



Features

- High efficiency
- High Input Voltage
- Fixed switching frequency provides predictable EMI
- No life-span constrained Capacitor inside
- 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

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

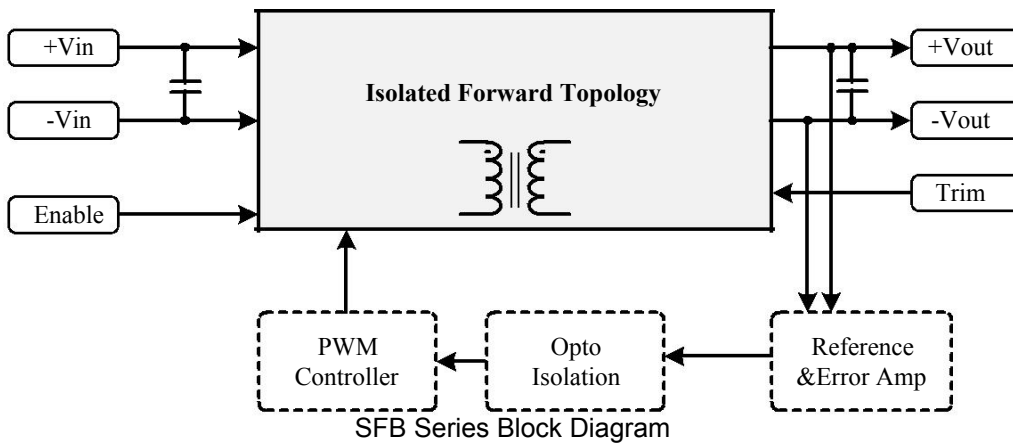


Applications

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

Description

SFB Full-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.



MODEL NUMBER STRUCTURE

SFB	110	120	-	S	-	P	-	B	300V0
Series Name	Input Voltage (VDC)	Output Voltage (VDC)		Output Quantity		Remote Control Option		Shape	Watt
Supreme series	018 : 9-36 024 : 18-36	120 : 12 240 : 24		S : Single		P : Positive logic N : Negative logic		B : Base Plate	400
Full Brick	110 : 40-160 300 : 200-400	280 : 28 480 : 48							600

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.(%)
SFB018120-S-P-B400V0	9-36	18	12	33.33	400	89
SFB018240-S-P-B400V0	9-36	18	24	16.67	400	89
SFB018280-S-P-B400V0	9-36	18	28	14.28	400	89
SFB018480-S-P-B400V0	9-36	18	48	8.33	400	89
SFB018120-S-P-B600V0	9-36	18	12	50	600	89
SFB018240-S-P-B600V0	9-36	18	24	25	600	89
SFB018280-S-P-B600V0	9-36	18	28	21.42	600	88
SFB018480-S-P-B600V0	9-36	18	48	12.5	600	88
SFB024120-S-P-B400V0	18-36	24	12	33.33	400	89
SFB024240-S-P-B400V0	18-36	24	24	16.67	400	89
SFB024280-S-P-B400V0	18-36	24	28	14.29	400	89
SFB024480-S-P-B400V0	18-36	24	48	8.33	400	89
SFB024120-S-P-B600V0	18-36	24	12	50	600	89
SFB024240-S-P-B600V0	18-36	24	24	25	600	89
SFB024280-S-P-B600V0	18-36	24	28	21.42	600	89
SFB024480-S-P-B600V0	18-36	24	48	12.5	600	89
SFB110120-S-P-B400V0	40-160	110	12	33.33	400	89
SFB110240-S-P-B400V0	40-160	110	24	16.67	400	89
SFB110280-S-P-B400V0	40-160	110	28	14.29	400	88
SFB110480-S-P-B400V0	40-160	110	48	8.33	400	88
SFB110120-S-P-B600V0	40-160	110	12	50	600	89
SFB110240-S-P-B600V0	40-160	110	24	25	600	89
SFB110280-S-P-B600V0	40-160	110	28	21.42	600	89
SFB110480-S-P-B600V0	40-160	110	48	12.5	600	89
SFB300120-S-P-B400V0	200-400	300	12	33.33	400	88
SFB300240-S-P-B400V0	200-400	300	24	16.67	400	88
SFB300120-S-P-B600V0	200-400	300	12	50	600	88
SFB300240-S-P-B600V0	200-400	300	24	25	600	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	SFB018 models(100ms Max)			50	VDC
	SFB024 models(100ms Max)			50	
	SFB110 models(100ms Max)			180	
	SFB300 models(100ms Max)			450	
Operating Input Voltage Ranges	SFB018 models	9	18	36	VDC
	SFB024 models	18	24	36	
	SFB110 models	40	110	160	
	SFB300 models	200	300	400	
Under-Voltage Lockout Start Up Voltage	SFB018 models			9	VDC
	SFB024 models			18	
	SFB110 models			40	
	SFB300 models			200	
Under-Voltage Lockout Shutdown Voltage	SFB018 models		8		VDC
	SFB024 models		17		
	SFB110 models		38		
	SFB300 models		195		
Input Current	See model selection guide, Standby mode (OFF,UVLO)5mA				
Enable Function Input	Positive logic	ON	Open or 12 ~ 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 _{NOM} 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 1uF 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	ΔI _o /Δt=2.5A/us		±2		%V _o
Start-Up time	When use Enable Function		20		mSec.
Trimming Output Voltage	V _{NOM} 10% Load		±10		%
Over voltage protection	V _{NOM} 10% Load		120		%
Output Power Protection	V _{NOM}		120		%

