Input Ranges :
9-75 VDC

Output Output:
Single Output
3.3V - 24V
Bipolar Output
±5.0V, ±12V, ±15V
Dual Output
+5.0V / +12V,
+5.0V / +24V
Triple Output
+5.0V / ±12V,
+5.0V / ±15V

Output Power:
15 W

The **E** series DC-DC converters feature high power density, high efficiency and excellent line & load regulation. Using innovative design technique, state-of-the art Current Mode PWM control, and Surface Mount packaging & manufacturing technology, the E series provides up to 15 watts of well regulated power in a encapsulated 1.6” x 2.0” x 0.46” metal case with six-sided EMI/RFI shielding. Automatic feed forward compensation, pulse-by-pulse current limiting, and output short circuit protection are standard for all models.

These converters are designed for wide input range telecommunications, industrial and instrument applications. The wide input range (4:1) is ideal for battery or unregulated input applications.

No external components are needed for normal operation. Low ESR capacitors are used to minimize the conductive noise. This package is ideal for all I/O board system and distributed DC power configurations.

FEATURES

General:

- Small footprint : 1.6” x 2.0”
- Current-Mode Control
- Input/Output Isolation
- Input Voltage from 10 to 75Vdc
- 4:1 Input Voltage Range
- High conversion efficiency: 80%
- Line & load regulation to ±1.0%
- Fixed operating frequency
- Six-Sided Shielding

Isolation:

- Isolation Voltage >500V

APPLICATIONS

- PoE (Power over Ethernet)
- Distributed Power Systems
- Workstations
- Computer Equipment
- Communications Equipment

TABLE OF CONTENTS :

1. Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause performance degradation, adversely effect longterm reliability, and cause permanent damage to the device.

Parameter	Conditions / Description	Min	Max	Units
Input Voltage				
Continuous	24	-0.3	38	Vdc
	48	-0.3	78	Vdc
Transient (100mSec.)	24	-0.3	40	Vdc
	48	-0.3	80	Vdc
Operating Temperature	All models, base plate temperature	-40	+95	°C
Storage Temperature	**Ambient**	-55	+105	°C
Isolation Voltage	Input to Output		+700	Vdc

2. Input Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Input Voltage					
Voltage Range (Continuous)	24	10	24	36	Vdc
	48	20	48	75	Vdc

3. Enable (On-Off Control)

Parameter	Conditions / Description	Min	Nom	Max	Units
Enable Pin					
Open Circuit Voltage			5		Vdc
Source Current				1	mA
Positive Logic	**Standard**				
On-Control	Logic High or Floating	5.0		18	Vdc
Off-Control		-0.5		1.8	Vdc
Negative Logic	**Not Available**				

* Enable pin can be left floating if not used.

4. Output Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Voltage Accuracy	Please see table				%
Output Current	Please see table				Adc
Output Trim	Not Available				%Vout
Over Voltage Protection	Not available				Vdc
Line Regulation				±1.0	%Vout
Load Regulation				±1.0	%Vout
Transient Respoonse	50% ± 25% step load change		400		µSec.
Ripple & Noise	Please see table				mVp-p
Switching Frequency			200		KHz

5. Output Trim

Parameter	Conditions / Description	Min	Nom	Max	Units
Negative Trim	Standard				
Trim Up	Trim Pin to (-)Vout			10	%Vdc
Trim Down	Trim Pin to (+)Vout	10			%Vdc
Positive Trim	Not Available				

