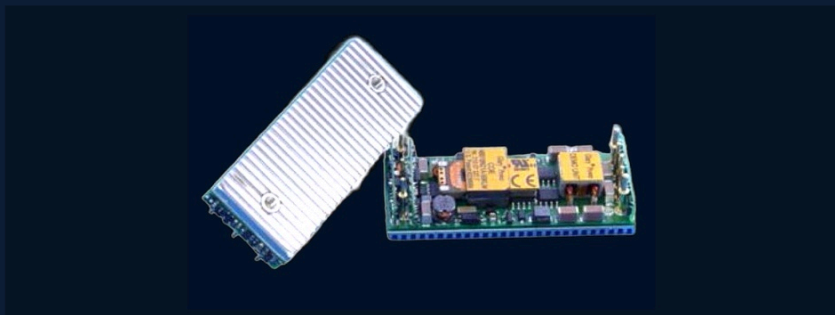


# COE SERIES

## Eighth Brick DC/DC Converter

132W / 50A · 36–75V or 18–36V Input · Patented Buck Reset  
 Open Frame: 175 W/in<sup>3</sup> · Enclosed: 102 W/in<sup>3</sup> · >92% Efficiency

- OCP
- OVP
- OTP
- Remote ON/OFF
- Voltage Trim ±10%
- Remote Sense
- CE Approved
- UL Listed
- RoHS



Open Frame + Sink-Plate

Enclosed Metal Package

<b>132W</b> MAX OUTPUT	<b>50A</b> MAX CURRENT	<b>175</b> W/IN <sup>3</sup> OPEN	<b>102</b> W/IN <sup>3</sup> ENCLOSED	<b>&gt;92%</b> PEAK EFF.	<b>4.80M hrs</b> MTBF
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### PRODUCT OVERVIEW

The COE Series provides up to 132W / 50A output in the industry-standard eighth brick format. An efficient synchronous rectification (SR) stage is combined with the patented "Buck Reset" topology, achieving 175 W/in<sup>3</sup> (Open Frame) or 102 W/in<sup>3</sup> (Enclosed) — the highest power density in its class.

Available in Open Frame with Sink-Plate options (1.0mm, 3.0mm Metal; 3.0mm, 5.0mm Sink-Plate) and six-sided silicone-potted Enclosed metal package for extreme environments. Both variants share identical electrical specifications and eighth-brick pin assignment — enabling single PCB design for dual environments.

### PACKAGE OPTIONS

OPEN FRAME	ENCLOSED METAL
<ul style="list-style-type: none"> <li>● 1.0mm Metal Plate (code M) — 27g</li> <li>● 3.0mm Metal Plate (code S) — 32g</li> <li>● 3.0mm Sink-Plate (code A) — conduction cooling</li> <li>● 5.0mm Sink-Plate (code B) — enhanced conduction</li> <li>● Power density: 175 W/in<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>● 3.0mm Metal Plate (code U) — 55g</li> <li>● 5.0mm Metal Plate (code V) — 65g</li> <li>● 3.0mm Sink-Plate (code W) — enclosed + conduction</li> <li>● Silicone potted: moisture &amp; vibration resistant</li> <li>● Power density: 102 W/in<sup>3</sup></li> </ul>

### TARGET APPLICATIONS

- Telecom Base Stations
- Server & ASIC Power
- Networking Equipment
- Industrial Control
- Defense Systems
- Edge Computing

### PART NUMBER SYSTEM

<b>COE</b>	<b>48</b>	<b>120</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>-</b>	<b>11</b>	<b>XX</b>	<b>X</b>
Series	Input Volt.	Output Volt.	Enable Logic	Pin Dim.	Standoff Hgt.	Base Plate		Output Current	Suffix	Ver.

