ETA-USA
Your power supply experts

33, 49.5, 66, 99, 132 WATT

DC-DC Converters

EP SERIES 18~36Vdc Input



Size: 60.70mm x 57.91mm x 13.30mm

(2.39in. x 2.28in. x 0.52in.)

MODEL SELECTION

Model Name	Vin(Vdc)	Vout(Vdc)	Io(Amps)	Watts
EPB-3.3SC28-A	18-36	3.3	10	33
EPC-3.3SC28-A	18-36	3.3	15	49.5
EPD-3.3SC28-A	18-36	3.3	20	66
EPE-3.3SC28-A	18-36	3.3	30	99
EPO-3.3SC28-A	18-36	3.3	40	132

FEATURES

- High Power Density - Up to 54W/in^3
- Constant Frequency - 370kHz
- -40 to +100°C Operation
- 105°C Over Temperature
- High Efficiency
- Low Output Noise
- Industry-Standard Pinout
- Metal Baseplate
- 2:1 Input Voltage Range
- Thermal Protection
- Over Voltage Protection
- Current Limit/Short Circuit Protection
- Adjustable Output Voltage: 60% to 110% of $V_{0,set}$
- Remote Sense
- Logic ON/OFF
- Safety Agency Approval

SPECIAL FEATURES

- Long Lead(0.23in)-LL
- Negative Logic Control-Neg.
  (Remote Control For C-T)
- Threaded hole standoff-Td

SPECIFICATION

ABSOLUTE MAXIMUM RATINGS:

Exceeding absolute maximum ratings may cause permanent damage and reduce reliability

PARAMETER	MIN	MAX	UNITS	CONDITIONS
Input Voltage		40	Vdc	Continuous
Transient Input Voltage		50	Vdc	100 msec max.
Input/Output Isolation		1500	Vdc	
Operating Case Temperature	-40	100	°C	
Storage Temperature	-40	110	°C	

INPUT SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Operation Input Voltage (V_i)	18	28	36	Vdc	
Maximum Input Current ($I_{i,max}$):					
EPB-3.3SC28-A			2.8	A	V_i = 0Vdc to 36Vdc
EPC-3.3SC28-A			3.9	A	I_o = $I_{o,max}$
EPD-3.3SC28-A			5.5	A	
EPE-3.3SC28-A			8.4	A	
EPO-3.3SC28-A			12.2	A	
Input Ripple Rejection		60		dB	@ 120Hz

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OUTPUT SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Output Voltage Set Point ($V_{o,set}$)	3.25	3.3	3.35	V	T_c=25°C, V_i=28V, I_o= $I_{o,max}$
Line Regulation		0.01	0.1	%	V_i=18V to 36V
Load Regulation		0.05	0.2	%	I_o=0.5 to $I_{o,max}$
Temperature Drift		15	50	mV	Tc=-40°C to 100°C
Output Ripple and Noise Voltage					
Peak to Peak			150	mV_{p-p}	5Hz to 20MHz
External Load Capacitance	0		10,000	uF	Electrolytic capacitor
Output Current(I_o):					
EPB-3.3SC28-A	0.5		10	A	At Io< 0.5A,the modules
EPC-3.3SC28-A	0.5		15	A	may exceed output ripple
EPD-3.3SC28-A	0.5		20	A	specifications
EPE-3.3SC28-A	0.5		30	A	
EPO-3.3SC28-A	0.5		40	A	
Output Current limit:					
EPB-3.3SC28-A		7	13.2	A	
EPC-3.3SC28-A		18	20	A	
EPD-3.3SC28-A		23	26	A	
EPE-3.3SC28-A		34.5	39.5	A	
EPO-3.3SC28-A		48	52.5	A	V_o=90% of $V_{o,set}$
Output Short Circuit Current			170		Vo=250mV
Switching Frequency		370		kHz	
Efficiency:					
EPB-3.3SC28-A	79	81.5		%	Tc=70°C V_i=28V
EPC-3.3SC28-A	79	81.5		%	I_o=$I_{o,max}$
EPD-3.3SC28-A	77	79.5		%	
EPE-3.3SC28-A	77	79		%	
EPO-3.3SC28-A	74	77		%	
Dynamic Response:		3			50% to 75% load
Peak Deviation			300	$\%V_{o,set}$	0.1A/ μs
Settling Time			3	μs	Tc=25°C V_i=28V