General Specifications

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Switching Frequency	V _{NOM}	200	250	300	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	TBD			M HR
Thermal Shock	Environmental Engineering Experimental tests	MIL-STD-810F			
Vibration		MIL-STD-810F			
Drop		MIL-STD-810F			
Weight			TBD		g (oz.)
Dimensions	2.4" x 4.62" x 0.6" (61 x 117.3 x 15.2mm)				
Case Material	Aluminum				
Potting Material	Silicone				

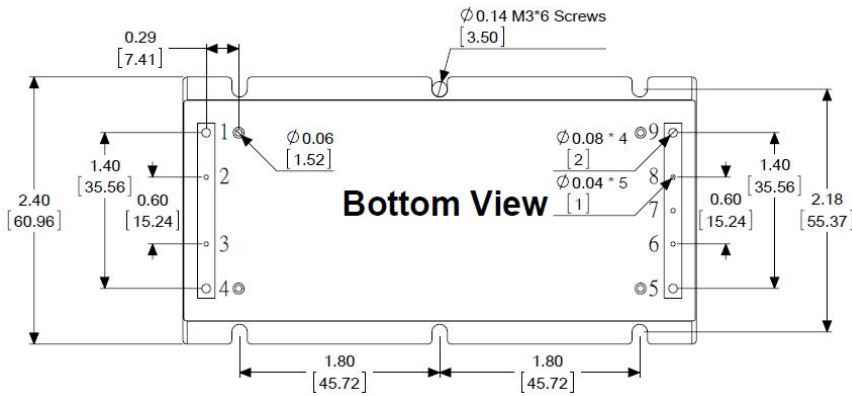
Standards Compliance

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

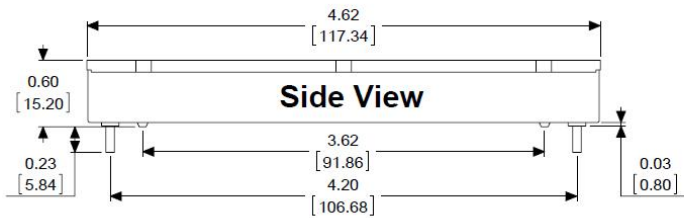
The modules meet EN55022 Class A and Class B standard with external components.

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Mechanical drawing and pin assignment:



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



Tolerance: X.X±0.02 in

- * Pin material: Copper alloy
- * Pin plating: Gold