Powerstax plc

E0131 Series

132W Single Output Eighth Brick DC/DC Converters - 1

- STANDARD "EIGHTH BRICK" PACKAGE
- POWER DENSITY UP TO 10.7W/CM³ (175W/IN³)
- EFFICIENCIES FROM 85-92%
- 24VDC OR 48VDC INPUT
- 2:1 INPUT VOLTAGE RANGE
- REMOTE ON/OFF
- OPEN-FRAME AND ENCLOSED OPTIONS

1
8

E0131 SERIES-DC/DC

CE RoHS

POWER SUPPLY DESIGN EXCELLENCE

The E0131 series provides up to 130W/50A outputs in an industry standard eighth brick format.

The fully potted six-sided metal package of the enclosed version is designed for applications with extreme environmental conditions.

The efficient SR stage is combined with patented "Buck Reset" topology that reduces power loss to achieve 10.7W/cm³ or 175W/in³ power density.

A multi-layer single side circuit board design combined with metal-plate technology enhances the thermal performance and improves reliability.

E0131 series is designed for Industrial, Telecom, Servers, Networking and other applications that use a 24V or 48V input bus.

STANDARD MODEL [1]	INPUT VOLTAGE (RANGE)	INPUT CURRENT [2]	OUTPUT VOLTAGE	OUTPUT CURRENT	OUTPUT POWER	TYPICAL EFFICIENCY
E0131-024-0015-c-xy	24V (18-36V)	4.90A	1.5V	50.0A	75W	85%
E0131-024-0018-c-xy		5.75A	1.8V	50.0A	90W	87%
E0131-024-0025-c-xy		8.24A	2.5V	40.0A	100W	89%
E0131-024-0033-c-xy		4.63A	3.3V	30.0A	99W	90%
E0131-024-0050-c-xy		7.63A	5.0V	25.0A	125W	91%
E0131-024-0120-c-xy		7.25A	12.0V	10.0A	120W	92%
E0131-048-0015-c-xy	48V (36-75V)	2.45A	1.5V	50.0A	75W	85%
E0131-048-0018-c-xy		2.87A	1.8V	50.0A	90W	87%
E0131-048-0025-c-xy		4.12A	2.5V	40.0A	100W	89%
E0131-048-0033-c-xy		2.31A	3.3V	30.0A	99W	90%
E0131-048-0050-c-xy		3.82A	5.0V	25.0A	125W	91%
E0131-048-0120-c-xy		3.99A	12.0V	11.0A	132W	92%

Notes:
1. See 'model number configuration guide' to specify parameters c, x & y.
2. Based on typical efficiency at minimum input voltage.

OTHER HIGH DENSITY DC-DC
Full Brick to 850W
Half Brick to 600W
Quarter Brick to 300W
Sixteenth Brick to 50W

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INPUT SPECIFICATIONS	24V Input	48V Input
Input Voltage & Current	see model table	
Input Voltage Limit	-0.5V to +40V	-0.5V to +80V
Input Current (standby)	off: <6mA, latched: <8mA	
Vin (on) (input rising)	17-18V	34-36V
Vin (off) (input falling)	15.6V-16.6V	31.2-33.2V
Surge Withstand (100mS)	50V	100V
Reflected Ripple Current	20mA rms/60mA pk-pk (LEXT = 10µH)	
Input Capacitance	22.0uF Max.	10.0uF Max

OUTPUT SPECIFICATIONS	
Voltage Set-point (typical)	±1.0% Vout nom. (at full load)
Voltage Tolerance Band	±4.0% Vout nom. (all line, load & temperature conditions)
Line Regulation	>0.2% Vout nom. (Vin minimum to Vin maximum)
Load Regulation	>0.2% Vout nom. (no load to full load)
Efficiency	see model table
Temperature Coefficient	±0.03%/°C (-40°C to 100°C)
Transient Response	±6.0% Vout/500µA (50-75% load step at 2.5A/µS)
Start-Up Delay Time	20mS-250mS (Full Load)
Input Ripple Rejection	-50dB (<1KHz)
Current Limit	108-125%
Ripple & Noise (20MHz)	3% pk-pk, 1% rms
Overvoltage Protection	115-130% Vout
Trim Range	±10% Vout nom. (10% Full Load)

