



## 50 – 600 Watts; 1 – 3 Outputs

### Features & Benefits

- RoHS Compliant (VE versions)
- Inputs 24, 48 and 300V<sub>DC</sub>
- Any output: 1 – 95V<sub>DC</sub>
- Meets EN55022 Class A conducted emissions (See Notes)
- cULus, cTÜVus (60950-1)
- CE marked (LVD)
- 80 – 90% efficiency
- Up to 10W/in<sup>3</sup>
- Master disable
- Overvoltage shutdown

### Product Description

ComPAC delivers up to 600W from one, two, or three outputs in a package just 0.99in [25,2mm] in height with the field-proven performance, high efficiency and high reliability inherent in Vicor component-level power converters. ComPAC meets conducted emissions of EN55022 Class A. ComPAC is offered with input voltage ranges optimized for industrial and telecommunication applications and provides extended input overvoltage capability, undervoltage lockout and master disable.

### Packaging Options

Conduction Cooled Models Available. Add “-CC” to the end of the part number. (Consult factory for details.)  
Extended heat sink available. Add “-H1” to end of part number.

### Configuration Chart

Configuration <sup>[a]</sup>	Output Power	Number of Modules	Dimensions
<b>Single Output</b>			
VI-LC	50 – 200W	1	8.6 x 2.5 x 0.99in [218,4 x 63,5 x 25,2mm]
VI-MC	100 – 400W	2	8.6 x 4.9 x 0.99in [218,4 x 124,5 x 25,2mm]
VI-NC	300 – 600W	3	8.6 x 7.3 x 0.99in [218,4 x 185,4 x 25,2mm]
<b>Dual Output</b>			
VI-PC	100 – 400W	2	8.6 x 4.9 x 0.99in [218,4 x 124,5 x 25,2mm]
VI-QC	150 – 600W	3	8.6 x 7.3 x 0.99in [218,4 x 185,4 x 25,2mm]
<b>Triple Output</b>			
VI-RC	150 – 600W	3	8.6 x 7.3 x 0.99in [218,4 x 185,4 x 25,2mm]

<sup>[a]</sup> Substitute VE- for VI- for RoHS-compliant versions

#### Input Voltage

Nominal	Input Range Full Power	Maximum Power <sup>[b]</sup>	Low Line 75% Max. Power	Transient (1s)
<b>1</b> = 24V	21 – 32V	(1)	18	36
<b>W</b> = 24V	18 – 36V	(1)	N/A	N/A
<b>3</b> = 48V	42 – 60V	(2)	41	72
<b>N</b> = 48V	36 – 76V	(2)	N/A	N/A
<b>6</b> = 300V	200 – 400V	(2)	188	425
<sup>[b]</sup> Max Output per Module	<b>5V Outputs</b>	<b>&gt;5V Outputs</b>	<b>&lt;5V Outputs</b>	
(1)	150W	150W	30A	
(2)	200W	200W	40A	

#### Output Voltage

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

#### Product Grade Case Temps. °C

Grade	Operating	Storage
<b>E</b> =	-10 to +85	-20 to +100
<b>C</b> =	-25 to +85	-40 to +100
<b>I</b> =	-40 to +85	-55 to +100
<b>M</b> =	-55 to +85	-65 to +100

#### Output Power / Current

V <sub>OUT</sub> ≥ 5V	V <sub>OUT</sub> < 5V
<b>W</b> = 100W	<b>W</b> = 20A
<b>V</b> = 150W	<b>V</b> = 30A
<b>U</b> = 200W	<b>U</b> = 40A
<b>S</b> = 300W	<b>S</b> = 60A
<b>Q</b> = 400W	<b>Q</b> = 80A

