Hold-up			
Rating	Part Number	Price		Product	Description	Part Number	Price
330 μ F, 6.3 V	23484-337	\$3.00		VI-AIM	270 μ F, 200 V	30769	\$4.81
470 μ F, 6.3 V	23484-477	\$3.00			270 μ F, 400 V	30240	\$10.00
1,000 μ F, 2.5 V	23577-108	\$3.00		VI-HAM	470 μ F, 450 V	30249	\$13.37
680 μ F, 2.5 V	23577-687	\$3.00		FARM / ARM	1,200 μ F, 200 V	30275	\$6.50
470 μ F, 4 V	23578-477	\$3.00			2,200 μ F, 200 V	30483	\$11.77
680 μ F, 4 V	23578-687	\$3.00					
220 μ F, 10 V	23579-227	\$3.00					
Capacitors, Ceramic				Capacitors, Tantalum Solid tantalum capacitor used to reduce output ripple.			
Product	Description	Part Number	Price	Description		Part Number	Price
VI-AIM	470 pF, 500 V	30458	\$0.80	270 μ F, 10 V		24252*	\$6.25
	0.01 μ F, 500 V	28054	\$0.80	120 μ F, 20 V		30506	\$6.25
				68 μ F, 30 V		30507	\$6.25
				27 μ F, 50 V		30259	\$6.25
Capacitor, Multilayer Polymer				Capacitors, Y-type For EMI / RFI considerations, Y capacitors should be used with any of Vicor's DC-DC converter modules.			
Rating	Part Number	Price		Description		Part Number	Price
0.81 μ F, 250 V	06852	\$0.96		"Y" Cap., 1,500 pF		00770	\$1.71
				"Y" Cap., 4,700 pF		01000	\$1.33
				"Y" Cap., 0.01 μ F		01501	\$1.01
				"Y" Cap., 0.022 μ F		03093	\$1.39
				"Y" Cap., 4,700 pF SMT version		25283	\$2.25
				"Y" Cap., 1,500 pF SMT version		30802	\$2.25
Capacitors, X-type To meet the filtering specifications of FCC Level A, add a 0.47 μ F "X-type" capacitor to the input of the VI-AIM.							
Description	Part Number	Price					
"X" Cap., 0.68 μ F	11217	\$3.74					
"X" Cap., 0.47 μ F	03047	\$2.94					
"X" Cap., 0.33 μ F	00927	\$2.14					
"X" Cap., 0.22 μ F	04068	\$3.21					
"X" Cap., 0.15 μ F	03269	\$1.33					
"X" Cap., 1.0 μ F	02573	\$2.67					
Capacitors, Aluminum Electrolytic Radial lead, 16 mm x 15 mm				Radial lead, 10 mm x 16 mm			
Description	Part Number	Price		Description		Part Number	Price
2,200 μ F, 6.3 V	13438*	\$2.14		680 μ F, 6.3 V		13439*	\$0.96
1,500 μ F, 10 V	13440*	\$2.14		560 μ F, 10 V		13441*	\$0.96
1,200 μ F, 16 V	13442*	\$2.14		390 μ F, 16 V		13443*	\$0.96
820 μ F, 25 V	13444*	\$2.14		270 μ F, 25 V		30468	\$0.96
560 μ F, 35 V	13446*	\$2.14		180 μ F, 35 V		13447*	\$0.96
200 μ F, 63 V	30787	\$2.14		68 μ F, 63 V		30788	\$0.96
120 μ F, 100 V	30789	\$2.14		33 μ F, 100 V		30469	\$0.96
Radial lead, 12 mm x 25 mm							
Description	Part Number	Price					
10 μ F, 450 V	13469*	\$1.60					

* Not RoHS compliant

Minimum order quantities may apply.

VIEW MECHANICAL DRAWINGS ON-LINE!
vicorpower.com

Magnetics



All parts are RoHS compliant unless otherwise noted.

Basket Chokes

0.80" x 0.39" x 0.33" (20.3 x 9.8 x 8.45 mm)

Low profile, surface mount power inductors.

Other values available, consult factory.

