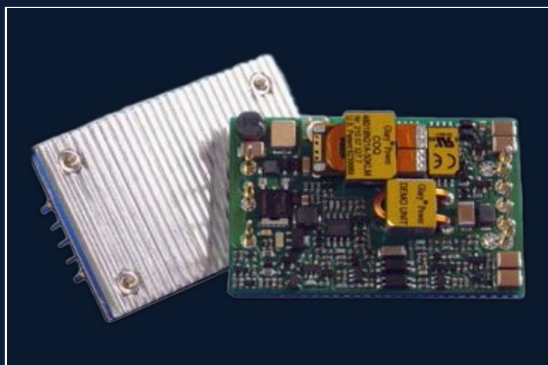


COQ SERIES

Quarter Brick DC/DC Converter

175W / 50A · 36–75V or 18–36V Input · Patented Buck Reset Topology
 >91% Peak Efficiency · 145 W/in³ · Open Frame + Sink-Plate Options

OCP	OVP	OTP	Remote ON/OFF
Voltage Trim ±10%		Remote Sense	CE
UL Listed	RoHS	4.41M hrs MTBF	



175W MAX OUTPUT	50A MAX CURRENT	145 W/in³ POWER DENSITY	>91% PEAK EFF.	4.41M hrs MTBF	330 kHz SWITCHING
---------------------------	---------------------------	--	-----------------------------	--------------------------	-----------------------------

PRODUCT OVERVIEW

The COQ Series provides up to 175W / 50A output with industry-standard quarter brick pin assignment. An efficient synchronous rectification (SR) stage is combined with the patented "Buck Reset" topology, reducing power loss to achieve 145 W/in³ power density — among the highest in the quarter brick class.

The multi-layer single-sided PCB design plus Sink-Plate technology ensures superior thermal performance. Designed for Telecom, Servers, Networking, and other 24V or 48V input bus applications.

PACKAGE OPTIONS (BASE-PLATE CODE)

Code: M	Code: S	Code: A	Code: B
1.0mm Metal Plate 29 g	3.0mm Metal Plate 43 g	3.0mm Sink-Plate conduction cooling	5.0mm Sink-Plate enhanced conduction

PART NUMBER SYSTEM

COQ	48	120	a	b	c	d	-	14	XX	X
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
Base-Plate: M=1.0mm(29g) S=3.0mm(43g) A=3mm Sink-Plate B=5mm Sink-Plate

TARGET APPLICATIONS

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

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	30 mA rms / 100 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	0.5 kV Minimum

ABSOLUTE MAXIMUM RATINGS

Input Voltage 24V Models	-0.5V to +40V DC
Input Voltage 48V Models	-0.5V to +80V DC
Remote Control	-0.5V to +12V 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)	4.41 × 10 ⁶ hrs @ GB/25°C
OTP Trip Point	110°C (Tc) +/-5°C

WEIGHT BY PACKAGE

1.0mm Metal Plate (code M)	29 g
3.0mm Metal Plate (code S)	43 g
3.0mm Sink-Plate (code A)	contact factory
5.0mm Sink-Plate (code B)	contact factory

MECHANICAL

Footprint (L × W)	2.30" × 1.45" (58.42 × 36.83 mm)
Base plate material	Aluminum alloy with anode oxide
Mounting inserts	M3 × 0.5 stainless steel (4 plcs)
Max torque	3.9 in-lb (0.44 Nm)
Pin material	Copper alloy or Brass
Pin plating	Golden over Nickel