#### Output Power / Current

V <sub>OUT</sub> ≥ 5V	V <sub>OUT</sub> < 5V
<b>Y</b> = 50W	<b>Y</b> = 10A
<b>X</b> = 75W	<b>X</b> = 15A
<b>W</b> = 100W	<b>W</b> = 20A
<b>V</b> = 150W	<b>V</b> = 30A
<b>U</b> = 200W	<b>U</b> = 40A

#### Output Power / Current

V <sub>OUT</sub> ≥ 5V	V <sub>OUT</sub> < 5V
<b>S</b> = 300W	<b>S</b> = 60A
<b>P</b> = 450W	<b>P</b> = 90A
<b>M</b> = 600W	<b>M</b> = 120A

## Configurable Specifications

Typical at  $T_{BP} = 25^{\circ}\text{C}$ , nominal line and 75% load, unless otherwise specified,  $V_{NOM}$  is factory set output voltage and  $I_{NOM}$  is maximum rated output current.

## Input Specifications

Parameter	E-Grade			C-, I-, M-Grade			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
24V	21	24	32	21	24	32	$V_{DC}$	See Fusing Information on Page 3
24V Wide	18	24	36	18	24	36	$V_{DC}$	
48V	42	48	60	42	48	60	$V_{DC}$	
48V Wide	36	48	76	36	48	76	$V_{DC}$	
300V	200	300	400	200	300	400	$V_{DC}$	
No Load Power Dissipation <sup>[c]</sup>	1.35		2	1.35		2	Watts	
Master Disable Input Current <sup>[c]</sup> (Absolute Max., 20mA)	4			4			mA	Sink or source to disable optocoupler (See <a href="#">Section 18</a> ComPAC Technical Description in VI-200™/VI-J00™ Applications Manual)
Quiescent Input Current Logic Disable <sup>[c]</sup>		7	10		7	10	mA	Current drawn from source when disabled

<sup>[c]</sup> For MC, PC series, multiply value by 2; for NC, QC, RC series, multiply value by 3.

## Output Specifications

Applies to each output individually.

Parameter	E-Grade			C-, I-, M-Grade			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Set Point Accuracy		1%	2%		0.5%	1%	$V_{NOM}$	
Load / Line Regulation			0.5%		0.05%	0.2%	$V_{NOM}$	LL to HL, 10% to full load
Load / Line Regulation			1%		0.2%	0.5%	$V_{NOM}$	LL to HL, no load to full load
Output Temperature Drift		0.02			0.01	0.02	$\%/^{\circ}\text{C}$	Over-rated temperature range
Long-Term Drift		0.02			0.02		$\%/1\text{khrs.}$	
Output Ripple								
2V, 3.3V			150		60	100	$\text{mV}_{P-P}$	20MHz bandwidth
5V			250		100	150	$\text{mV}_{P-P}$	20MHz bandwidth
10 – 48V			3%		0.75%	1.5%	$V_{NOMp-p}$	20MHz bandwidth
Output Voltage Trimming <sup>[d]</sup>	50%		110%	50%		110%	$V_{NOM}$	
Total Remote-Sense Compensation <sup>[d]</sup>	0.5			0.5			Volts	0.25V maximum allowable drop in –OUT lead
OVP Set Point		125%		115%	125%	135%	$V_{NOM}$	Recycle power to restart
Current Limit	105%		135%	105%		125%	$I_{NOM}$	Automatic restart
Short-Circuit Current <sup>[e]</sup>	20%		140%	20%		130%	$I_{NOM}$	

<sup>[d]</sup> 10, 12 and 15V outputs, trim range  $\pm 10\%$ . Consult factory for wider trim range.

<sup>[e]</sup> Output voltages of 5V or less incorporate foldback current limiting, outputs greater than 5V incorporate straight line current limiting.

## Configurable Specifications (Cont.)

## Thermal Characteristics

Parameter	E-Grade			C-, I-, M-Grade			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Efficiency	78 – 88%			80 – 90%				for 5V outputs and higher
Shut-Down Temp. — Case <sup>[f]</sup>	90	95	105	90	95	105	°C	Cool and recycle power to restart
Operating Temp. — Case	85			85			°C	See Thermal Curves

<sup>[f]</sup> Shut-down temperature threshold is above maximum operating temperature. For over temperature protection, external means of disable should be employed below maximum operating temperature.