Inductance ¹ (open circuit)	Rated Current	DCR (max.)	Part Number	Price
243.09 μ H	3.9 A	156.35 m Ω	31499-02	\$3.50
115.17 μ H	5.6 A	77.50 m Ω	31499-03	\$3.50
47.40 μ H	8.8 A	29.38 m Ω	31499-05	\$3.50
13.28 μ H	16.6 A	7.56 m Ω	31499-08	\$3.50
5.90 μ H	25.0 A	3.23 m Ω	31499-10	\$3.50
2.62 μ H	37.5 A	1.31 m Ω	31499-12	\$3.50
1.48 μ H	50.0 A	0.82 m Ω	31499-13	\$3.50
1.03 μ H	60.0 A	0.58 m Ω	31499-14	\$3.50
0.66 μ H	75.0 A	0.37 m Ω	31499-15	\$3.50
0.37 μ H	100.0 A	0.22 m Ω	31499-16	\$3.50

¹Inductance values roll off to approximately 35% at full rated current.

Full data sheet available at vicorpower.com

Basket Choke Design Kit

Includes 6 pieces of the 10 part numbers listed above.

Part Number 28806* **Price** \$180.00



PR Bus Isolation Transformer

Developed for isolation of PR Bus signal when used with 2nd Generation parallel configurations. Consult Vicor for applications instructions.



Part Number 29768 **Price** \$7.50

VI-HAM Line Filter

The VI-HAM requires an external line filter. When used in conjunction with part number 07818, the VI-HAM / Filter combination will meet the requirements of worldwide EMI standards.

Part Number 30205* **Price** \$29.96

Inductors, Common Mode

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

Inductance / Winding	DC Current / Resistance	Part Number	Price
1000 μ H	12 A / 6.5 m Ω	31743	\$14.23
3000 μ H	7 A / 18 m Ω	31742	\$14.23
2163 μ H	1 A / 42 m (low profile)	31943	\$4.65
1.3 mH	13 A / 14 m Ω	32006	\$12.50

Inductor, Differential Mode, Input

Inductance / Winding	DC Current / Resistance	Part Number	Price
22 μ H	12 A / 5.8 m Ω	29764	\$3.21
1 mH	4 A / 250 m Ω	36-00036*	\$10.70

Inductor, Output Sense Compensation

Inductance	Part Number	Price
1 mH	36-00030*	\$1.50

Inductors, Differential Mode

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

Inductance	DC Current (max.)	Part Number	Price
0.2 μ H	40 A	30268	\$3.21
27 μ H	12 A	32012	\$3.21
1.8 μ H	10 A	32562	\$3.21

Common Mode Output Inductors

Inductance	DC Current (max.)	Part Number	Price
420 μ H	20 A	36-00037*	\$10.70
350 μ H	40 A	36-00029-01*	\$10.70
1.27 mH	10 A	36-00029-04*	\$10.70
70 μ H	80 A	36-00029-06*	\$22.50
110 μ H	60 A	36-00029-07*	\$15.00

* Not RoHS compliant

Minimum order quantities may apply.

Mounting & Thermal Management



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 P/N 30089 \$8.02	0.90" Fin P/N 30090 \$8.02	0.70" Fin P/N 30775 \$8.02	0.70" Fin P/N 30193 \$8.02	1.45" Fin P/N 30780 \$10.70	0.40" Fin P/N 30194 \$8.02
VI-J00	Longitudinal Fins		Transverse Fins		Transverse Fins	
		0.90" Fin P/N 30191 \$5.35		0.90" Fin P/N 30771 \$5.35		0.40" Fin P/N 30140 \$5.35

V•I Chip Heat Sinks and Push-Pins

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

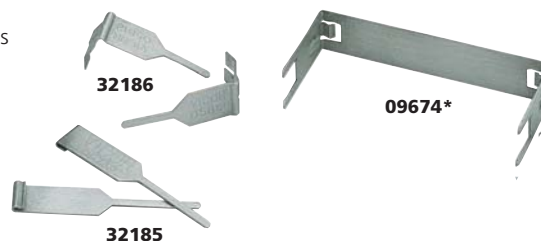
Heat Sink (includes thermal interface)	Part Number	Price	Push-Pins (includes spring)	Part Number	Price (100 pieces)
Transverse Fins, 11 mm	32438	\$3.00	0.051" – 0.069" PCB	32434	\$12.00
Transverse Fins, 6.3 mm	32439	\$3.00	0.070" – 0.104" PCB	32435	\$12.00
Longitudinal Fins, 11 mm	32440	\$3.00	0.105" – 0.132" PCB	32436	\$12.00
Longitudinal Fins, 6.3 mm	32441	\$3.00	0.133" – 0.156" PCB	32437	\$12.00



Grounding Clips

For use with FinMod and SlimMod packaging options (see page 13). Grounding clips provide a convenient means for making electrical connection between the heat sink assembly and the printed circuit board.