*** Trim pin can be left floating if not used**

6. Environmental and Mechanical Specifications

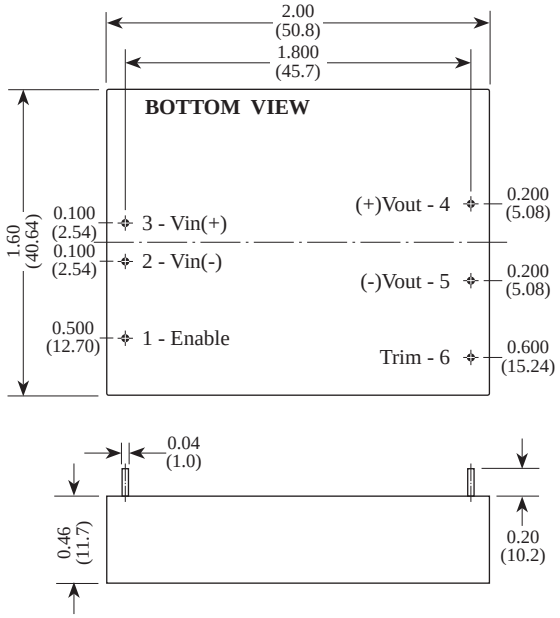
Parameter	Conditions / Description	Min	Nom	Max	Units
Operating Temperature	PCB Temperature	-40		+95	°C
Storage Temperature		-55		+105	°C
Temperature Coefficient				±0.02	%/°C
Shock	Halfsine wave, 3 axes	50			g
Sinusoidal Vibration	GR-63-CORE, Section 5.4.2	1			g
Humidity	Relative Humidity, Non-Condensing			95	%R.H.
Weight			1.8 (51)		Oz (g)
MTBF (calculated)	Bellcore TR-NWT-000332 method 1 - parts count	0.5			MHrs

7. Isolation Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Isolation Voltage					
Input to Output		500			Vdc
I/O to Case		300			Vdc
Isolation Resistance	Input to Output	10			MΩ
Isolation Capacitance	Input to Output		3		nF

INPUT	OUTPUT										
Nominal (Range)	Max. Output Power	Voltage (V)			Current (A)		Ripple & Noise		Over Load Protection	EFF. (typ.)	MODEL NO.
		Set Point	Min.*	Max.*	Min.	Max.	Peak-Peak	R.M.S.			
24 (10 - 36)	13W	3.30	3.20	3.40	0.4	4.0	75mV	15mV	Pulse by Pulse Current Limiting	78%	E15S2403
	15W	5.0	4.90	5.10	0.3	3.0	75mV	15mV		82%	E15S2405
	15W	12.0	11.88	12.12	0.1	1.25	100mV	25mV		84%	E15S2412
	15W	15.0	14.85	15.15	0.1	1.0	120mV	30mV		84%	E15S2415
	15W	24.0	23.76	24.24	0.06	0.63	200mV	40mV		84%	E15S2424
48 (20 - 75)	13W	3.30	3.20	3.40	0.4	4.0	75mV	15mV		78%	E15S4803
	15W	5.0	4.90	5.10	0.3	3.0	75mV	15mV		82%	E15S4805
	15W	12.0	11.88	12.12	0.1	1.25	100mV	25mV		84%	E15S4812
	15W	15.0	14.85	15.15	0.1	1.0	120mV	30mV		84%	E15S4815
	15W	24.0	23.76	24.24	0.06	0.63	200mV	40mV		84%	E15S4824

* Combined Line & Load Regulation.



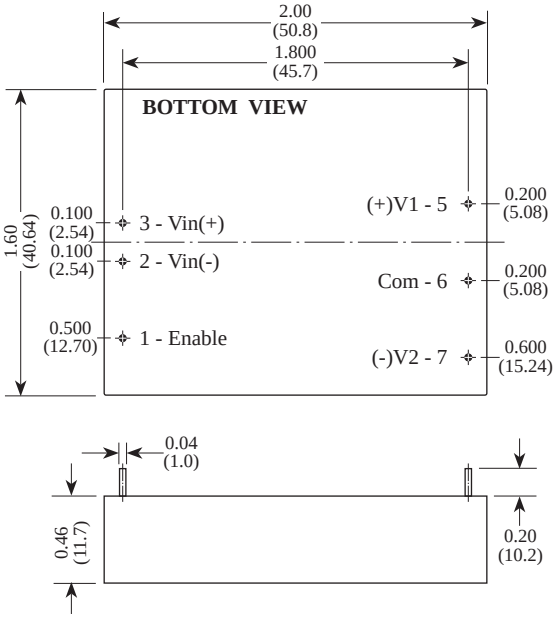
Product Numbering System & Selection Guide

