

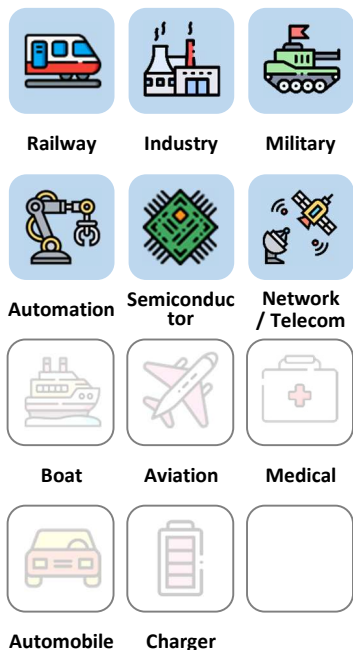


SHBF Series

600W / Half Brick

Full Size DC/DC

Applications



3 Years Warranty



Features

1/2 Brick	2:1 Wide input range	DOSA Pin out	2250 VDC Insulation	MLCC No life-span constrained	94 % High efficiency	ON / OFF REMOTE	Plastic CASE
M3 thread (optional)	UVLO	OCP	OVP	OTP			

Model Number Structure

SHBF 110 120 - S - P - F 600

Series Name	Input Voltage (VDC)	Output Voltage (VDC)	Pin out	Remote Control Option	Shape	Watt
Supreme series	024 : 18-36	120 : 12	S : Dosa	P : Positive logic N : Negative logic	F : No Flange	600
Half Brick	048 : 36-75	240 : 24				
Brick	110 : 66-180	280 : 28				
Full Size	300 : 180-425	480 : 48				

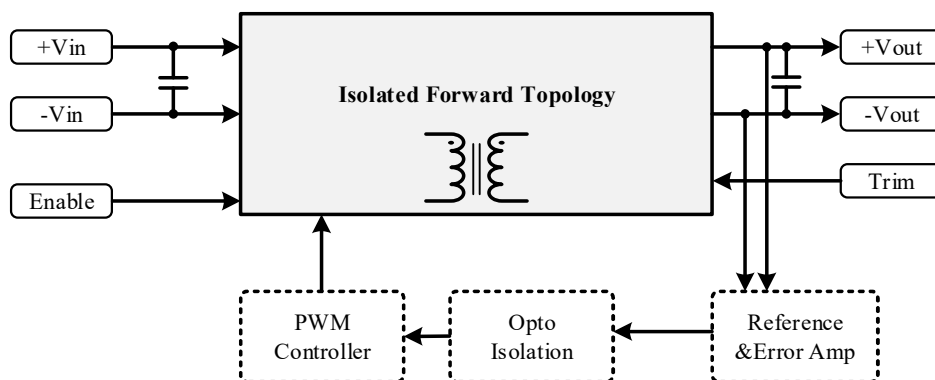
Model Selection Guide

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. (%)
SHBF024120-□-□-F600	18-36	24	26.59	12	50	600	94
SHBF024240-□-□-F600	18-36	24	26.88	24	25	600	93
SHBF024280-□-□-F600	18-36	24	26.88	28	21.42	600	93
SHBF024480-□-□-F600	18-36	24	26.59	48	12.5	600	93
SHBF048120-□-□-F600	36-75	48	13.29	12	50	600	94
SHBF048240-□-□-F600	36-75	48	13.44	24	25	600	93
SHBF048280-□-□-F600	36-75	48	13.44	28	21.42	600	93
SHBF048480-□-□-F600	36-75	48	13.29	48	12.5	600	93
SHBF110120-□-□-F600	66-180	110	5.80	12	50	600	94
SHBF110240-□-□-F600	66-180	110	5.87	24	25	600	93
SHBF110280-□-□-F600	66-180	110	5.87	28	21.42	600	93
SHBF110480-□-□-F600	66-180	110	5.80	48	12.5	600	93
SHBF300120-□-□-F600	180-425	300	2.17	12	50	600	92
SHBF300240-□-□-F600	180-425	300	2.2	24	25	600	91
SHBF300280-□-□-F600	180-425	300	2.2	28	21.42	600	91
SHBF300480-□-□-F600	180-425	300	2.17	48	12.5	600	93

Description

PowerGood DC DC CONVERTER - Supreme series - Half 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.