## Isolation Characteristics

Parameter	E-Grade			C-, I-, M-Grade			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Isolation								
Input to Output	4,242			4,242			V <sub>DC</sub>	
Output to Case	707			707			V <sub>DC</sub>	
Input to Case	2,121			2,121			V <sub>DC</sub>	

## Mechanical Specifications

Parameter	E-Grade			C-, I-, M-Grade			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Weight <sup>[g]</sup>	19.2			19.2			Ounces	
	[544]			[544]			[Grams]	

<sup>[g]</sup> For MC, PC series, multiply value by 2; for NC, QC, RC series, multiply value by 3.

## Fusing Information

Input Voltage	24V	48V	300V
LC Series (200W)	10A	7A	2A
MC, PC Series (400W)	20A	15A	4A
NC, QC, RC Series (600W)	35A	25A	6A

## Configurable Specifications (Cont.)

## Agency Approvals

Safety Standards	Markings	Notes
ANSI / ISA 12.12.01 - 2012, C22.2 No. 213-M1987 UL / CSA / EN / IEC 60950-1	cURus cURus, cTÜVus, CE Marked	Low Voltage Directive and RoHS Recast Directive as applicable.

## EMI / EMC Characteristics

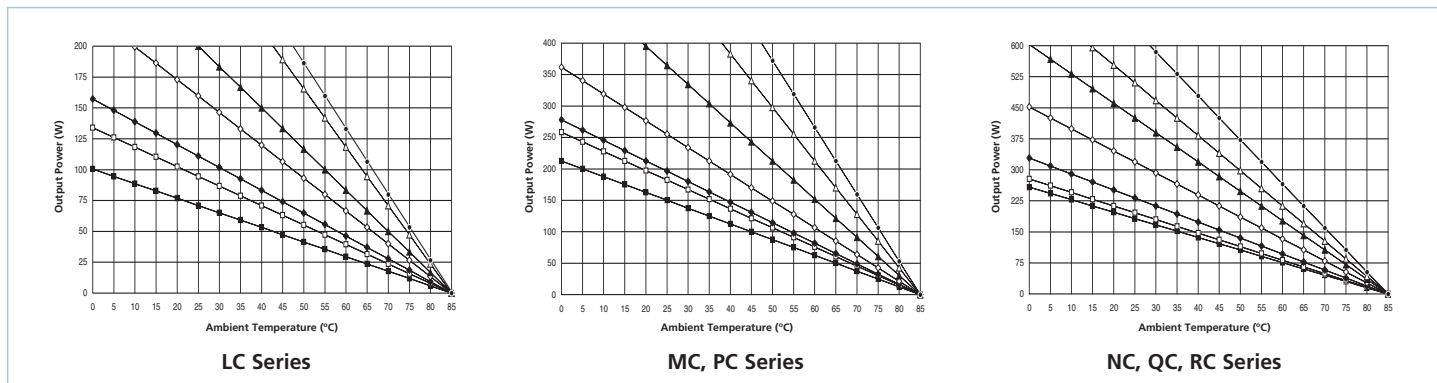
Performed on selected samples representative of the ComPAC product family.

