

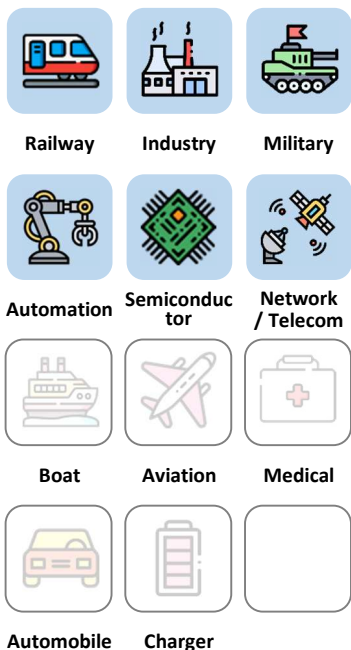


SQBF Series

300W / Quarter Brick

Full Size DC/DC

Applications



Demo photo only. Actual marking may vary.

3 Years Warranty



Features

1/4 Brick	2:1 Wide input range	DOSA Pin out	2250 VDC Insulation	MLCC No life-span constrained	93 % High efficiency	ON / OFF REMOTE	Metal CASE
M3 thread (optional)	UVLO	OCP	OVP	OTP			

Model Number Structure

SQBF 300 120 - S - P - F 300

Series Name	Input Voltage (VDC)	Output Voltage (VDC)	Pin out	Remote Control Option	Shape	Watt
Supreme series	024 : 18-36	120 : 12				
Quarter	048 : 36-75	240 : 24				
Brick	110 : 66-180	280 : 28				
Full Size	300 : 180-425	480 : 48				
			S : Dosa	P : Positive logic N : Negative logic	F : No Flange	300

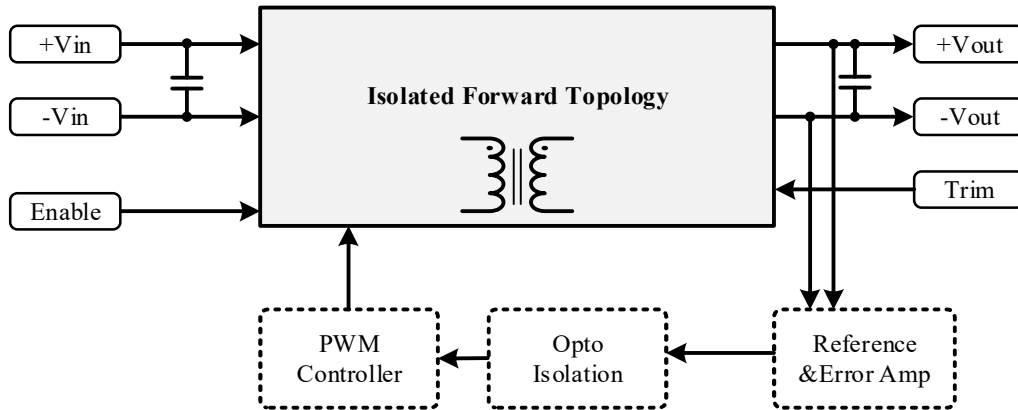
Model Selection Guide

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

Model	Input			Output			Efficiency
	Voltage (V)		Current (A)	Voltage	Current	Power	
	Range	Nominal	Full load	(V)	(A)	(W)	Typ. (%)
SQBF024120-□-□-F300	18-36	24	13.44	12	25	300	93
SQBF024240-□-□-F300	18-36	24	13.58	24	12.5	300	92
SQBF024280-□-□-F300	18-36	24	13.58	28	10.71	300	92
SQBF024480-□-□-F300	18-36	24	13.44	48	6.25	300	92
SQBF048120-□-□-F300	36-75	48	6.79	12	25	300	92
SQBF048240-□-□-F300	36-75	48	6.86	24	12.5	300	91
SQBF048280-□-□-F300	36-75	48	6.86	28	10.71	300	91
SQBF048480-□-□-F300	36-75	48	6.86	48	6.25	300	91
SQBF110120-□-□-F300	66-180	110	2.96	12	25	300	92
SQBF110240-□-□-F300	66-180	110	2.99	24	12.5	300	91
SQBF110280-□-□-F300	66-180	110	2.99	28	10.71	300	91
SQBF110480-□-□-F300	66-180	110	2.99	48	6.25	300	91
SQBF300120-□-□-F300	180-425	300	1.08	12	25	300	92
SQBF300240-□-□-F300	180-425	300	1.09	24	12.5	300	91
SQBF300280-□-□-F300	180-425	300	1.09	28	10.71	300	91
SQBF300480-□-□-F300	180-425	300	1.08	48	6.25	300	91

Description

PowerGood DC DC CONVERTER - Supreme series –Quarter Brick Full Size converter is 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.