Use With...	Part Number	Price
F1 and F2	32185	\$0.42
F3 and F4	32186	\$0.42
SlimMods	09674*	\$0.64



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	Price
0.040"	Electro-tin	30074	\$0.42
0.080"	Electro-tin	30075	\$0.85



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	Price
0.525" Long, 0.25" Hex	10692-01	\$1.07



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	Price
VI-200 (10 pc. pkg.)	20266	0.007"	\$37.50
VI-J00 (10 pc. pkg.)	20267	0.007"	\$30.00



Minimum order quantities may apply.






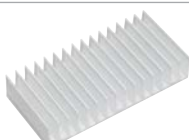
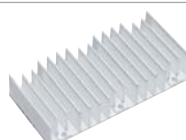

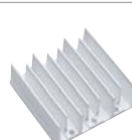


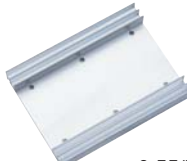
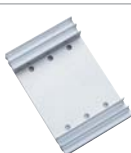



* Not RoHS compliant

Thermal Management

For Maxi, Mini and Micro products



All parts are RoHS compliant unless otherwise noted.

	Maxi Heat Sinks		Mini Heat Sinks		Micro Heat Sinks	
	Threaded	Thru Hole	Threaded	Thru Hole	Threaded	Thru Hole
	Longitudinal Fins	 0.4" Fin P/N 30482 \$8.82 0.9" Fin P/N 30188 \$8.82	 0.4" Fin P/N 30718 \$11.25 0.9" Fin P/N 30181 \$11.25	 0.4" Fin P/N 32188 \$7.75 0.9" Fin P/N 30189 \$7.75	 0.4" Fin P/N 30195 \$9.89 0.9" Fin P/N 30182 \$9.89	 0.4" Fin P/N 32174 \$6.36 0.9" Fin P/N 30190 \$6.36
Transverse Fins	 0.4" Fin P/N 30778 \$8.82 0.9" Fin P/N 30196 \$8.82	 0.4" Fin P/N 30720 \$11.25 0.9" Fin P/N 30723 \$11.25	 0.4" Fin P/N 30184 \$7.75 0.9" Fin P/N 30269 \$7.75	 0.4" Fin P/N 30721 \$9.89 0.9" Fin P/N 30724 \$9.89	 0.4" Fin P/N 32173 \$6.36 0.9" Fin P/N 30270 \$6.36	 0.4" Fin P/N 30722 \$8.29 0.9" Fin P/N 30725 \$8.29
Low-profile side-fin heat sinks – HEIGHT ONLY 0.125" ABOVE MODULE BASEPLATE!!!						
 0.55" Side Fins P/N 30096 \$11.25			 0.55" Side Fins P/N 32190 \$9.89			 Standoffs and screws Bulk and single-module kits compatible with all standard mounting configurations.
 0.55" Side Fins P/N 30095 \$8.29			<i>Not compatible with standoff kits.</i>			
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	Price			
Maxi (10 pc. pkg.)	20263	0.007"	\$37.50			
Mini (10 pc. pkg.)	20264	0.007"	\$30.00			
Micro (10 pc. pkg.)	20265	0.007"	\$26.75			
						

Minimum order quantities may apply.

Connector Kits

For FlatPAC, FlatPAC-EN, LoPAC, and MegaPAC products



All parts are RoHS compliant unless otherwise noted.

FlatPAC Accessories

Input and Output Retrofit Kits

Description	Part Number	Price
Input connector	14136*	\$6.42
Output connector	14137*	\$4.28

Input and Output Mating Connectors

Description	Part Number	Price
Input connector, 6 pin ¹	32182*	\$1.60
Output connector, 5 pin ¹	16385*	\$1.60

¹ 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	Price
PFC Mini	19-130047	\$15.00
PFC Micro, PFC MicroS	19-130044	\$10.00

Current Share Boards

Description	Part Number	Price
LoPACs using VI-200 and VI-J00 Series modules	CSB01*	\$59.00
LoPACs using Maxi, Mini and Micro Series modules	CSB02*	\$59.00

PFC FrontEnd Accessories

Description	Part Number	Price
Din Rail Mounting Kit	19-130060	\$12.00
Connector Kit	19-130059	\$30.00
VIPAC Array Adapter	10-130182	\$25.00

