



### Features

- Vicor pin compactible
- High efficiency up to 90%
- Fixed switching frequency provides predictable EMI
- No life-span constrained Capacitor inside 2:1 / 4:1 Ultra-Wide input range
- Isolation 2250V Input-to-output
- Fully protected: OVP, OTP, OCP and UVLO
- Output voltage trim range of -10%, +10%
- Remote sense for the output voltage
- RoHS compliant

<b>UVLO</b>	<b>OCP</b>	<b>OVP</b>	<b>OTP</b>
Metal Case	ON/OFF Remote	PI Filter Built-in	2250VDC Isolation

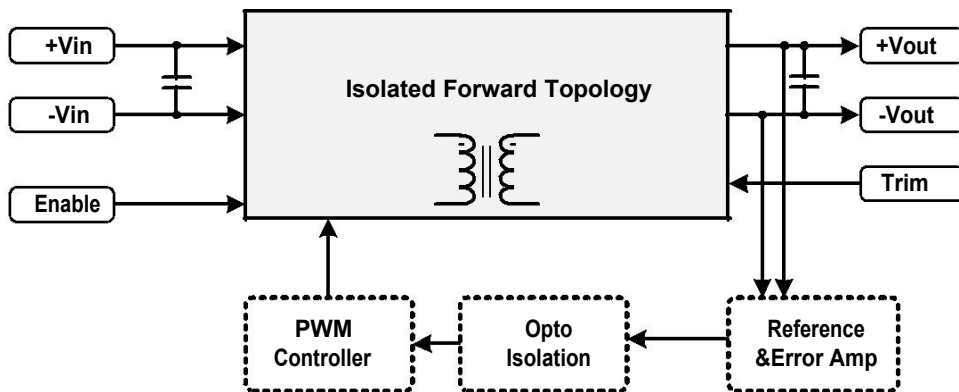


### Applications

- Railway System Transportation
- Telecommunication
- Industry Control System
- Embedded Systems
- Semiconductor Equipment

### Description

SQB Quarter-Brick converter series are composed of Isolated, board-mountable, fixed switching frequency DC-DC converters that use synchronous rectification to achieve extremely high power conversion efficiency. These DC-DC converter modules use advanced power processing, control and packaging technologies to enhance the performance, flexibility, reliability and cost effectiveness of mature power components. Each module is six-sided metal case enclosed to provide protection from the harsh environments seen in many industrial and transportation applications.



SQB Series Block Diagram

## MODEL NUMBER STRUCTURE

<b>SQB</b>	<b>110</b>	<b>120</b>	<b>- V -</b>	<b>P</b>	<b>- B</b>	<b>100V0</b>
Series Name	Input Voltage (VDC)	Output Voltage (VDC)	Pinout	Remote Control Option	Shape	Watt
Supreme series	018: 9-36	050: 5				
Quarter Brick	024 : 18-36	120: 12	V: Vicor pinout	P:Positive logic N:Negative logic	B: Base Plate	100
	110: 40-160	150: 15				120
	300: 200-400	180: 18				150
		240: 24				
		280: 28				

## Model Selection Guide

Typical @ Ta=+25 °C under nominal line voltage conditions unless noted.

Model	Input		Output			Efficiency
	Voltage(V)		Voltage (V)	Current (A)	Power (W)	
	Range	Nominal				Typ.(%)
SQB018120-V-P-B100V0	9-36	18	12	8.4	100	89
SQB018150-V-P-B100V0	9-36	18	15	6.67	100	89
SQB018180-V-P-B100V0	9-36	18	18	6.56	100	89
SQB018240-V-P-B100V0	9-36	18	24	4.17	100	89
SQB018280-V-P-B100V0	9-36	18	28	3.57	100	89
SQB024050-V-P-B100V0	18-36	24	5	20	100	90
SQB024120-V-P-B100V0	18-36	24	12	8.4	100	89
SQB024150-V-P-B100V0	18-36	24	15	6.67	100	89
SQB024180-V-P-B100V0	18-36	24	18	6.56	100	89
SQB024240-V-P-B100V0	18-36	24	24	4.17	100	89
SQB024280-V-P-B100V0	18-36	24	28	3.57	100	89
SQB024120-V-P-B120V0	18-36	24	12	10	120	89
SQB024150-V-P-B120V0	18-36	24	15	8	120	89
SQB024180-V-P-B120V0	18-36	24	18	6.67	120	89
SQB024240-V-P-B120V0	18-36	24	24	5	120	88
SQB024280-V-P-B120V0	18-36	24	28	4.29	120	88
SQB024120-V-P-B150V0	18-36	24	12	12.5	150	89
SQB024150-V-P-B150V0	18-36	24	15	10	150	89
SQB024180-V-P-B150V0	18-36	24	18	8.33	150	89
SQB024240-V-P-B150V0	18-36	24	24	6.25	150	88
SQB024280-V-P-B150V0	18-36	24	28	5.36	150	88
SQB110050-V-P-B100V0	40-160	110	5	20	100	89
SQB110120-V-P-B100V0	40-160	110	12	8.4	100	89
SQB110150-V-P-B100V0	40-160	110	15	6.67	100	89
SQB110180-V-P-B100V0	40-160	110	18	6.56	100	89
SQB110240-V-P-B100V0	40-160	110	24	4.17	100	89
SQB110120-V-P-B120V0	40-160	110	12	10	120	89
SQB110150-V-P-B120V0	40-160	110	15	8	120	89
SQB110180-V-P-B120V0	40-160	110	18	6.67	120	89
SQB110240-V-P-B120V0	40-160	110	24	5	120	89

## Model Selection Guide

Typical @ Ta=+25 °C under nominal line voltage conditions unless noted.

