

Features

- High efficiency – **89% @ 5V / 4A Full Load**
- Save **45%** board space
- Standard pin out; **Fully replaceable** with **2"x1"** package
- **2250VDC I/O Insulation** (basic insulation)
- IEC950/EN60950/UL1950 pending
- Patented architecture and control circuitry
- 3.3V, 5V, 12V, 15V, $\pm 12V$ or $\pm 15V$ outputs
- High power up to **20W**
- Free air convection form **-40°C to +60°C**
- Input under-voltage lockout
- Output current limit and short circuit protection
- Output over-voltage and over-temperature protection

Description

The new **ESO** series converters are targeted specifically at the telecommunication, industrial electronics, mobile telecommunication, and distributed power markets. These 12 members accept two wide input voltage ranges from 18 to 36 & 36 to 75 VDC and provide single or dual outputs. All models feature fixed switching frequency operation, input under voltage lockout, over-temperature protection, output over-voltage protection, output current limiting, and short circuit protection.

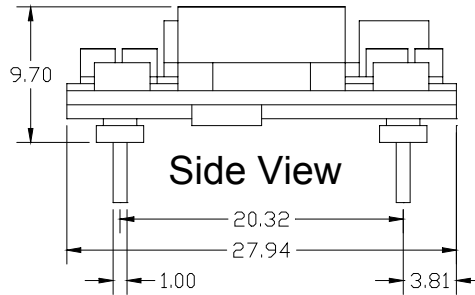
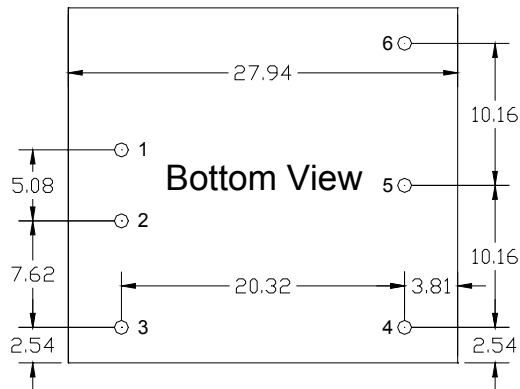
The converters combine creative design concept and conservative component selection to achieve very high reliability, high performance and low cost.

Program Models' designed data

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

Model	Input				Output			Efficiency @FL
	Voltage (Volts)		Current (A)		Voltage (Volts)	Current (A)	Power (W)	
	Nominal	Range	No load	Full load				Typ.
ESO48033-5- E	48	36-75	0.05	0.39	3.3	5	16.5	88%
ESO48050-4- E	48	36-75	0.05	0.47	5.0	4	20	89%
ESO48120-S- E	48	36-75	0.02	0.43	12.0	1.5	18	88%
ESO48120-D- E	48	36-75	0.02	0.43	± 12.0	0.75	18	88%
ESO24033-5- E	24	18-36	0.1	0.79	3.3	5	16.5	87%
ESO24050-4- E	24	18-36	0.1	0.95	5.0	4	20	88%
ESO24120-S- E	24	18-36	0.05	0.86	12.0	1.5	18	87%
ESO24120-D- E	24	18-36	0.05	0.86	± 12.0	0.75	18	87%
ESO36033-4- E	36	18-75	0.05	0.47	3.3	4.5	15	87%
ESO36050-3- E	36	18-75	0.05	0.47	5.0	3	15	88%
ESO36120-S- E	36	18-75	0.02	0.48	12.0	1	12	86%
ESO36120-D- E	36	18-75	0.02	0.48	± 12.0	± 0.5	12	86%
ESO18033-4- E	18	9-36	0.1	0.97	3.3	4.5	15	86%
ESO18050-3- E	18	9-36	0.1	0.97	5.0	3	15	87%
ESO18120-S- E	18	9-36	0.05	0.78	12.0	1	12	85%
ESO18120-D- E	18	9-36	0.05	0.78	± 12.0	± 0.5	12	85%

Enable Polarity: "-P" for positive logic PI Input Filter, **"-N"** for negative logic PI Input Filter



Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Enable	Enable
4	-Vout	-Vout
5	Adjust	Comm
6	+Vout	+Vout

Electrical Specifications
Input

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

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Operating Input Voltage ranges	ESO24 models ESO48 models	18 36	24 48	36 75	VDC
Under-Voltage Lockout Turn-ON Threshold	ESO24 models ESO48 models	17.5 35			VDC
Under-Voltage Lockout Turn-OFF Threshold	ESO24 models ESO48 models			17 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	Built-in PI Filter			

Output

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Output Voltage Accuracy	10% Load			±1.0	%
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.		50	100 30	mV pk-pk mV RMS
Temperature Coefficient				±0.04	% / °C
Transient Recovery Time	50-75% load step change		100	200	µSec.
Transient Peck Deviation	50-75% load step change			±2	%Vo
Start-Up Time			100	200	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			2250	VDC
Isolation Resistance	All models, 500VDC	10			MΩ
Isolation Capacitance	All models			1000	pF
Humidity	All models			95	%
Calculated MTBF	BellCore TR-332 @ 50°C G.B.		TBD		Hours
Weight				TBD	g (oz.)
Efficiency	See model selection guide				
Dimensions	1.1" x 0.96" x 0.38" (28.0 x 24.4 x 9.7mm)				

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

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