Parameter	Notes
Conducted Emissions EN 55022, Class A	3-Module configurations may require additional filter components under certain line and load conditions to comply with EN55022 class A.
ESD IEC 61000-4-2 Level 4	Top, Bottom and Sides

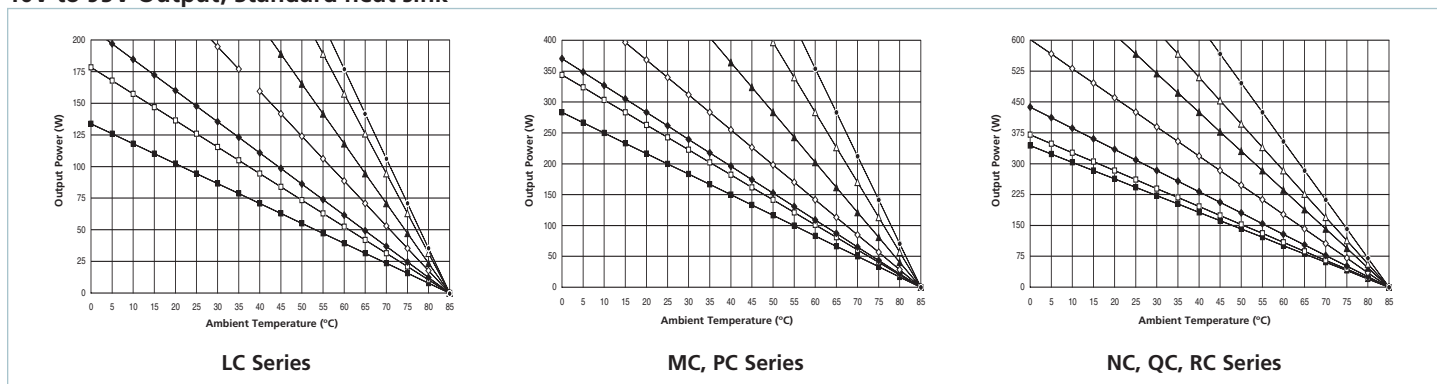
## Thermal Curves

—■— FREE AIR   
 —□— 50LFM   
 —◆— 100LFM   
 —◇— 250LFM   
 —▲— 500LFM   
 —△— 750LFM   
 —●— 1000LFM

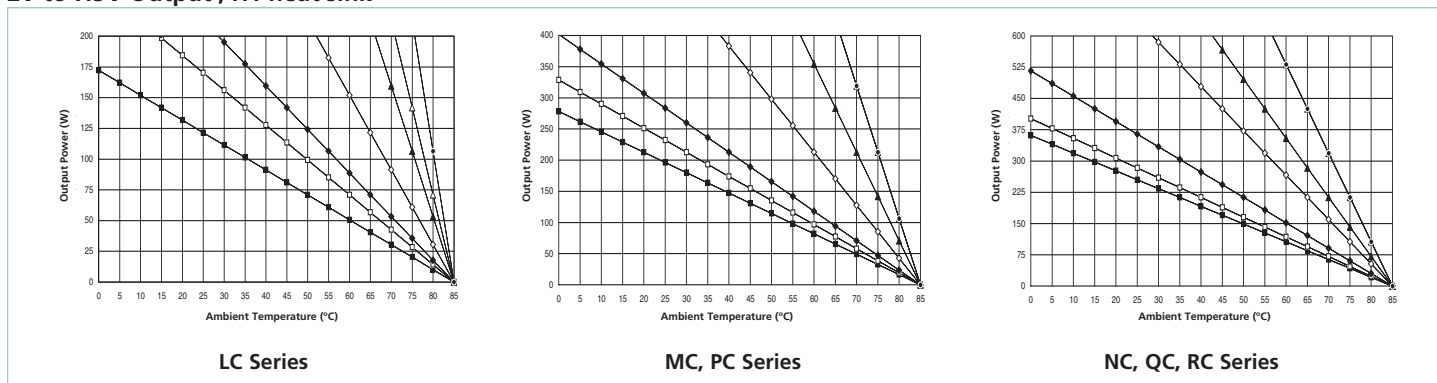
### 2V to 7.5V Output, Standard heat sink