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	SQBF024 models (100ms Max)			50	VDC
	SQBF048 models (100ms Max)			100	
	SQBF110 models (100ms Max)			250	
	SQBF300 models (100ms Max)			500	
Operating Input Voltage Ranges	SQBF024 models	18	24	36	VDC
	SQBF048 models	36	48	75	
	SQBF110 models	66	110	180	
	SQBF300 models	180	300	425	
Under-Voltage Lockout Start up Voltage	SQBF024 models			18	VDC
	SQBF048 models			36	
	SQBF110 models			40	
	SQBF300 models			180	
Under-Voltage Lockout Shutdown Voltage	SQBF024 models		17		VDC
	SQBF048 models		35		
	SQBF110 models		64		
	SQBF300 models		176		
Over-Voltage Lockout Turn OFF Threshold	SQBF024 models			50	VDC
	SQBF048 models			80	
	SQBF110 models			195	
	SQBF300 models			450	
Over-Voltage Lockout Turn ON Threshold	SQBF024 models	36			VDC
	SQBF048 models	75			
	SQBF110 models	180			
	SQBF300 models	425			
Input Current	See model selection guide, Standby mode (OFF, UVLO) 8mA				
Enable Function Input	Positive logic	ON	Open		VDC
		OFF	Short or 0 ~ 1.2		
	Negative logic	ON	Short or 0 ~ 1.2		VDC
		OFF	Open		

Output Specifications

Parameter	Notes and Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	V _{NOM} 50% Load			±1.5	%
Line Regulation	Low Line to High Line			±0.3	%
Load Regulation	10% to 100% Load			±0.5	%
Output Ripple & Noise Voltage	Bandwidth 20MHz and with 10μF MLCC Output Capacitor		1.5		%V _{pk-pk}
Temperature Coefficient				±0.04	% / °C
Transient Recovery Time	25% load step change		800		μSec.
Transient Peak Deviation	ΔIo/Δt=2.5A/us		±2		%Vo
Start-Up Time	When use Enable Function		100		mSec.
Trimming Output Voltage	V _{NOM} 10% Load		±5		%
Over Voltage Protection	V _{NOM} 10% Load		120		%
Output Power Protection	V _{NOM}		120		%

General Specifications & Environmental Specifications

Parameter	Notes and Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	V _{NOM}	200		300	kHz
Storage Temperature Range	All models	-60		125	°C
Operating Case Temperature	All models	-45		105	°C
Over temperature Protection	All models, Auto. Recovery		110		
Isolation Voltage	All models, 1 Minute	2250			VDC
Input to Output					
Isolation Resistance	All models, 500VDC, At 70%RH	100			MΩ
Input to Output					
Isolation Capacitance	All models		1500		pF
Input to Output					
Humidity (non condensing)	All models			95	%
Calculated MTBF	BellCore-TR-332@ 50°C G.B		1.5		M HR
Thermal shock	Environmental Engineering Experimental Tests	MIL-STD-810F			
Vibration		MIL-STD-810F			
Drop		MIL-STD-810F			
Weight	Shape-F (No Flange)	75(2.65)			g (oz.)
Dimensions	Shape-F (No Flange)	2.40”x 1.46”x 0.50”(60.96 x 37.20 x 12.7mm)			
Case Material	Metal				
Potting Material	Silicone				