MegaPAC Accessories

Connector Kits

Description	Part Number	Price
Single-phase input	19-130040	\$20.00
Three-phase input	19-130041	\$30.00
DualPAC output ConverterPacs	19-130042	\$6.00
Air block	96-00032-01	\$5.00

Current Share Boards

Description	Part Number	Price
MegaPACs using VI-200 and VI-J00 Series modules	CSB01*	\$59.00
MegaPAC using Maxi modules	CSB02*	\$59.00

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

Bus Bars

Description	Part Number	Price
2 holes	88-00033-01	\$1.00
3 holes	88-00033-02	\$1.00
4 holes	88-00033-03	\$1.00
5 holes	88-00033-04	\$1.00
Series bus bar	88-00043	\$1.00

FlatPAC-EN Accessories

Connector Kit

Description	Part Number	Price
FlatPAC-EN	19-130044	\$10.00

Current Share Boards

Description	Part Number	Price
FlatPAC-EN using VI-200 and VI-J00 Series modules	CSB01*	\$59.00
FlatPAC-EN using Maxi, Mini and Micro Series modules	CSB02*	\$59.00

* Not RoHS compliant

Quality System

Vicor is ISO 9001:2000 Certified through TÜV Management Services. Using a process approach to continuous improvement, this certification covers all facets of the corporation including operations, engineering, and sales. ISO 9001:2000 Certification is recognized internationally as the standard for verifying that a company has achieved recognized quality standards and employs continuous improvement to constantly improve their operations.

Vicor places heavy emphasis on the "Plan-Do-Check-Act" model (PDCA) to foster continuous improvement. We focus on key performance metrics that are continuously measured and results reviewed. This enables proactive actions to be undertaken to improve our technology, our products, our processes, and our service to our customers.

Quality Center Online

The Vicor Quality Center provides you with the specific information you need about Vicor's comprehensive quality systems. You can create a custom quality report, take a video tour of our 230,000 sq. ft factory, or walk through every step of our quality process. If there's something you can't find, ask our Vicor Quality Team about your specific question. Our goal is your total satisfaction.

- Explore Vicor's quality systems through a robust library of documentation, videos, and process charts.
- Generate a report based on ISO 9001:2000 criteria that entirely meets your specific requirements.
- Get your report in PDF format with hyperlinks to videos and other info of your choosing.

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Quality Library See and hear quality systems at work

Choose from a whole listing of quality videos shot at our manufacturing plant in Andover, Massachusetts. Many process stages can easily be accessed and viewed by simply clicking a button. The videos take you each step of the way through module development process, from handling to washing of the module brains, to the label processes.

- Whitepapers that talk about quality specifics
- ISO 9001:2000 certificates
- RoHS compliant information
- Get in touch with our quality team

**Experience Vicor's
Quality Center**

vicorquality.com



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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

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.



Environmental Management Systems

As a result of our EMS program, Vicor is pleased to announce the availability of component-level (brick) products that fulfill the requirements of the European RoHS Directive 2002/95/EC restricting the use of certain hazardous substances. Higher-level configurable power supply systems, manufactured by both Vicor and its Westcor Division, will be available in RoHS-compliant versions. Go to vicorpower.com for availability on these RoHS products. Vicor allows customers to specify RoHS-compliant brick products through a simple part numbering change. The process is available at vicorpower.com. To support customers who may have exemptions or in industries that do not desire RoHS-compliant materials, Vicor will continue to provide non-RoHS products. Vicor remains committed to exceeding our customers' needs and actively participating in improving our global neighborhood through environmentally friendly initiatives. Vicor's EMS team is ready to assist you with any question you may have related to our RoHS products. Please feel free to contact us.

Announcement!

Component-level (brick) products are now available that meet European RoHS Directive 2002/95/EC restricting the use of certain hazardous substance.



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 only have to register once to access all Vicor's custom configurators via the "Single Sign-On" feature.