SHBF Series Block Diagram

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	SHBF024 models (100ms Max)			50	VDC
	SHBF048 models (100ms Max)			100	
	SHBF110 models (100ms Max)			250	
	SHBF300 models (100ms Max)			500	
Operating Input Voltage Ranges	SHBF024 models	18	24	36	VDC
	SHBF048 models	36	48	75	
	SHBF110 models	66	110	180	
	SHBF300 models	180	300	425	
Under-Voltage Lockout Start up Voltage	SHBF024 models			18	VDC
	SHBF048 models			36	
	SHBF110 models			66	
	SHBF300 models			180	
Under-Voltage Lockout Shutdown Voltage	SHBF024 models		17		VDC
	SHBF048 models		34		
	SHBF110 models		63		
	SHBF300 models		176		
Over-Voltage Lockout Turn OFF Threshold	SHBF024 models			45	VDC
	SHBF048 models			85	
	SHBF110 models			195	
	SHBF300 models			450	
Over-Voltage Lockout Turn ON Threshold	SHBF024 models	36			VDC
	SHBF048 models	75			
	SHBF110 models	180			
	SHBF300 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 1μF 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/μs		±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)	115 (4.06)			g (oz.)
Dimensions	Shape-F (No Flange)	2.30"x 2.40"x 0.50"(58.42 x 60.96 x 12.7mm)			
Case Material	FR4 base with Aluminum Case				
Potting Material	Silicone				

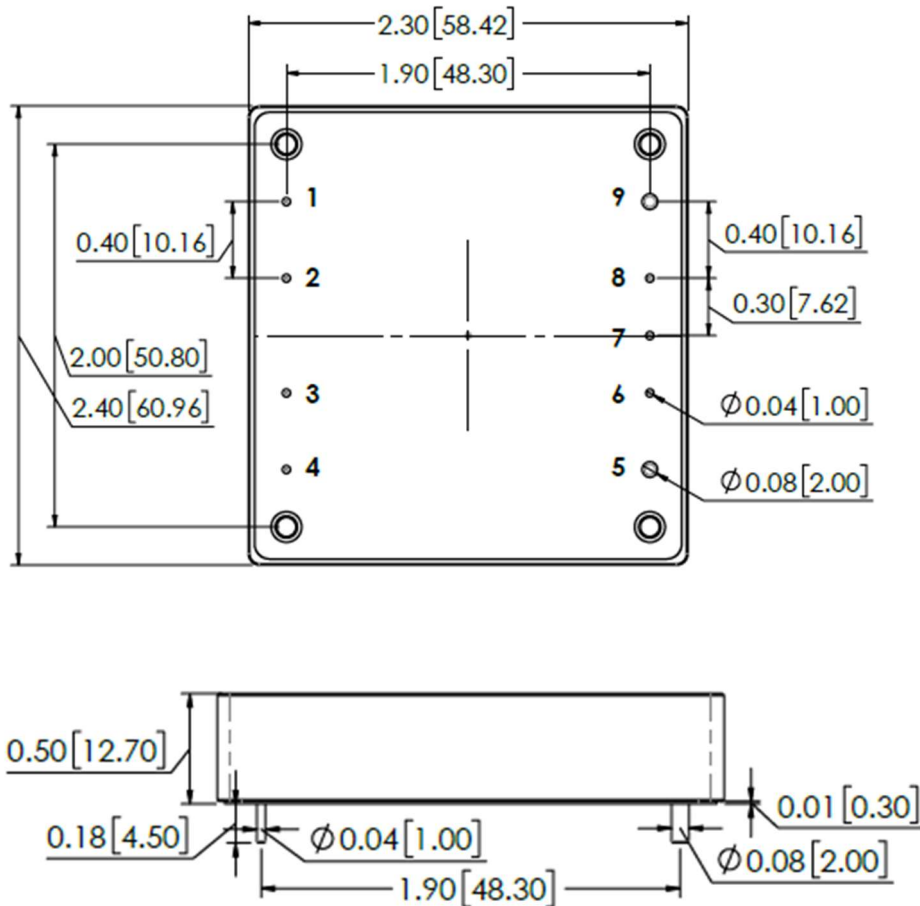
Standards Compliance

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.

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

Pin Assignments:

Pin#	Function	Diameter
1	-Vin	2.0 mm
2	NC	1.0 mm
3	Enable	1.0 mm
4	+Vin	2.0 mm
5	+Vout	2.0 mm
6	+Sense	1.0 mm
7	Trim	1.0 mm
8	-Sense	1.0 mm
9	-Vout	2.0 mm

Note:

Pin Material: Copper Alloy

Pin Plating: Gold

Dimensions in inches [mm]

Tolerances: .XX $\pm$ 0.02 [.X $\pm$ 0.5mm]