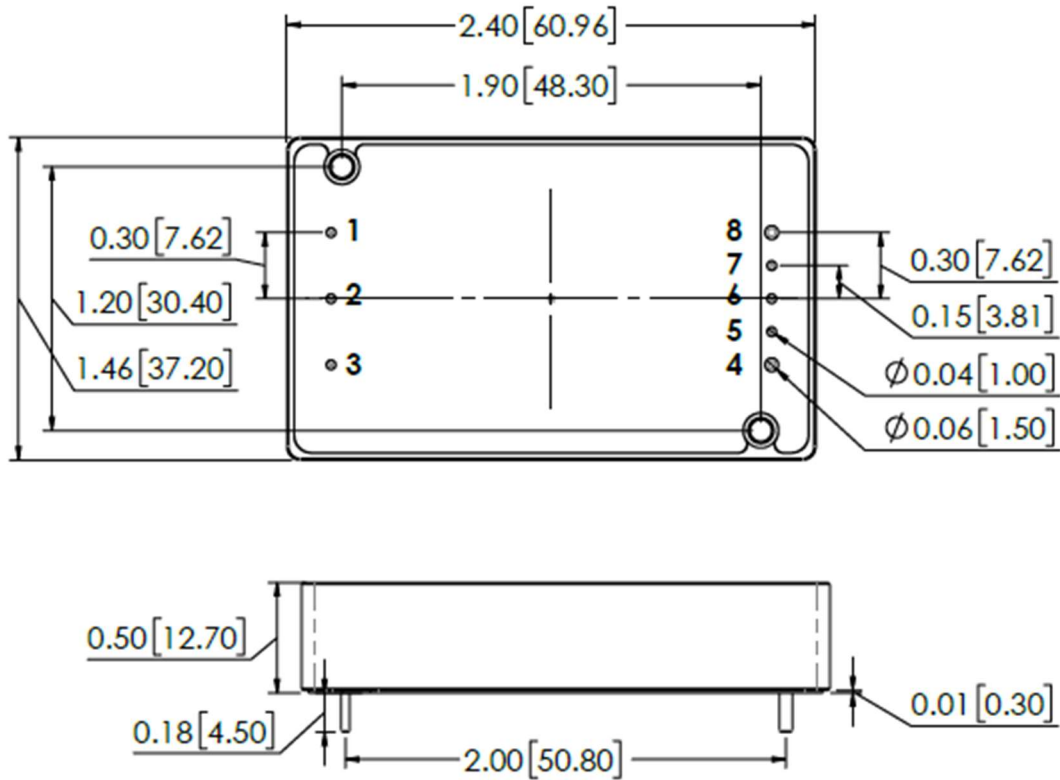
Standards Compliance

Parameter	Standard	Test Conditions	Performance Criteria
Environmental Compliance	Reach; RoHS		PASS
EMI	EN55032		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

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

Modules could meet EN55032 Class A and Class B standard with external components.

The information and specifications contained in this data sheet are believed to be correct at time of publication. All specifications are subject to change without notice. No rights under any patent accompany the sale of any such products or information contained herein.

Mechanical Dimensions & Pin Assignments
Shape – F (No Flange)

Pin Assignments:

Pin#	Dosa	Diameter
1	-Vin	1.0 mm
2	Enable	1.0 mm
3	+Vin	1.0 mm
4	+Vout	1.5 mm
5	+Sense	1.0 mm
6	Trim	1.0 mm
7	-Sense	1.0 mm
8	-Vout	1.5 mm

Note:

Pin Material: Copper Alloy

Pin Plating: Gold

Dimensions in inches [mm]

Tolerances: .XX±0.02 [.X±0.5mm]

Characteristic Curves

Testing conditions are at typical input, $T_a = +25^\circ\text{C}$, full load (horizontal mount) Unless otherwise indicated

The figures of SQBF300280-S-P-F300

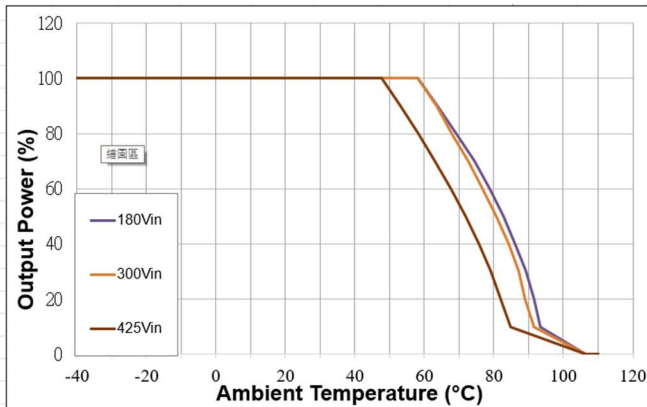


Figure 1 : Ambient Temperature VS. Output Power Derating Curves (Note: 600LFM with Heat Sink)