CONTROL SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Logic On/Off:					
Logic Low: Ion/off			1	mA	Von/off=0V
Von/off			1.2	V	Ion/off<1mA
Logic High:Ion/off			50	μA	Von/off=15V
Von/of			15	V	Ion/off=0.0 μA
Turn-On Time		20	35	ms	
Output Remote Sense Range			0.5	V	
Output Voltage Trim Range	60		110	$\%V_{o,set}$	
Over Voltage Protection	4.0		5.0	V	Auto recovery
Over Temperature Protection		105		°C	Auto recovery

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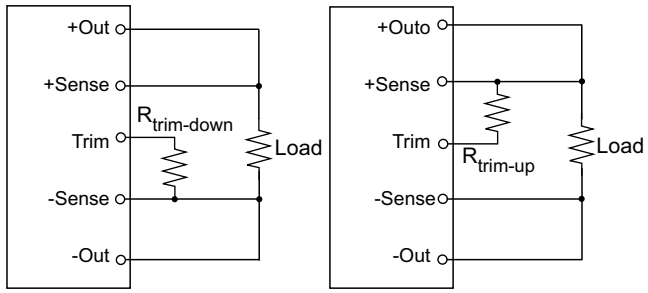
ISOLATION SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Input to Output		1500		Vdc	
Input to Case		1500		Vdc	
Output to Case		500		Vdc	
Input to Output Capacity		2000		pF	
Isolation Resistance	10			Mohm	

GENERAL SPECIFICATIONS:

PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
Weight		118		g	
Size		2.39x2.28x0.52		in^3	

TRIM CIRCUIT



Trim-Down Trim-Up

Rtrim-down= ((100/△%)-2) Kohms

$$\text{Rtrim-up}= \left(\frac{Vo(100+\triangle\%)}{1.225\triangle\%} - \frac{100+2\triangle\%}{\triangle\%}\right) \text{Kohms}$$

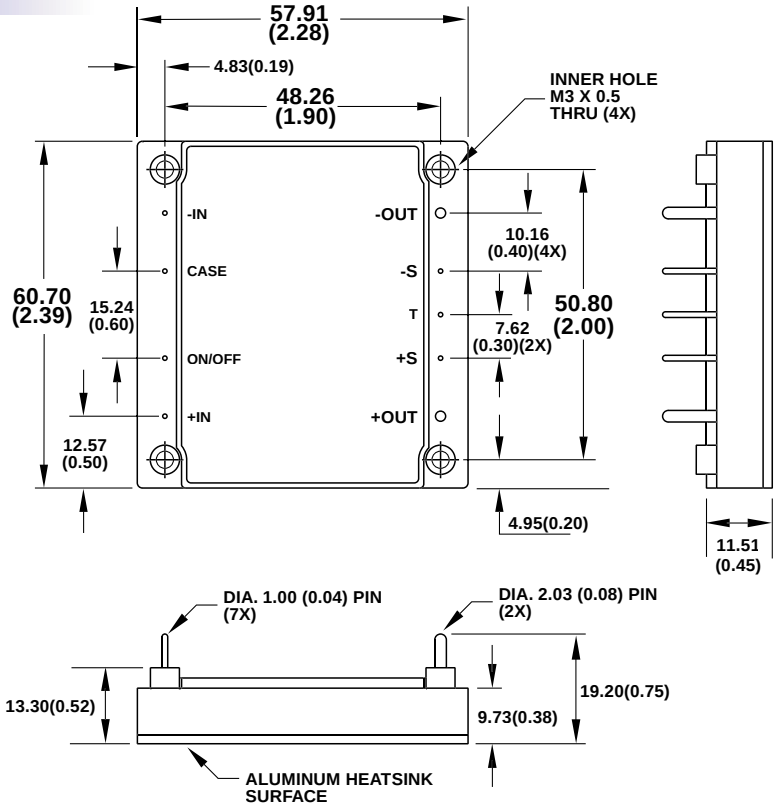
△% = Desired Output Voltage Change

Vo = Output Voltage

Rtrim-up= External Resistor Value to Increase Vo

Rtrim-down= External Resistor Value to Decrease Vo

OUTLINE DRAWING



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