

Features

20W DC/DC CONVERTER SERIES

- High efficiency
- Save 20% board space
- Standard pin out; **Fully replaceable** with 2"x1" standard case
- 1500V **Basic Insulation** (input to output)
- Patented architecture and control
- 4:1 wide input ranges: 9-36V and 18-75V (except $\pm 24V$)
- -40°C to +71°C operation without derating
- **Built-in EMC filter** meets **EN 55022 class B** and **FCC Level B** without external components
- **UL60950/EN60950 recognized (pending)**
- Input under-voltage lockout
- Output current limit and short circuit protection
- Output over voltage protection
- MTBF \geq 2,195,000 hours @50°C GB (BellCoreTR-332)

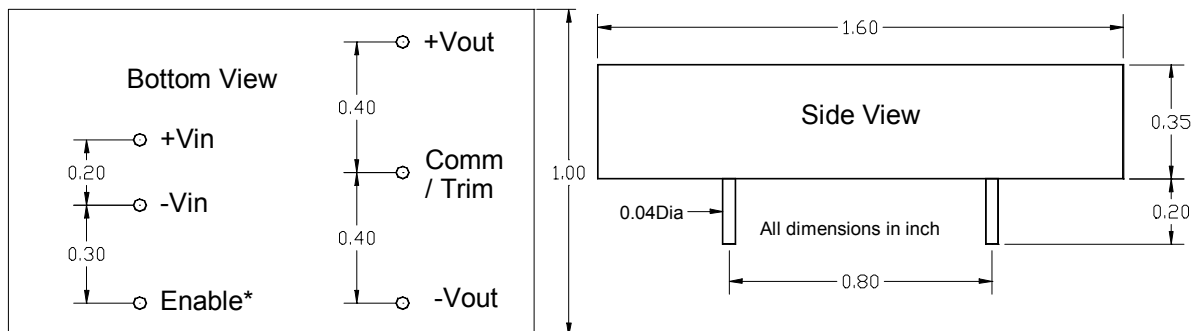


Selection Guide

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

Part Number	Input Voltage	Input Current	Output Voltage	Output Current	Output Power	Efficiency @FL
	(V)	Full load (A)	(V)	(A)	(W)	Typ.(%)
ESB1833-6-1IP	9-36	1.26	3.3	6.0	20	87%
ESB1850-4-1IP	9-36	1.26	5.0	4.0	20	88%
ESB18120-S-1IP	9-36	1.25	12	1.6	20	85%
ESB18150-S-1IP	9-36	1.26	15	1.3	20	86%
ESB18120-D-1IP	9-36	± 0.63	± 12	± 0.8	20	85%
ESB18150-D-1IP	9-36	± 0.63	± 15	± 0.65	20	86%
ESB24240-D-1IP	18-36	± 0.46	± 24	± 0.4	20	87%
ESB3633-6-1IP	18-75	0.63	3.3	6.0	20	87%
ESB3650-4-1IP	18-75	0.63	5.0	4.0	20	88%
ESB36120-S-1IP	18-75	0.63	12	1.6	20	85%
ESB36150-S-1IP	18-75	0.63	15	1.3	20	86%
ESB36120-D-1IP	18-75	± 0.31	± 12	± 0.8	20	85%
ESB36150-D-1IP	18-75	± 0.31	± 15	± 0.65	20	86%
ESB48240-D-1IP	36-75	± 0.23	± 24	± 0.4	20	87%

Note: 24/30/48VDC output can be obtained by series connecting the corresponding dual outputs with floating the Comm-Pin.



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Electrical Specifications

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

Input

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Operating Input Voltage ranges	ESB18 models	9	18	36	VDC
	ESB24 models	18	24	36	VDC
	ESB36 models	18	36	75	VDC
	ESB48 models	36	48	75	VDC
Under-Voltage Lockout Turn-ON Threshold	ESB18 models	8.5			VDC
	ESB24 models/ ESB36 models	17.5			VDC
	ESB48 models	35			VDC
Under-Voltage Lockout Turn-OFF Threshold	ESB18 models			8	VDC
	ESB24 models/ ESB36 models			17	VDC
	ESB48 models			34	VDC
Input Current	See model selection guide, Standby mode (OFF, UVLO) 5mA				
High Input Level	Enable Function Input	3		5.5	VDC
Low Input Level		0		1.2	VDC
Input Filter	All models			EMC Filter	

Output

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Output Voltage Accuracy	50% Load			±1.5	%
Line Regulation	Low line to High line			±0.3	%
Load Regulation	10% to 100% load			±0.5	%
Ripple & Noise (20MHz bandwidth)	Over Line, Load & Temp.		100	200	mV pk-pk
				50	mV RMS
Temperature Coefficient				±0.04	% /°C
Transient Recovery Time	25% load step change			800	µSec.
Transient Peck Deviation	25% load step change			2	%Vo
Start-Up Time			50	100	mSec.
Output Power Protection		100	120	140	%

General Specifications

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Switching Frequency		270	300	330	KHz
Storage Temperature range	All models	-55		125	°C
Operating Case Temperature	All models	-40		100	°C
Isolation Voltage	All models, 1 Minute			1500	VDC
Isolation Resistance	All models, 1500VDC	10			MΩ
Isolation Capacitance	All models			1000	pF
Humidity	All models			95	%
Calculated MTBF	BellCore TR-332 @ 50°C G.B.		2,195,000		Hours
Weight				22(0.8)	g (oz.)
Efficiency	See model selection guide				
Dimensions	1.6" x 1.0" x 0.35" (40.6 x 25.4 x 8.9mm)				
Case Material	Aluminum				

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