✓ Compliance & Approvals

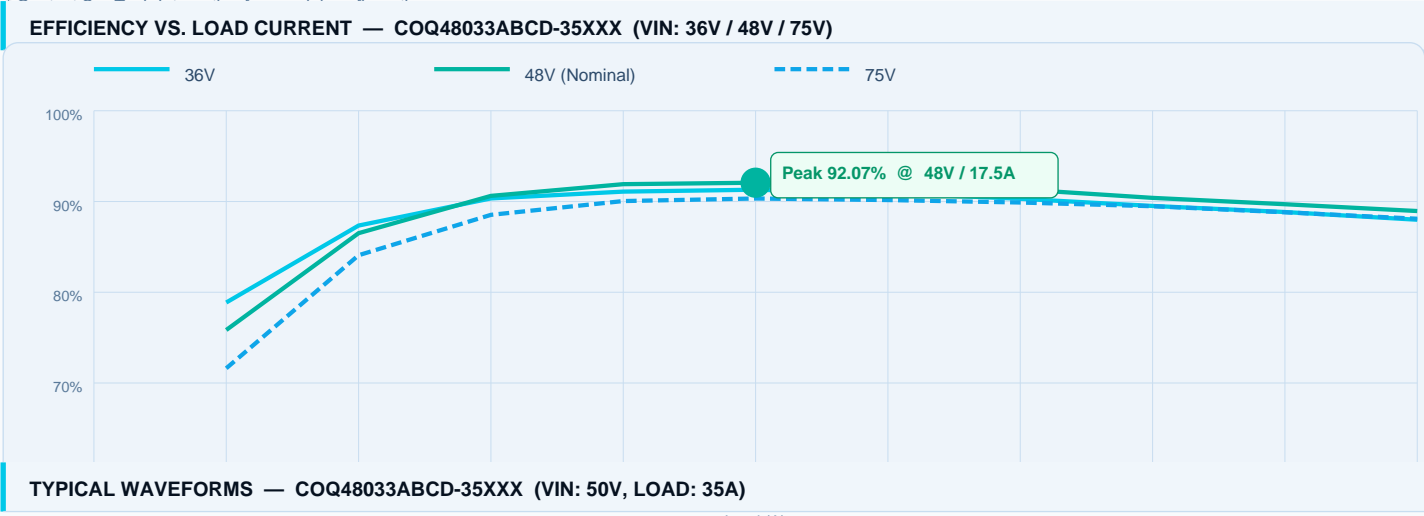
- ✓ CE Marking
- ✓ UL Listed (cULus)
- ✓ RoHS 2002/95/EC
- ✓ Bellcore MTBF

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

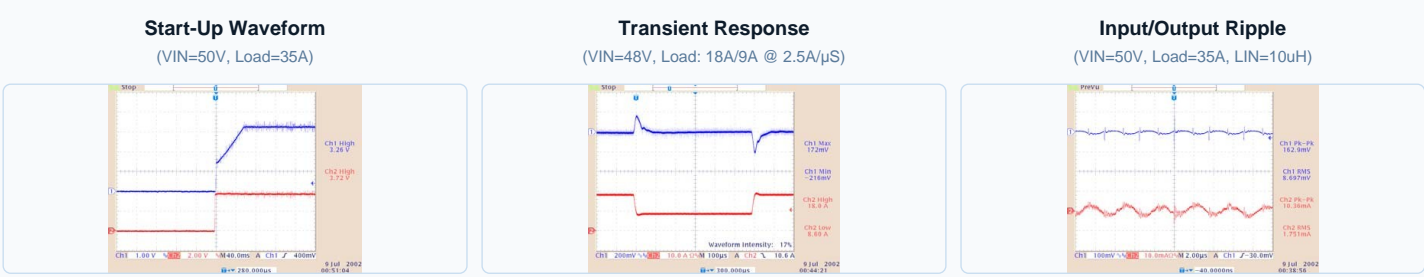
24V Bus Series (18V ~ 36V Input)

Part Number	Input	Vout	Iout	Pout	Eff.
COQ48120abcd-14XXX	36-75V	12.0V	14A	168W	91%
COQ48070abcd-21XXX	36-75V	7.0V	21A	147W	90%
COQ48050abcd-35XXX	36-75V	5.0V	35A	175W	90%
COQ48033abcd-35XXX	36-75V	3.3V	35A	116W	89%
COQ48025abcd-50XXX	36-75V	2.5V	50A	125W	86%
COQ48018abcd-50XXX	36-75V	1.8V	50A	90W	86%
COQ48015abcd-50XXX	36-75V	1.5V	50A	75W	84%