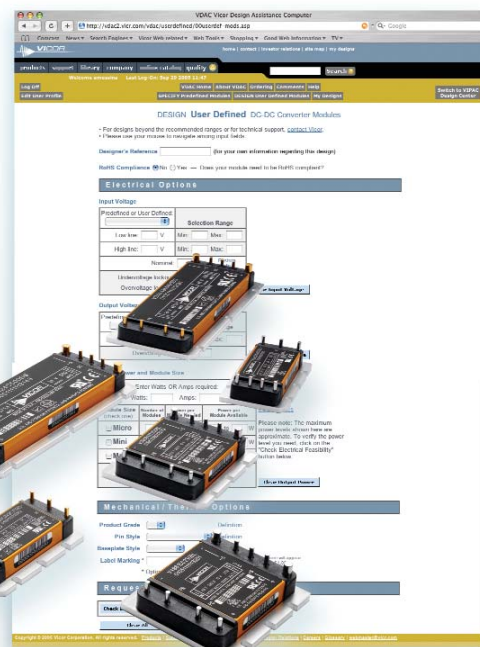
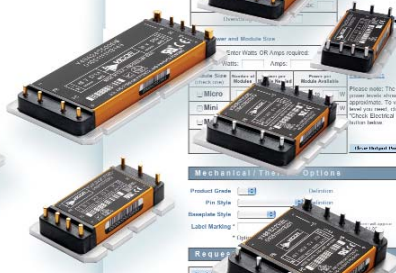


SINGLE SIGN-ON

With Vicor's **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.

My Designs

An online tool for storing your designs you create



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.

And, **VPOCT™** (Vicor Systems Product Online Configurator) 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.**

Custom Module Design System

Design your own DC-DC converters at vicorpower.com



Computer Integrated Manufacturing

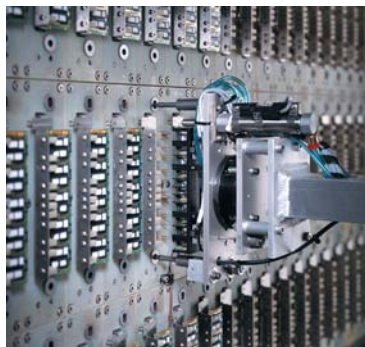
Andover, MA Facilities

Vicor manufactures its DC-DC converters and configurable products at an exceptional facility in Andover, Massachusetts, USA. There is no power conversion manufacturing facility in the world quite like it. Only at Vicor are you able to get the exact power solution that you want whether it's one unit or one million units. Vicor built this 230,000 sq. ft. manufacturing facility around a model of true mass-customization and total quality.

Computer Integrated Manufacturing (CIM) makes it all possible. Once underway, every module in the manufacturing process is recognized by a unique number assigned to it. It's tracked throughout its build, station to station, and is required to successfully pass all electrical, extended environmental, and mechanical requirements at every point of the manufacturing process. If it doesn't pass, the CIM system will not allow the module to proceed to the next station.

ISO 9001

Certified since 1993



Also unique to Vicor is individual final test data for each converter available on vicorpower.com for every I-, H-, and M-Grade module. Each module undergoes extensive post-production environmental stress screening before shipment to verify compliance with Vicor's high-quality performance standards and to eliminate early-life failures. This constant checking and monitoring at each stage of manufacture ensures the highest levels of quality and reliability for our customers.

Since 1993, Vicor has been ISO-9001 certified and is engaged in proactive continuous-improvement programs. Quality, reliability, and performance are integrated into every aspect of our products. Our goal is your total satisfaction.



Use the Power of the Web vicorpower.com

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 solution.

Here's what you'll find on vicorpower.com

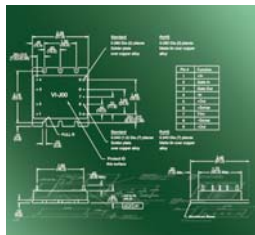
- Product configurators and a converter simulator that specifically analyzes your best options
- Technical seminars with synchronized video, PowerPoint, and access to related resources
- Webcasts on technical subjects of interest
- Application demonstrations
- Online catalog with direct links to product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



Feel free to contact Applications for any technical question you may have at 1 (800) 927-9474 or Vicor Express for price and delivery at 1 (800) 735-6200. For all other phone numbers, please see back cover.



DATA SHEETS



MECHANICAL DRAWINGS



VIDEOS



CONFIGURATORS

vicorpower.com

Experience one of the
premiere power conversion sites on the web



Powerful Experience When It Counts Applications and Customer Support Specialists

Contact the Vicor Applications Group or our Customer Support Specialists and experience Vicor's special commitment to your design. There's one goal at Vicor: to help you optimize your power design faster and always affordably. Our worldwide applications engineering staff is ready to give technical support, and our Customer Support Specialists will provide price and delivery information. They can easily be reached via email, at vicorexp@vicr.com or apps@vicr.com.