**Input:** 48=36V~75V | 24=18V~36V  
**Output:** 120=12V 070=7V 050=5V 033=3.3V 025=2.5V 018=1.8V 015=1.5V  
**Enable:** P=Positive Logic | N=Negative Logic

**INPUT**

48V Operating Range	+36V to +75V DC
24V Operating Range	+18V to +36V DC
48V Transient (100ms)	100V Maximum
24V Transient (100ms)	50V Maximum
48V Power-ON Threshold	+34.0V to +36.0V
24V Power-ON Threshold	+17.0V to +18.0V
48V Power-OFF Threshold	+31.2V to +33.2V
24V Power-OFF Threshold	+15.6V to +16.6V
Off-State Input Current	6 mA Max (at Vnom)
Latch-State Input Current	8 mA Max (at Vnom)
Reflected Ripple Current	20 mA rms / 60 mA p-p (Lext=10μH)
Input Cap. 48V Models	10.0 μF Max
Input Cap. 24V Models	22.0 μF Max
Ripple Rejection (<1kHz)	-50 dB (Vnom, Full Load)

**REMOTE CONTROL**

Logic High — Enable	+3.0V to +6.5V
Logic Low — Disable	0V to +1.0V
PC Pin Voltage Range	-0.5V to +12V DC
PC Pin Input Current	-0.5 mA to +1.5 mA
Positive Logic (P)	High = Output ON
Negative Logic (N)	Low = Output ON

**ISOLATION VOLTAGE**

Input to Output	2.0 kV Minimum
Input to Case	1.0 kV Minimum
Output to Case	1.0 kV Minimum

**ABSOLUTE MAXIMUM RATINGS**

Input Voltage 24V Models	-0.5V to +40V DC
Input Voltage 48V Models	-0.5V to +80V DC
Operating Temperature	-40°C to +110°C
Storage Temperature	-55°C to +125°C

**■ WARNING — Do Not Exceed Absolute Maximum Ratings**

Exceeding these limits may permanently damage the device and voids warranty.

Always protect input with a fuse or other overcurrent protection device.

**OUTPUT**

Voltage Accuracy	+/-1.0% typical
Line Regulation	+/-0.2% (full input range)
Load Regulation	+/-0.2% (0% to 100% load)
Temperature Drift	+/-0.03%/°C (-40°C to 100°C)
Output Tolerance Band	+/-4% (all conditions)
Ripple & Noise (20 MHz)	3% p-p / 1% RMS of Vo
Over-Voltage Protection	115-130% Vo
Over-Current Limit	108-125% Io (at Vnom)
Voltage Trim Range	+/-10% Vo (Vnom, 10% load)
Step Load (2.5 A/μS)	+/-6% Vo / 500 μS
Start-Up Delay	20 ms / 250 ms (Vnom, full load)

**GENERAL PARAMETERS**

Switching Frequency	330 kHz typical
Conversion Efficiency	See Model List table
MTBF (Bellcore TR-332 #6)	4.80 × 10 <sup>6</sup> hrs @ GB/25°C
OTP Trip Point	110°C (Tc) +/-5°C

**WEIGHT BY PACKAGE**

Open Frame — 1.0mm Metal Plate	27 g
Open Frame — 3.0mm Metal Plate	32 g
Enclosed — 3.0mm Metal Plate	55 g
Enclosed — 5.0mm Metal Plate	65 g

**MECHANICAL**

Footprint (L × W)	2.00" × 0.90" (50.8 × 22.86 mm)
Base plate material	Aluminum alloy with anode oxide
Mounting inserts	M3 × 0.5 stainless steel (2 plcs)
Max torque on inserts	3.9 in-lb (0.44 Nm)
Pin material	Copper alloy or Brass
Pin plating	Golden over Nickel