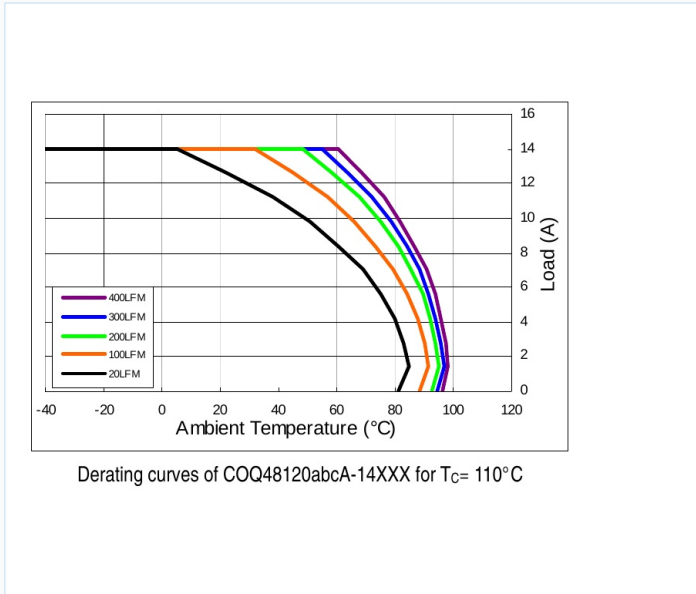
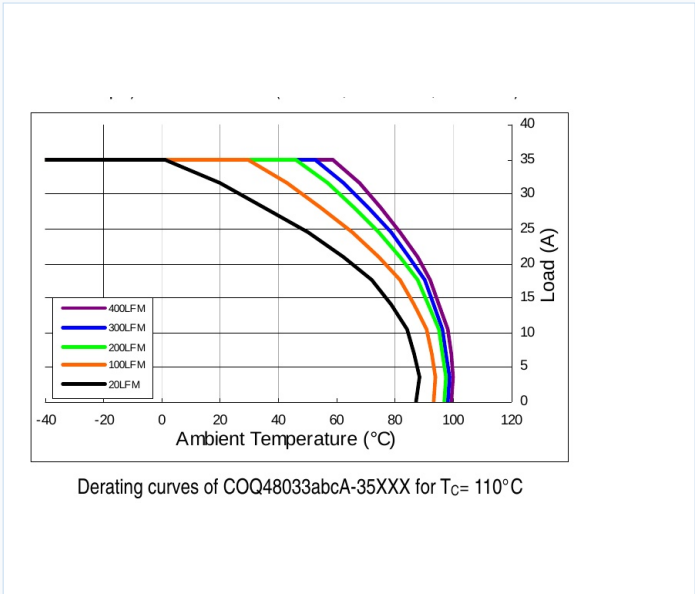
Part Number	Input	Vout	Iout	Pout	Eff.
COQ24120abcd-12XXX	18-36V	12.0V	12A	144W	91%
COQ24050abcd-30XXX	18-36V	5.0V	30A	150W	90%
COQ24033abcd-35XXX	18-36V	3.3V	35A	116W	89%
COQ24025abcd-40XXX	18-36V	2.5V	40A	100W	86%
COQ24018abcd-50XXX	18-36V	1.8V	50A	90W	86%
COQ24015abcd-50XXX	18-36V	1.5V	50A	75W	84%



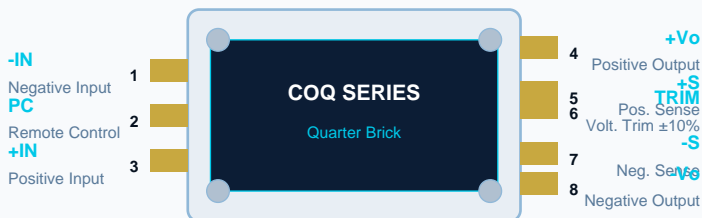
TYPICAL WAVEFORMS — COQ48033ABCD-35XXX (VIN: 50V, LOAD: 35A)



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



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):

0 0.12"/(3.05mm)	1 0.16"/(4.06mm)	2 0.20"/(5.08mm)	3 0.24"/(6.10mm)
----------------------------	----------------------------	----------------------------	----------------------------

ORDERING INFORMATION

Field	Code	Description
Input	48	36V–75V input (48V bus)
	24	18V–36V input (24V bus)
Output	120	12.0 V
	070	7.0 V
	050	5.0 V
	033	3.3 V
	025	2.5 V
	018	1.8 V
	015	1.5 V
Enable	P	Positive logic (+3V–6.5V = ON)
	N	Negative logic (0V–1V = ON)
Standoff	0	0.02"
	1	0.08"
	2	0.16"
Base-Plate	M	1.0mm Metal Plate — 29g
	S	3.0mm Metal Plate — 43g
	A	3.0mm Sink-Plate
	B	5.0mm Sink-Plate

Example:

COQ48050N20A-35XXXX

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

Taiwan-Engineered · Globally Supported

sales@onetech-integration.com · +886-3-495-3882

www.onetech-integration.com

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

TOLERANCES

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

Notation .xx	Notation .xxx	Units	Inserts	Max torque	Base plate
±0.02 in (±0.5 mm)	±0.01 in (±0.25 mm)	Inches (millimeters)	M3 × 0.5 S/S 4 plcs	3.9 in-lb (0.44 Nm)	Al alloy, anode oxide

COQ Series