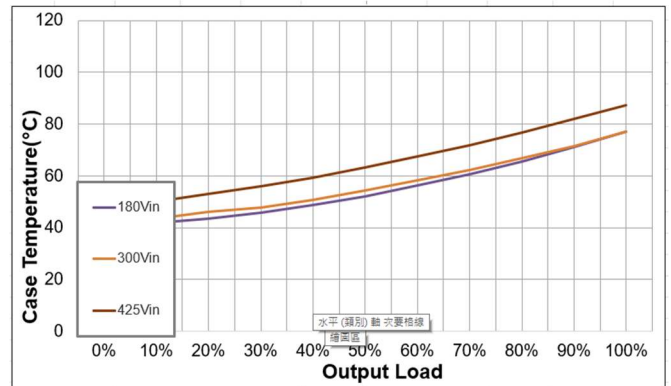


Figure 2 : Case Temperature VS. Output rated Power (Note: 600LFM with Heat Sink)

Trimming Output Voltage – for Single output models

Only the single output converters have a trim function. That allows users to adjust the output voltage from +10% to -10%, please refer to the trim table that follow for details. Adjustments to the output voltage can be used with a simple fixed resistor as shown in Figures 1 and 2. A single fixed resistor can increase or decrease the output voltage depending on its connection.

Note:

- ✂ Trim adjustments higher than the specified range can have an adverse effect on the converter's performance and are not recommended.
- ✂ If the trim function is not used, leave the trim pin open.

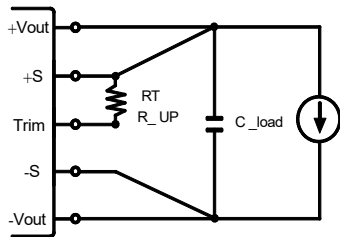


Figure 1. Trim Connections To increase Output Voltages Using Fixed Resistors

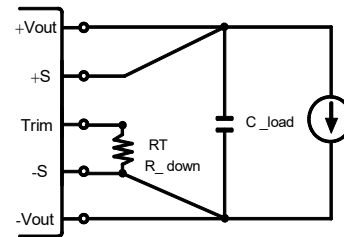


Figure 2. Trim Connections To Decrease Output Voltages Using Fixed Resistors

	Trim up resistor value(KΩ)									
Vout	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
12	258	115	67	44	29	20	13	7.8	3.8	0.6
24	514	232	137	90	62	43	30	20	12	5.5
28	602	271	161	105	72	50	34	22	13	5.9
48	1039	464	273	177	120	81	54	34	18	5

	Trim down resistor value(KΩ)									
Vout	-1%	-2%	-3%	-4%	-5%	-6%	-7%	-8%	-9%	-10%
12	358	162	96	63	44	31	21	14	8.9	4.5
24	769	352	213	143	102	74	54	39	28	18
28	860	392	236	158	111	80	57	41	28	17
48	1413	638	380	251	173	121	85	57	35	18

Enable Control Function

The primary-side, Enable Control function can be specified to operate with either positive or negative polarity. Positive-polarity devices are enabled when the enable pin is left open or is pulled high. See "Enable Function Input."

Positive-polarity devices are disabled when the enable pin is pulled low (under +1.0V with respect to -input). Negative-polarity devices are off when the enable pin is high/open and on when the enable pin is pulled low. See Figure 3.

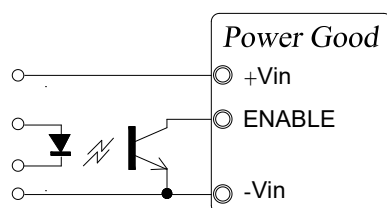


Figure 3. Driving the Enable Control pin

Output Ripple Noise

The two copper strips simulate real-world PCB impedances between the converter and its load. Scope measurements should be made using BNC connectors or the probe ground should be less than 1/2 inch and soldered directly to the fixture.

All external capacitors should have appropriate voltage ratings and be located as close to the converter as possible.

Temperature variations for all relevant parameters should be taken into consideration. The most effective combination of external I/O capacitors will be a function of line voltage and source impedance, as well as particular load and layout conditions. See Figure 4.

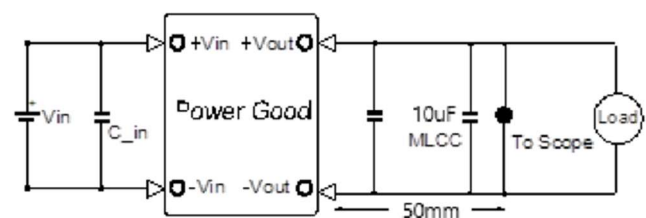


Figure 4. Measuring Output Ripple/Noise(20MHz bandwidth)