Model	Input		Output			Efficiency
	Voltage(V)		Voltage	Current	Power	
	Range	Nominal	(V)	(A)	(W)	Typ.(%)
SQB110120-V-P-B150V0	40-160	110	12	12.5	150	89
SQB110150-V-P-B150V0	40-160	110	15	10	150	89
SQB110180-V-P-B150V0	40-160	110	18	8.33	150	89
SQB110240-V-P-B150V0	40-160	110	24	6.25	150	89
SQB300120-V-P-B100V0	200-400	300	12	8.4	100	89
SQB300240-V-P-B100V0	200-400	300	24	4.17	100	89
SQB300120-V-P-B120V0	200-400	300	12	10	120	88
SQB300240-V-P-B120V0	200-400	300	24	5	120	88
SQB300120-V-P-B150V0	200-400	300	12	12.5	150	88
SQB300240-V-P-B150V0	200-400	300	24	6.25	150	88

## Electrical Specifications

### Input Specifications

Typical @ Ta=+25°C under nominal line voltage conditions unless noted.

Parameter	Notes and Conditions	Min.	Typ.	Max.	Unit
Transient Input Voltage Ranges	SQB018 models(100ms Max)			50	VDC
	SQB024 models(100ms Max)			50	
	SQB110 models(100ms Max)			180	
	SQB300 models (100ms Max)			450	
Operating Input Voltage Ranges	SQB018 models	9	18	36	VDC
	SQB024 models	18	24	36	
	SQB110 models	40	110	160	
	SQB300 models	200	300	400	
Under-Voltage Lockout Start up Voltage	SQB018 models			9	VDC
	SQB024 models			18	
	SQB110 models			40	
	SQB300 models			200	
Under-Voltage Lockout Shutdown Voltage	SQB018 models		8		VDC
	SQB024 models		17		
	SQB110 models		38		
	SQB300 models		195		
Input Current	See model selection guide, Standby mode (OFF,UVLO)5mA				
Enable Function Input	Positive logic	ON	Open or 8 ~ 20		VDC
		OFF	Short or 0 ~ 1.2		
	Negative logic	ON	Short or 0 ~ 1.2		VDC
		OFF	Open or 8 ~ 20		

### Output Specifications

Parameter	Notes and Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	V <sub>NOM</sub> 50% Load			±1.5	%
Line Regulation	Low Line to High Line			±0.3	%
Load Regulation	10% to 100% load			±0.5	%
Output Ripple And Noise Voltage	Bandwidth 20MHz and with 10uF MLCC Output Capacitor		1.5		%V <sub>pk-pk</sub>
Temperature Coefficient				±0.04	% / °C
Transient Recovery Time	25% load step change		800		µSec.
Transient Peak Deviation	ΔI <sub>o</sub> /Δt=2.5A/us		±2		%V <sub>o</sub>
Start-Up Time	When use Enable Function		20		mSec.
Trimming Output Voltage	V <sub>NOM</sub> 10% Load		±10		%
Over Voltage Protection	V <sub>NOM</sub> 10% Load		120		%
Output Power Protection	V <sub>NOM</sub>		120		%

### General Specifications

Parameter	Notes and Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	V <sub>NOM</sub>	150		330	kHz
Storage Temperature Range	All models	-60		125	°C
Operating Case Temperature	All models	-45		100	°C
Over temperature Protection	All models, Auto. Recovery		110		
Isolation Voltage Input to Output	All models, 1 Minute	2250			VDC
Isolation Resistance Input to Output	All models, 500VDC, At 70%RH	100			MΩ
Isolation Capacitance Input to Output	All models		1500		pF
Humidity (non condensing)	All models			95	%
Calculated MTBF	BellCore-TR-332@ 50°C G.B		1.2		M HR
Thermal Shock	Environmental Engineering Experimental Tests		MIL-STD-810F		
Vibration			MIL-STD-810F		
Drop			MIL-STD-810F		
Weight			59		g (oz.)
Dimensions	1.47" x 2.38" x 0.52" (37.28 x 60.4 x 13.2mm)				
Case Material	Aluminum				
Potting Material	Silicone				

It is recommended to protect the input by fuses or other protection devices.