Here's how we can help

Applications Engineers

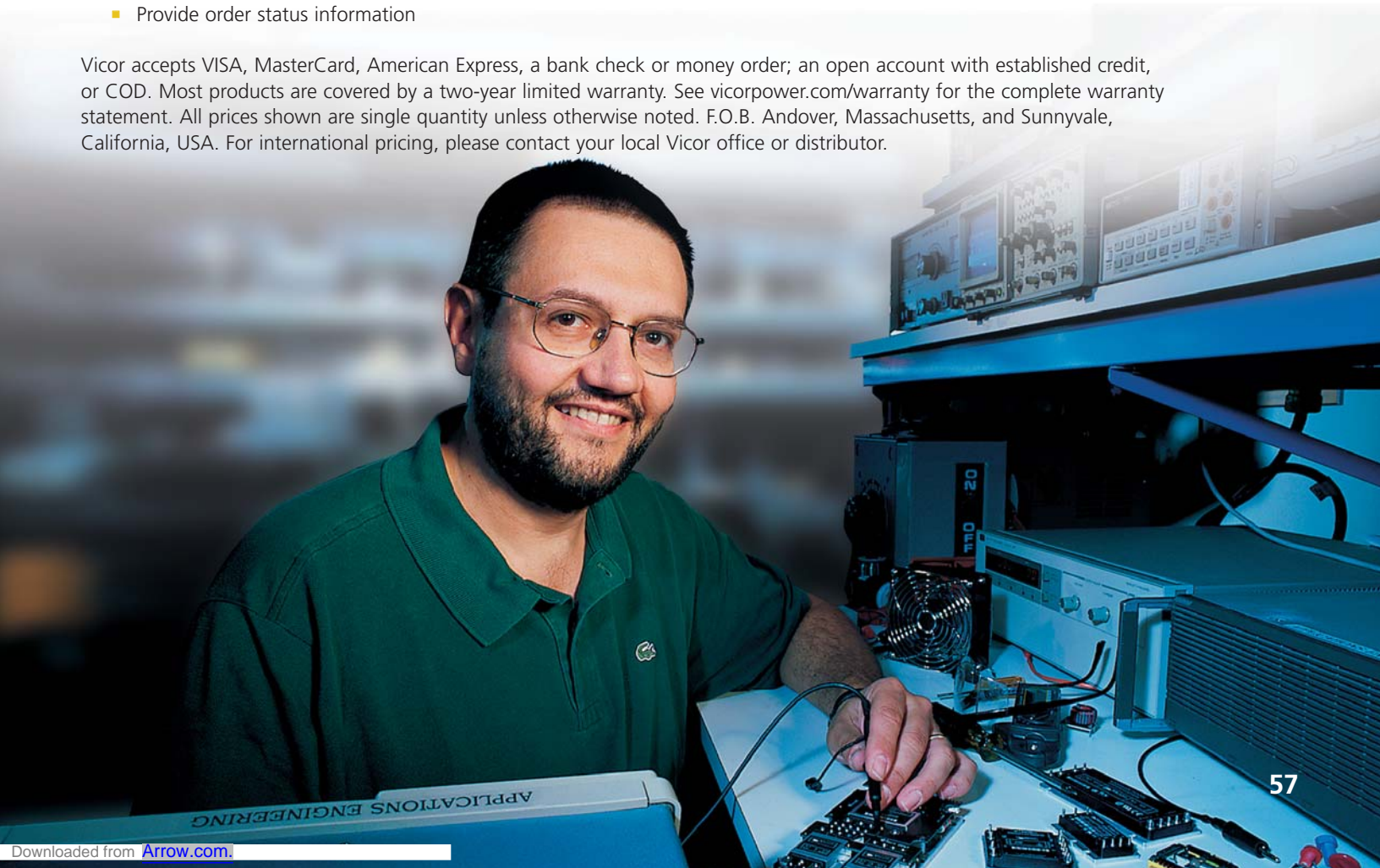
- Evaluate specific customer design issues and offer a wide range of component-based power solutions
- Answer technical questions by phone, fax, email, or via the Vicor website.
- Assist with component-based power system design
- Support user needs through visits to your facilities

Customer Support Specialists

- Provide price and delivery information
- Help select the most appropriate product for your application
- Can 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

Vicor accepts VISA, MasterCard, American Express, a bank check or money order; an open account with established credit, or COD. Most products are covered by a two-year limited warranty. See vicorpower.com/warranty for the complete warranty statement. All prices shown are single quantity unless otherwise noted. F.O.B. Andover, Massachusetts, and Sunnyvale, California, USA. For international pricing, please contact your local Vicor office or distributor.

You'll also have access to Vicor's online power conversion design tools. These range from easy-to-use standard product configurators to real-time custom design generators.



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