**✓ Compliance & Approvals**

- ✓ CE Marking
- ✓ UL Listed (cULus)
- ✓ RoHS 2002/95/EC
- ✓ Bellcore MTBF

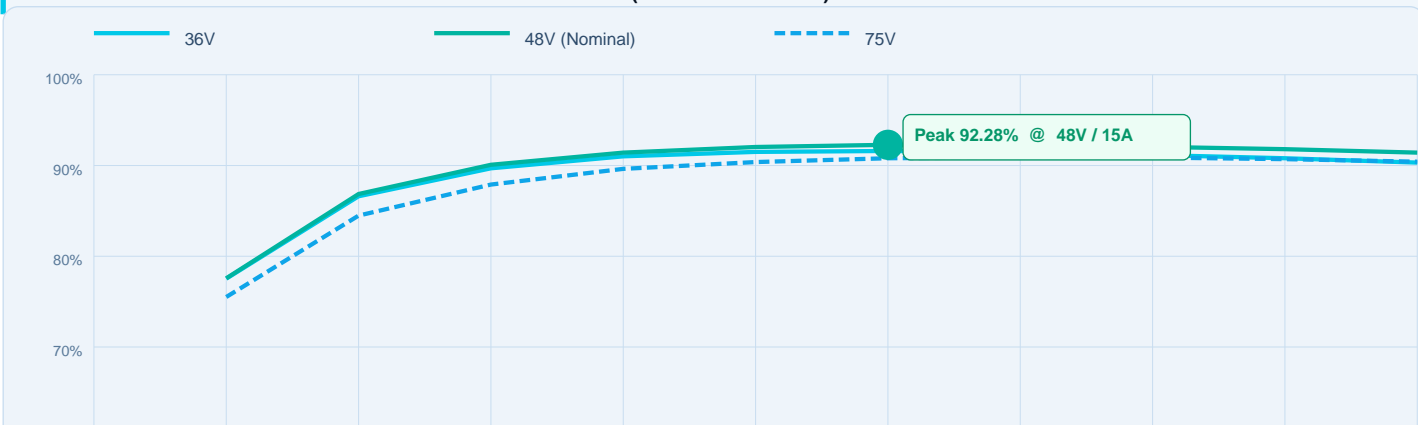
**48V Bus Series (36V ~ 75V Input)**

**24V Bus Series (18V ~ 36V Input)**

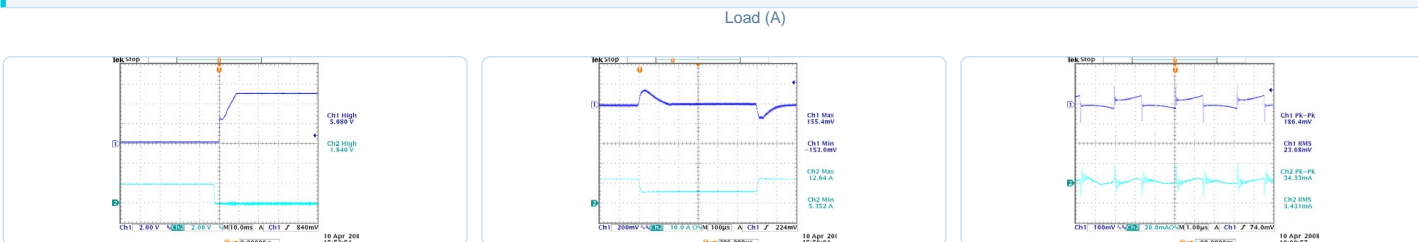
Part Number	Input	Vout	Iout	Pout	Eff.
COE48120abcd-11XXX	36-75V	12.0V	11A	132W	92%
COE48070abcd-18XXX	36-75V	7.0V	18A	126W	91%
COE48050abcd-25XXX	36-75V	5.0V	25A	125W	91%
COE48033abcd-30XXX	36-75V	3.3V	30A	99W	90%
COE48025abcd-40XXX	36-75V	2.5V	40A	100W	89%
COE48018abcd-50XXX	36-75V	1.8V	50A	90W	87%
COE48015abcd-50XXX	36-75V	1.5V	50A	75W	85%

Part Number	Input	Vout	Iout	Pout	Eff.
COE24120abcd-10XXX	18-36V	12.0V	10A	120W	92%
COE24050abcd-25XXX	18-36V	5.0V	25A	125W	91%
COE24033abcd-30XXX	18-36V	3.3V	30A	99W	90%
COE24025abcd-40XXX	18-36V	2.5V	40A	100W	89%
COE24018abcd-50XXX	18-36V	1.8V	50A	90W	87%
COE24015abcd-50XXX	18-36V	1.5V	50A	75W	85%