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### Standards Compliance

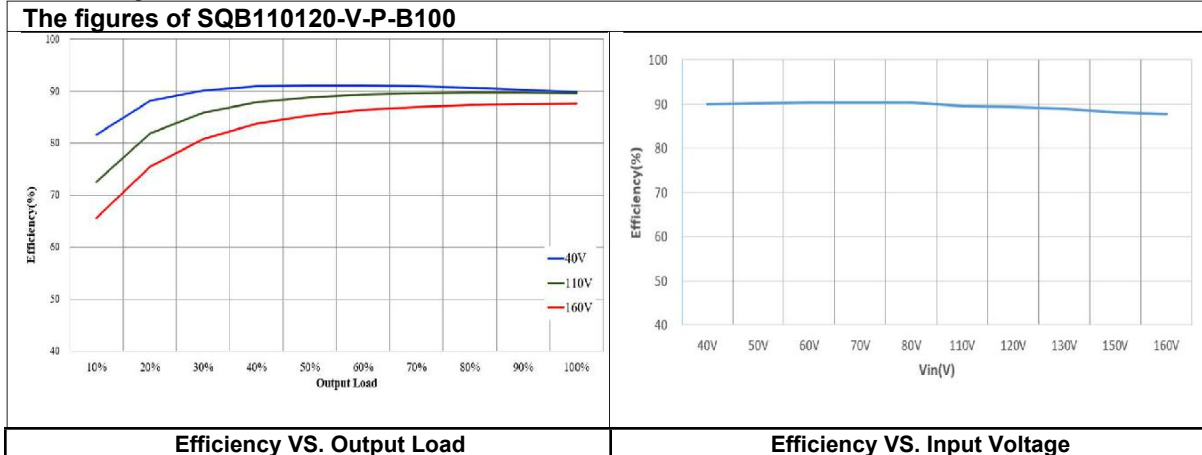
Parameter	Standard	Test Conditions	Performance Criteria
Environmental Compliance	Reach; RoHS		PASS
EMI	EN55022		Class A/ Class B
ESD	EN61000-4-2	±4 kV Air Discharge ±4 kV Contact Discharge	Crit. A
Radiated Immunity	EN61000-4-3	Level 2, 3 V/m	Crit. A
Fast Transient	EN61000-4-4	±2 kV Applied	Crit. A
Surge	EN61000-4-5	±2 kV Applied	Crit. A
Conducted Immunity	EN61000-4-6	Level 2, 3 V rms	Crit. A

Modules could meet EN55022 Class A and Class B standard with external components.

### Characteristic Curves

Testing conditions are at typical input, Ta=+25°C, full load (horizontal mount) Unless otherwise indicated

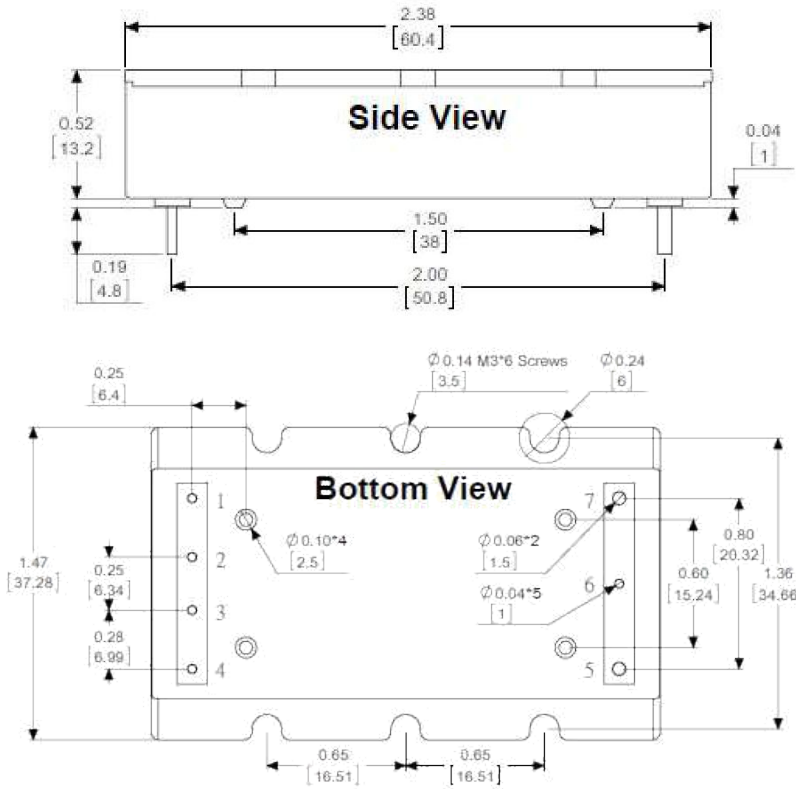
### Efficiency Curves



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### Mechanical Dimensions & Pin Assignments

Suffix – V (Base Plate with Vicor pinout)



Pin#	Function
1	-Vin
2	NC
3	Enable
4	+Vin
5	+Vout
6	Trim
7	-Vout

**Note:**

Pins Material: Copper alloy  
 Pins Plating: Gold  
 All dimension in inch[mm]  
 Tolerance: .XX±0.02[.X±0.5]