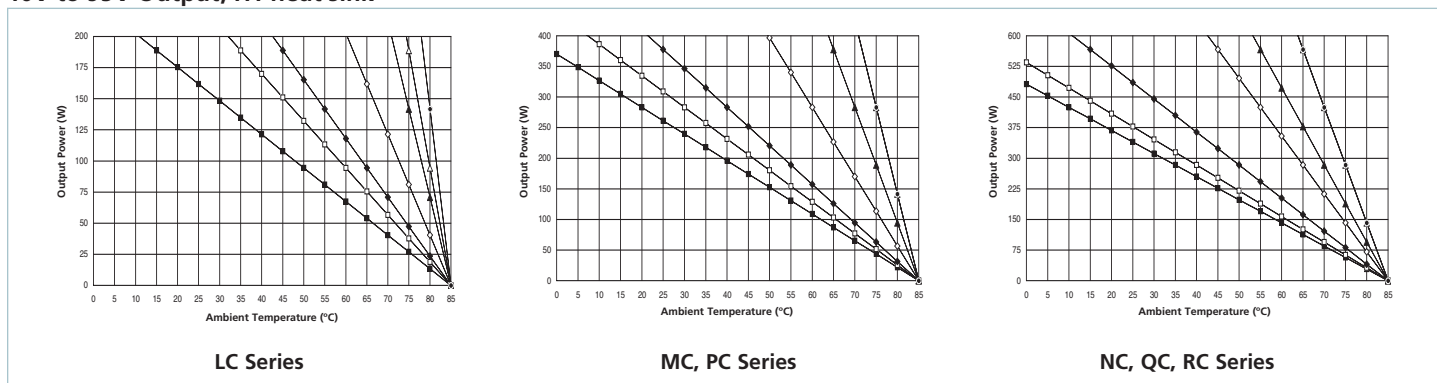
### 10V to 95V Output, Standard heat sink



### 2V to 7.5V Output, H1 heat sink



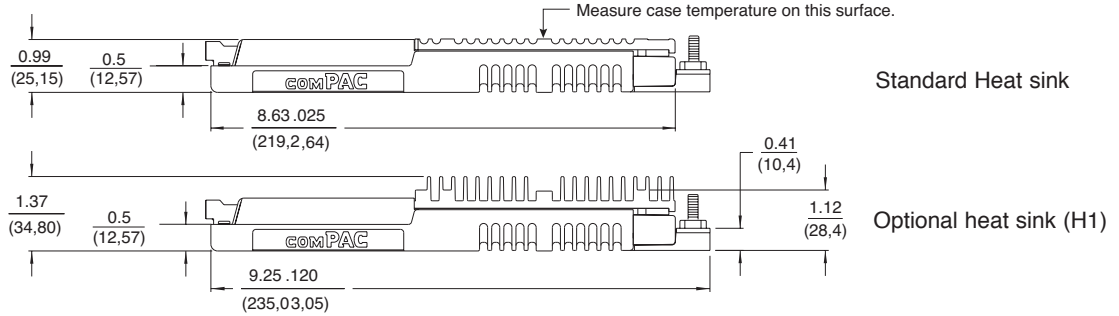
### 10V to 95V Output, H1 heat sink



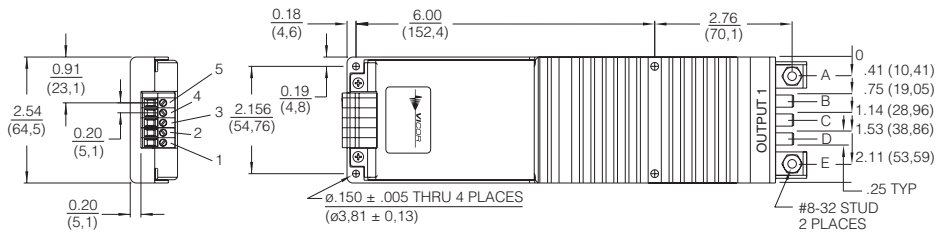
## Mechanical Drawings

INPUTS	
1	Ground
2	-Input
3	+Input
4	Disable-
5	Disable+
OUTPUTS	
A	+Output
B	+Sense
C	Trim
D	-Sense
E	-Output