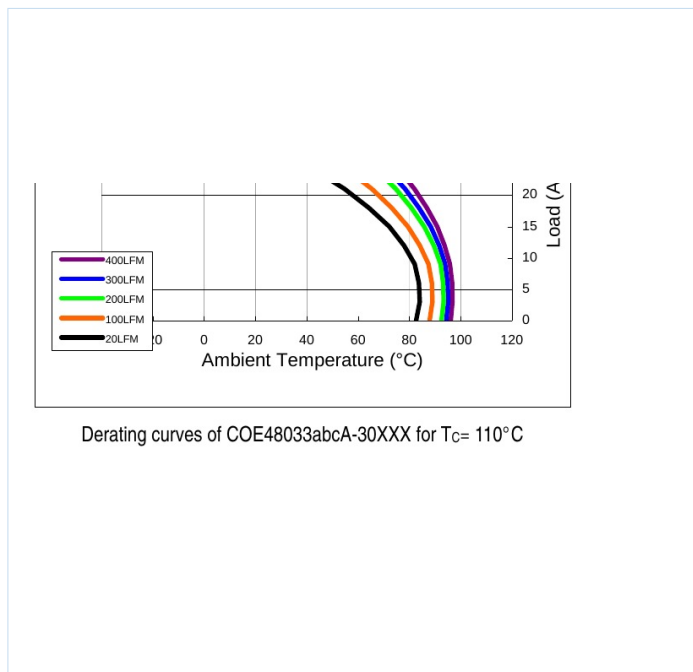
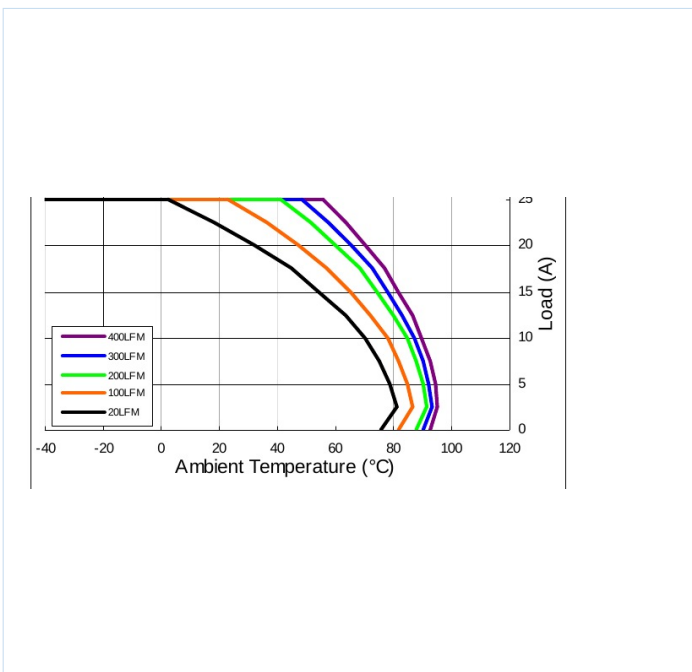
**EFFICIENCY VS. LOAD CURRENT — COE48050ABCD-25XXX (VIN: 36V / 48V / 75V)**



**TYPICAL WAVEFORMS — COE48050ABCD-25XXX (VIN: 50V, LOAD: 25A)**



**THERMAL DERATING CURVES — LOAD (A) VS AMBIENT TEMPERATURE (TC = 110°C)**



COE48050abcd-25XXX — 400/300/200/100/20 LFM

COE48033abcd-30XXX — 400/300/200/100/20 LFM

**PIN CONNECTIONS & PACKAGE DRAWING**



**PIN FUNCTION TABLE**

Pin	Signal	Function
1	-IN	Negative Input Power
2	PC	Remote On/Off Control
3	+IN	Positive Input Power
4	+Vo	Positive Output
5	+S	Positive Remote Sense
6	TRIM	Output Voltage Trim (±10%)
7	-S	Negative Remote Sense
8	-Vo	Negative Output