GENERAL & ENVIRONMENTAL SPECIFICATIONS	
Temperature Range	-40°C to +110°C operating, -55°C to +125°C storage
Overtemperature Protection	110°C(Tc) ±5°C (Internal)
Cooling	Baseplate
Switching Frequency	330kHz
Safety Standards	UL/EN/IEC60950-1 2nd Ed. (UL Pending)
Isolation Voltage	2000VACrms (input/output, reinforced insulation) 1000VACrms (input/baseplate, basic insulation) 1000VACrms (output/baseplate, operational insulation)
Baseplate Material	Aluminium
Weight	Open-Frame 32g with 3mm baseplate, Enclosed 65g with 5mm baseplate
MTBF	4,800,000 hours @ 25°C (Belcore TR332 issue 6)

CONTROL SPECIFICATIONS	
Remote Control Voltage	Logic HI - +3.0 to +6.5V, Logic LO - 0 to +1.0V
Remote Control Current	-0.5 to +1.5mA
Voltage Limit	-0.5 to +12V

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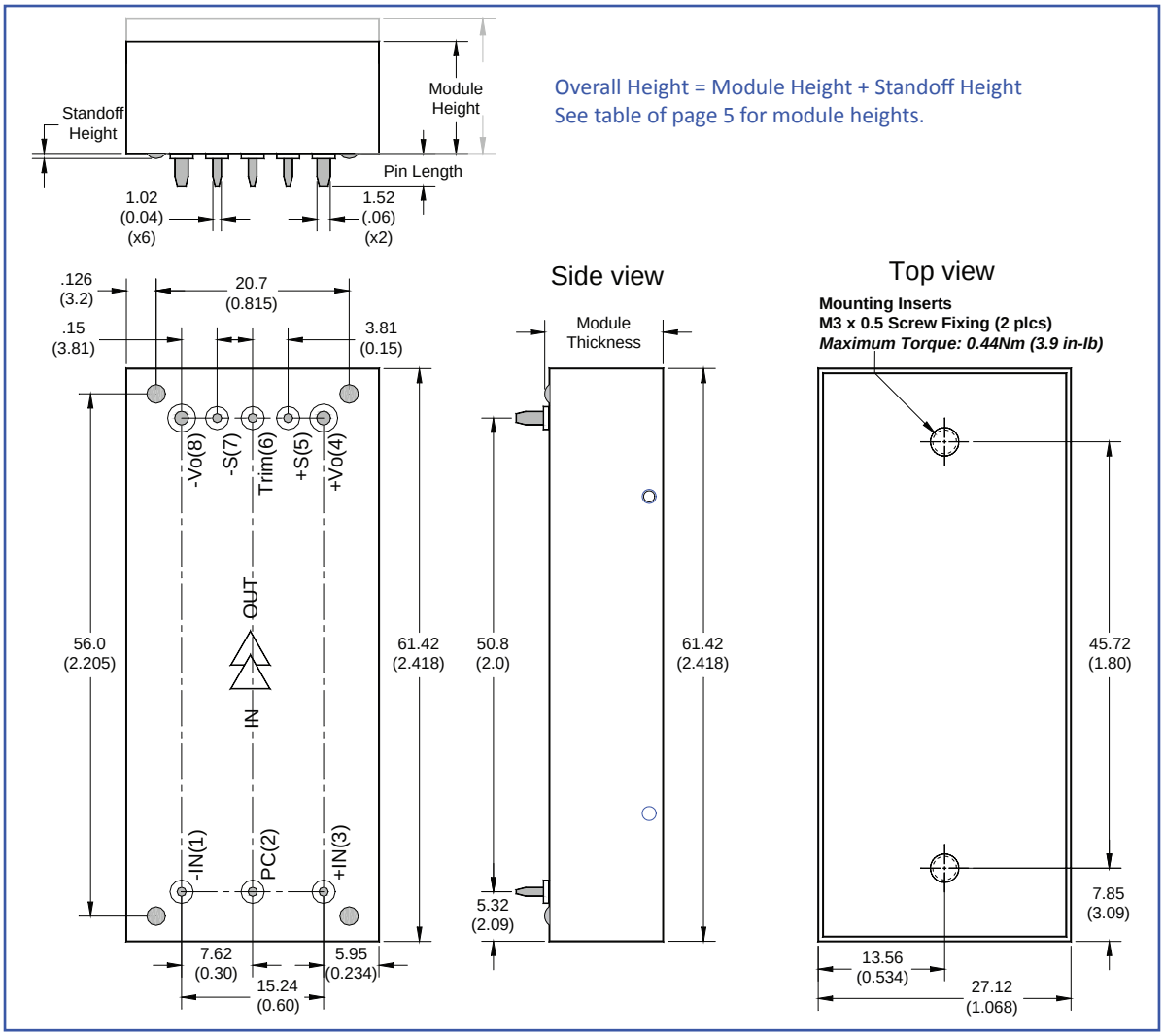
MECHANICALS - ENCLOSED