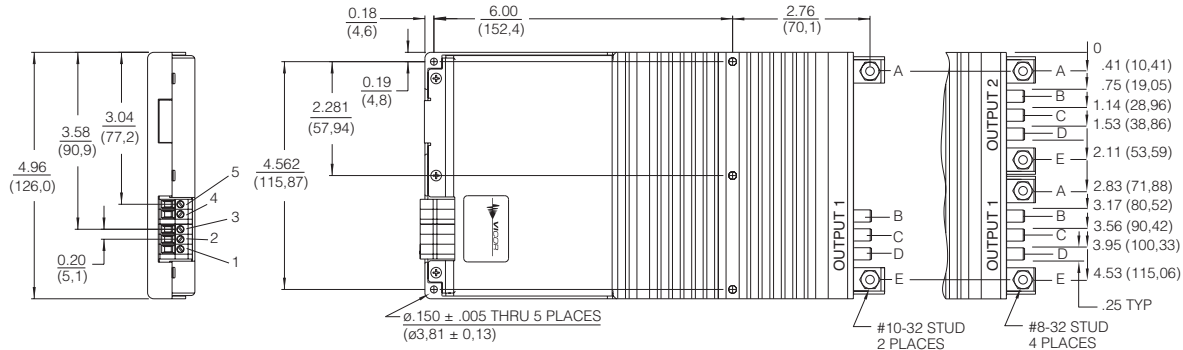
### All Models



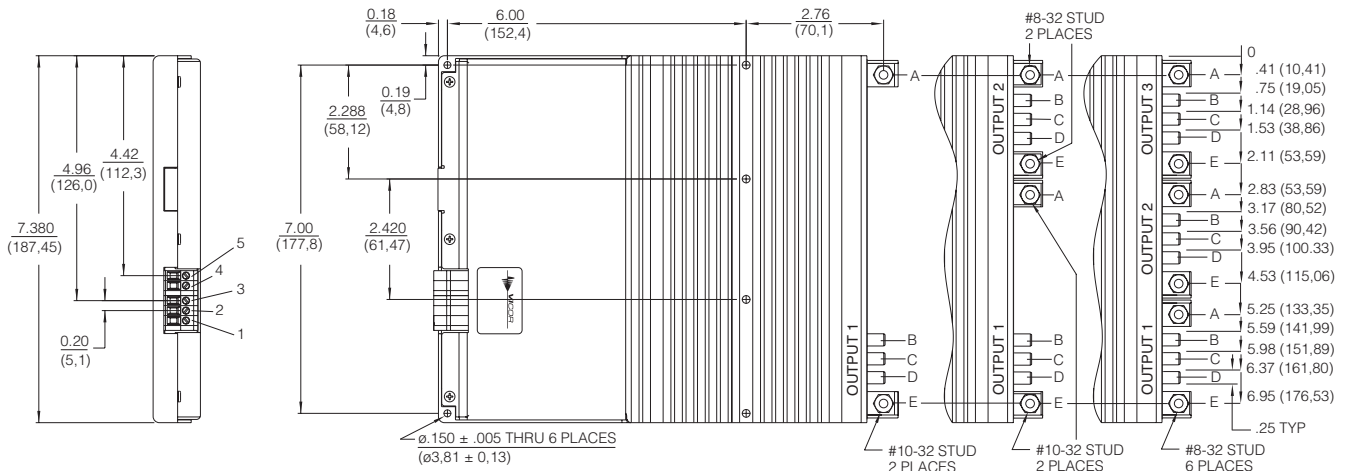
### LC Series



### MC, PC Series

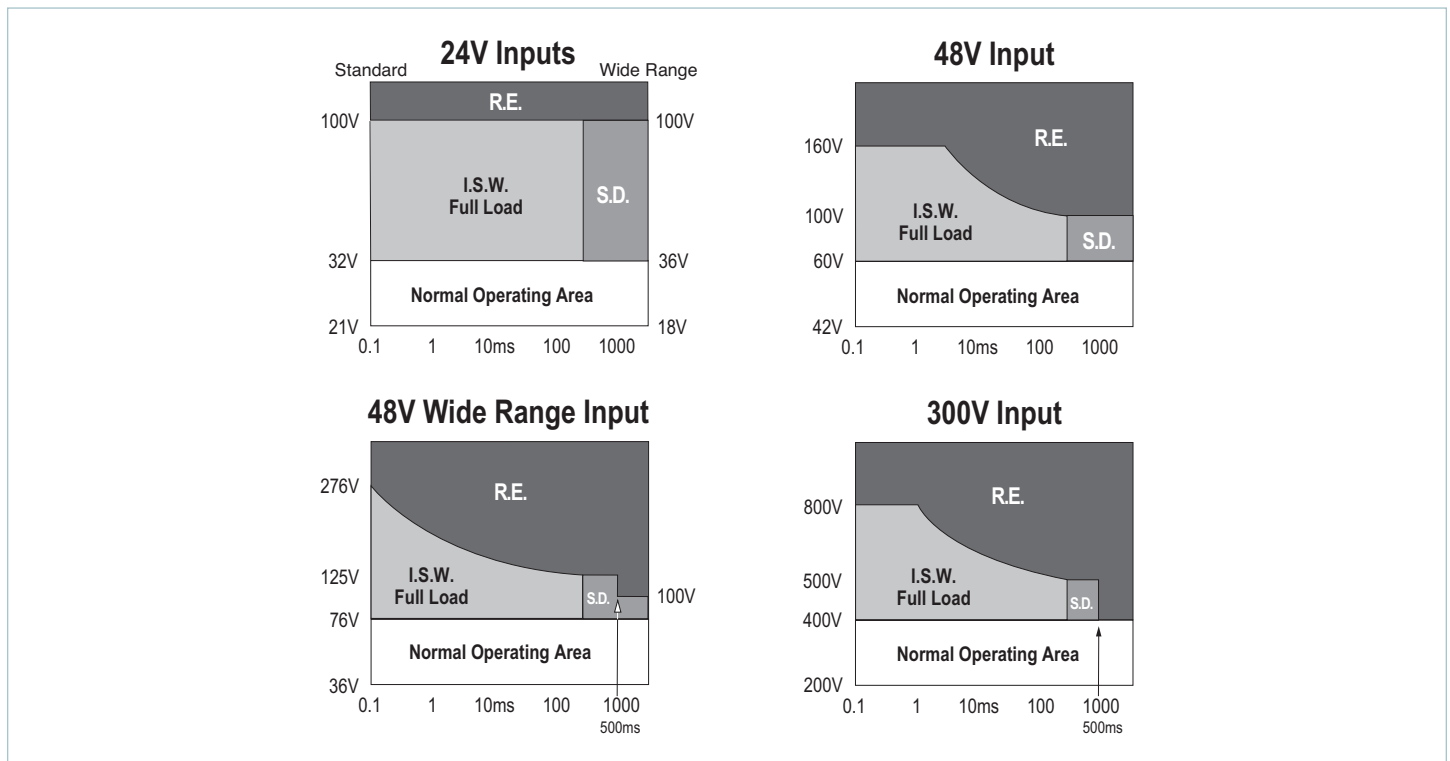


### NC, QC, RC Series



Long-Term Safe Operating Area Curves

1% duty cycle max.,  $Z_s = 0.5\Omega$ , for short duration transient capability refer to specifications.



**I.S.W.:** Input surge withstand, no degradation of performance. **R.E.:** Ratings Exceeded. **S.D.:** Shutdown

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

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