E	15	S	24	03
Series No.	Output Power	No Output	Input Voltage	Output Voltage
E	15 : 15W	S : Single	24 : 10-36V	03 : 3.3V
			48 : 20-75V	05 : 5.0V
				12 : 12V
				15 : 15V
				24 : 24V

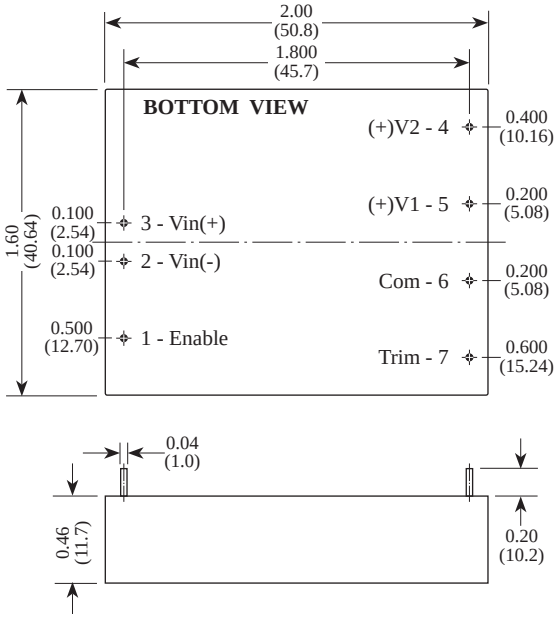
INPUT	OUTPUT													
Nominal (Range)	Max Output Power	Voltage (V) #		Set Point	Min.*	Max.*	Current (A) #	Min.	Max.	Ripple & Noise Peak-Peak	R.M.S.	Short Circuit Protection	Over Temp. Protect	EFF. (typ.)	MODEL NO.
24 (10-36)	15W	±5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.15	+1.5	75mV	15mV	Pulse by Pulse Current Limiting	Not Available	81%	E15D2405
			-V2	-5.00	-4.80	+5.20	-I2	-0.15	-1.5	75mV	15mV				
	15W	±12V	+V1	+12.00	+11.90	+12.10	+I1	+0.06	+0.63	100mV	20mV			83%	E15D2412
			-V2	-12.00	-11.80	+12.20	-I2	-0.06	-0.63	100mV	20mV				
	15W	±15V	+V1	+15.00	+14.85	+15.15	+I1	+0.05	+0.50	120mV	25mV			83%	E15D2415
			-V2	-15.00	-14.70	-15.30	-I2	-0.05	-0.50	120mV	25mV				
	15W	+5V +12V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+2.0	75mV	15mV			83%	E15D2405+12
			+V2	+12.00	+11.4	+13.0	+I2	+0.06	+0.63	120mV	25mV				
	15W	+5V +24V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+2.0	75mV	15mV			83%	E15D2405+24
			+V2	+24.00	+23.0	+26.0	+I2	+0.03	+0.32	200mV	40mV				
48 (20-75)	15W	±5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.15	+1.5	75mV	15mV			82%	E15D4805
			-V2	-5.00	-4.80	+5.20	-I2	-0.15	-1.5	75mV	15mV				
	15W	±12V	+V1	+12.00	+11.90	+12.10	+I1	+0.06	+0.63	100mV	20mV			84%	E15D4812
			-V2	-12.00	-11.80	+12.20	-I2	-0.06	-0.63	100mV	20mV				
	15W	±15V	+V1	+15.00	+14.85	+15.15	+I1	+0.05	+0.50	120mV	25mV			84%	E15D4815
			-V2	-15.00	-14.70	-15.30	-I2	-0.05	-0.50	120mV	25mV				
	15W	+5V +12V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+2.0	75mV	15mV			84%	E15D4805+12
			+V2	+12.00	+11.4	+13.0	+I2	+0.06	+0.63	120mV	25mV				
	15W	+5V +24V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+2.0	75mV	15mV			84%	E15D4805+24
			+V2	+24.00	+23.0	+26.0	+I2	+0.03	+0.32	200mV	40mV				