PIN DESIGNATIONS		
Pin	Designation	Function
1	-IN	Input -Ve
2	PC	Remote ON/OFF
3	+IN	Input +Ve
4	+Vo	Output +Ve
5	+S	Remote Sense +Ve
6	Trim	Output Voltage Trim
7	-S	Remote Sense -Ve
8	-Vo	Output -Ve

Dimensions:	mm (inches)
Tolerances:	x.x±0.5 (x.xx±0.02) 0.x±0.25 (x.xxx±0.01)
Weight:	Enclosed - 65g / 5.0mm baseplate Open-Frame - 32g / 3.0mm baseplate
Base plate:	Anodised Aluminium Alloy
Mounting inserts:	Stainless Steel
Maximum torque:	0.44Nm (3.9 in-lb)
Pin material:	Copper Alloy or Brass
Pin plating:	Gold over Nickel

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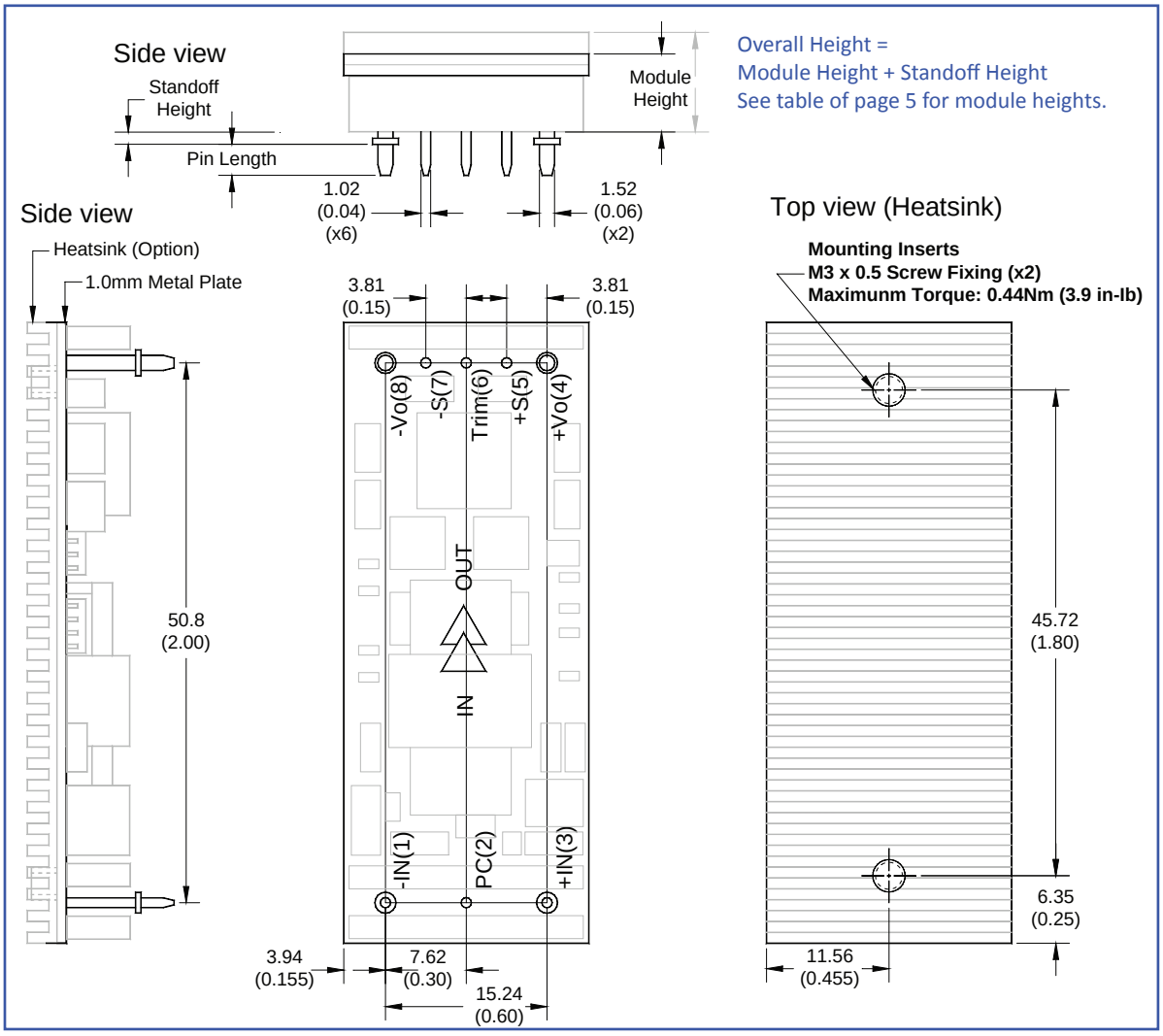
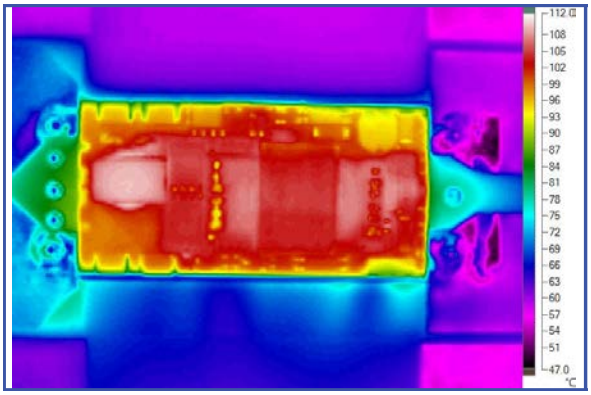
MECHANICALS - OPEN-FRAME

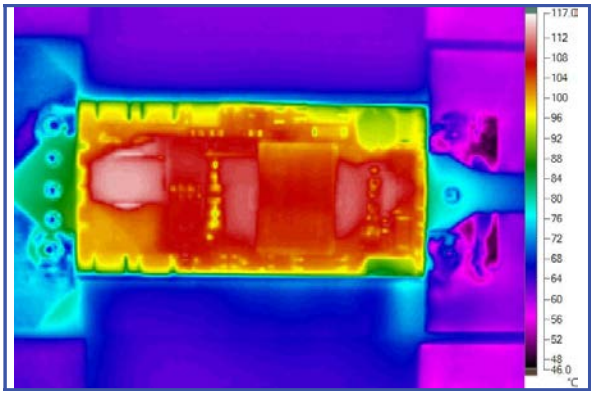


TYPICAL THERMAL PLOTS

OEPN-FRAME FORMAT



(Wo~ 68W@65°C/100LFM)



(Wo~ 80W@65°C/200LFM)