**Pin Length Options (b-code):**

<b>0</b> 0.12"/(3.05mm)	<b>1</b> 0.16"/(4.06mm)	<b>2</b> 0.20"/(5.08mm)	<b>3</b> 0.24"/(6.10mm)
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**ORDERING INFORMATION**

Field	Code	Description
Input	<b>48</b>	36V–75V input (48V bus)
	<b>24</b>	18V–36V input (24V bus)
	<b>120</b>	12.0 V
Output	<b>070</b>	7.0 V
	<b>050</b>	5.0 V
	<b>033</b>	3.3 V
	<b>025</b>	2.5 V
	<b>018</b>	1.8 V
	<b>015</b>	1.5 V
Enable	<b>P</b>	Positive logic (+3V–6.5V = ON)
	<b>N</b>	Negative logic (0V–1V = ON)
Standoff	<b>0</b>	0.02"
	<b>1</b>	0.08"
	<b>2</b>	0.16"
	<b>M</b>	1.0mm Metal Plate — 27g
Open Frame	<b>S</b>	3.0mm Metal Plate — 32g
	<b>A</b>	3.0mm Sink-Plate
	<b>B</b>	5.0mm Sink-Plate
Enclosed	<b>U</b>	3.0mm Metal Plate — 55g
	<b>V</b>	5.0mm Metal Plate — 65g
	<b>W</b>	3.0mm Sink-Plate

**Example:**

**COE48050N20A-25XXXX**

48V - 5V out - Neg. Logic - 0.20" pin - Standoff 0.16" - 3mm Sink-Plate

**IMPORTANT NOTES**

- ! Input **MUST** be protected by fuses or overcurrent protection.
- i All specs at nominal input, full load, 25°C unless noted.
- i Specifications subject to change without notice.
- i Not for life-critical, nuclear, or hazardous systems.
- i Contact OneTech Integration for custom configurations.

**OneTech Integration**

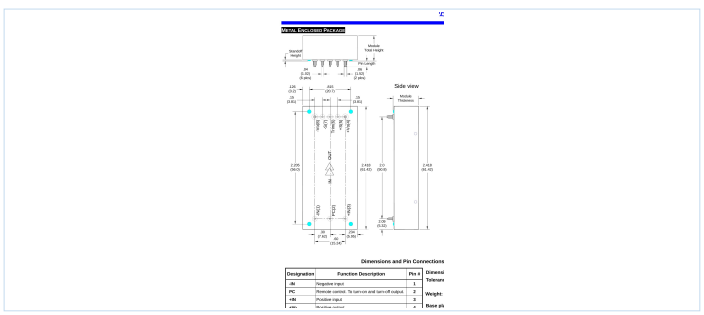
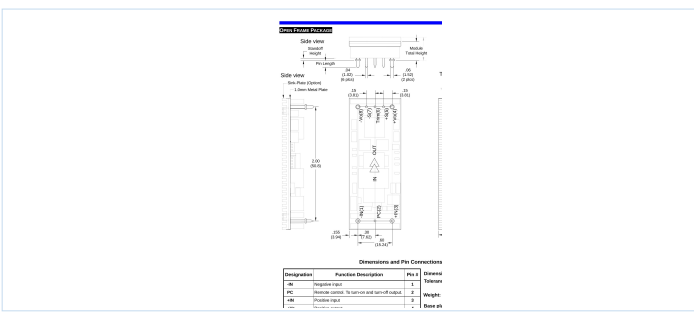
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**DIMENSIONAL TOLERANCES & MECHANICAL DRAWINGS (ALL DIMENSIONS: INCHES [MM])**

**TOLERANCES**

Standard dimensional tolerances apply to all package dimensions unless otherwise specified.

Notation .xx <b>±0.02 in (±0.5 mm)</b>	Notation .xxx <b>±0.01 in (±0.25 mm)</b>	Units <b>Inches (millimeters)</b>	Inserts <b>M3 x 0.5 S/S 2 plcs</b>	Max torque <b>3.9 in-lb (0.44 Nm)</b>	Base plate <b>Al alloy, anode oxide</b>
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Open Frame Package

Enclosed Metal Package