* Combined Line & Load (Low Line to High Line, Min. Load to Full Load)

Bipolar Output



Dual Output



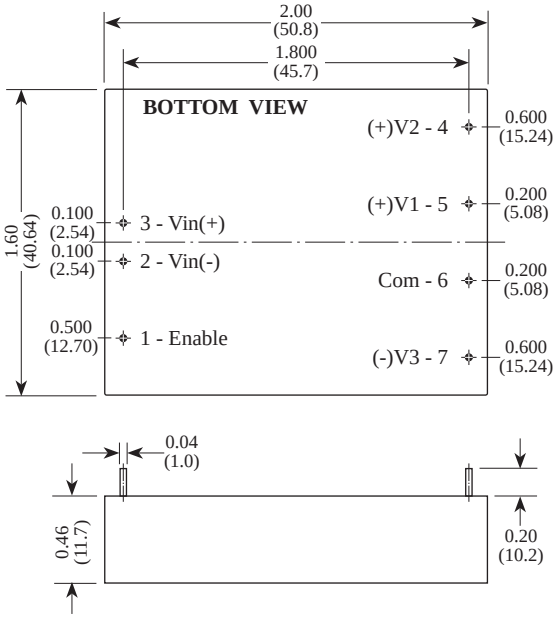
Product Numbering System & Selection Guide

E	15	D	24	05	-	12

Series No.	Output Power		No Output		Input Voltage		+V1 or +V1/-V2 Output		+V2 Output	
E	**15** :	15W	**D** :	Dual	**24** :	10-36V	**05** :	±5V		
					48 :	20-75V	**12** :	±12V		
							15 :	±15V		
							05 :	+5V	**12** :	+12V
							05 :	+5V	24 :	+24V

INPUT	OUTPUT											Over Temp. Shutdown /Recover	EFF. (typ.)	MODEL NO.
Nominal (Range)	Max Output Power	Voltage (V) #		Set Point	Min.*	Max.*	Current (A) #	Min.	Max.	Ripple & Noise Peak-Peak	R.M.S.	Short Circuit Protection			
24 (10 - 36)	15W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	+0.15	+1.5	75mV	15mV	Pulse by Pulse Current Limiting	Not Available	82%	E15T2405-12
			+V3	+12.0	+11.4	+13.0	+I2	+0.03	+0.32	100mV	25mV				
			-V2	-12.0	-11.4	-13.0	+I3	-0.03	-0.32	100mV	25mV				
	15W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+2.0	75mV	15mV			82%	E15T2405-15
			+V3	+15.0	+14.4	+16.0	+I2	+0.03	+0.25	120mV	30mV				
			-V2	-15.0	-14.4	-16.0	+I3	-0.03	-0.25	120mV	30mV				
48 (20 - 75)	15W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	+0.15	+1.5	75mV	15mV			82%	E15T4805-12
			+V3	+12.0	+11.4	+13.0	+I2	+0.03	+0.32	100mV	25mV				
			-V2	-12.0	-11.4	-13.0	+I3	-0.03	-0.32	100mV	25mV				
	15W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+2.0	75mV	15mV			82%	E15T4805-15
			+V3	+15.0	+14.4	+16.0	+I2	+0.03	+0.25	120mV	30mV				
			-V2	-15.0	-14.4	-16.0	+I3	-0.03	-0.25	120mV	30mV				

* Combined Line & Load (Low Line to High Line, Min. Load to Full Load)
(+)V1 is Regulated and +V2/-V3 are Semi-Regulated.



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				12 : 12V
				15 : 15V
				24 : 24V