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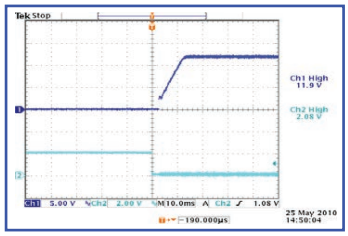
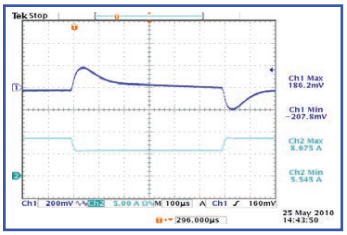
TYPICAL WAVEFORMS & CURVES

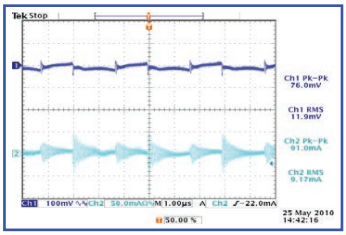
12V OUTPUT UNIT



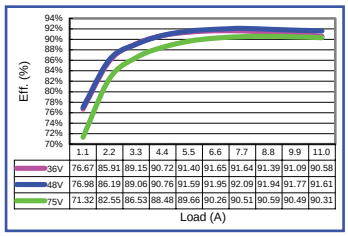
Start-up Waveform



Transient Response

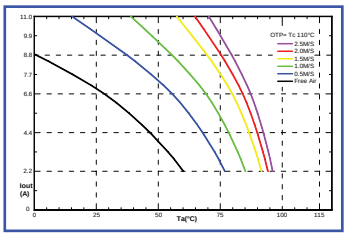


Input & Output Ripple

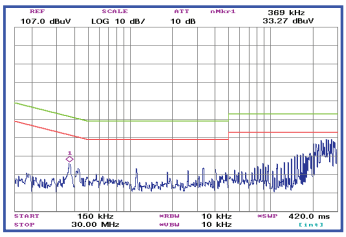


	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0
36V	76.67	85.91	89.15	90.72	91.40	91.65	91.64	91.39	91.09	90.58
48V	76.98	86.19	89.06	90.76	91.59	91.95	92.09	91.94	91.77	91.61
75V	71.32	82.55	86.53	88.48	89.66	90.26	90.51	90.59	90.49	90.31

Efficiency



Derating



EMI

MODEL NUMBER CONFIGURATION GUIDE

E0131-iii-oooo-c-xy

- **Series Name (E= ⅛ Brick)**
- **Power Output (W/10)**
- **Number of Outputs**
- **Input Voltage (see model table)**
- **Output Voltage (see model table)**
- **Remote ON/OFF Polarity (see below)**
- **Pin/Standoff/Heatsink (see below)**

REMOTE ON/OFF POLARITY	
Positive	Negative
H	L

Select desired remote on/off polarity and insert in position **c**.

PIN LENGTH / STANDOFF HEIGHT				
mm (inches)		Standoff Height		
		0.51 (0.02)	2.03 (0.08)	4.06 (0.16)
Pin Length	3.05 (0.12)	A	C	D
	4.06 (0.16)	E	G	H
	5.08 (0.20)	J	L	M
	6.10 (0.24)	N	Q	R

Select required Pin Length & Standoff Height combination and insert in position **x**.

FORMAT		MODULE HEIGHT
Open-Frame 1mm Baseplate	A	8.64 (0.34)
Open-Frame 3mm Baseplate	B	10.67 (0.42)
Open-Frame 3mm Heatsink	D	10.67 (0.42)
Open-Frame 5mm Heatsink	E	12.7 (0.50)
Enclosed 3mm Baseplate	G	12.19 (0.48)
Enclosed 5mm Baseplate	H	14.22 (0.56)
Enclosed 3mm Heatsink	J	12.19 (0.48)

Select desired format and insert in position **y**.

Example: **E0131-024-0120-H-AG** is 24Vdc input with 12Vdc output, positive polarity, remote on/off, 3.05mm pin length, 0.51mm standoff height and enclosed with 3mm baseplate.

All specifications are typical at nominal line input, full load and 25°C unless otherwise stated.

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