

UQ Series

Quarter Brick up to 300W / 60A

The UQ series provides up to 300W/60A outputs with industry standard quarter brick package. The efficient SR stage is combined with patented Buck Reset topology that reduces power loss to achieve 235W/in³ power density. Single-side PCB plus Sink-Plate technology enhance thermal performance. Designed for Telecom, Servers, Networking using 24V or 48V input bus.



300W

Max Output Power

60A

Max Output Current

235 W/in³

Power Density

- High Power Density - 235 W/in³ in industry-standard quarter brick
- Advanced Topology - Buck Reset + SR stage for max efficiency
- Dual Package - Open frame (Sink-Plate) or metal enclosed
- High Reliability - MTBF >2.96M hours, 2.0kV I/O isolation
- Wide Input Range - 36-75V (48V bus) or 18-36V (24V bus)
- Industry Standard - Quarter brick 8-pin interface

MODEL LIST

Part Number	Input	Pin Max	Vout	Iout	Max Out	Eff.
UQ48120abcd-25XXX	36-75V	326W	12.0V	25A	300W	92%
UQ24120abcd-25XXX	18-36V	330W	12.0V	25A	300W	91%
UQ48070abcd-40XXX	36-75V	308W	7.0V	40A	280W	91%
UQ24070abcd-40XXX	18-36V	308W	7.0V	40A	280W	91%
UQ48050abcd-60XXX	36-75V	330W	5.0V	60A	300W	90%
UQ24050abcd-60XXX	18-36V	330W	5.0V	60A	300W	89%
UQ48033abcd-60XXX	36-75V	225W	3.3V	60A	198W	89%
UQ24033abcd-60XXX	18-36V	225W	3.3V	60A	198W	88%

Contact factory for special input/output.

SPECIFICATIONS

Absolute Maximum Ratings

Operating Temperature	-40C to +110C
Storage Temperature	-55C to +125C
Input Voltage (24V Op)	-0.5V to +40Vdc
Input Voltage (48V Op)	-0.5V to +80Vdc
Input Transient (24V)	50V Maximum
Input Transient (48V)	100V Maximum
I/O Isolation	2.0KV Minimum
Input to Case Isolation	1.0KV Minimum
Output to Case Isolation	1.0KV Minimum
Remote Control Voltage	-0.5V to +12Vdc

General Parameters

Switching Frequency	330KHz Typical
MTBF (Bellcore TR-332)	2.96 x 10^6 hrs
OTP (Baseplate)	110C +/-5C
Weight (Open Frame 1mm)	43g
Weight (Open Frame 3mm)	56g
Weight (Enclosed 3mm)	105g
Weight (Enclosed 5mm)	119g

Control Functions

Remote Control (Logic High)	+3.0V to +6.5V
Remote Control (Logic Low)	0V to +1.0V
RC Pin Input Current	-0.5mA to +1.5mA

Input

Voltage Range (24V)	+18V to +36Vdc
Voltage Range (48V)	+36V to +75Vdc
Reflected Ripple Current	30mA rms/100mAp-p
Power ON (24V)	+17.0V to +18.0Vdc
Power ON (48V)	+34.0V to +36.0Vdc
Power OFF (24V)	+15.6V to +16.6Vdc
Power OFF (48V)	+31.2V to +33.2Vdc
Off State Input Current	6mA Max
Latch-State Input Current	8mA Max
Input Cap (24V)	33.0uF Max
Input Cap (48V)	12.0uF Max

Output

Voltage Accuracy	+/-1.0% Typical
Line Regulation	+/-0.3%
Load Regulation	+/-0.3%
Temperature Coefficient	+/-0.03%/C

Package

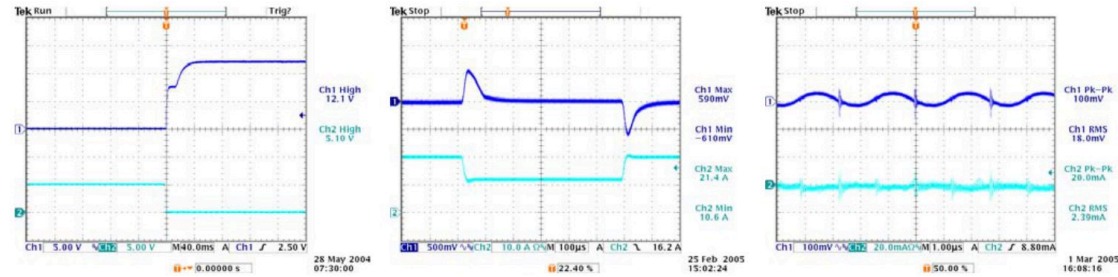
Open Frame Plate	1.0mm M / 3.0mm S / 5.0mm Z
Enclosed Plate	3.0mm U / 5.0mm V
Base Plate Material	Aluminum alloy
Mounting Inserts	M3x0.5 stainless steel
Max Screw Torque	3.9 in-lb (0.44Nm)

NOTE: Specs typical at nominal input, full load, 25C unless noted.
Specifications subject to change without notice.

TYPICAL WAVES AND CURVES

UQ Series

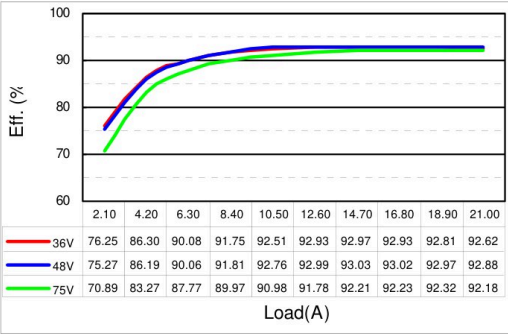
TYPICAL WAVES AND CURVES



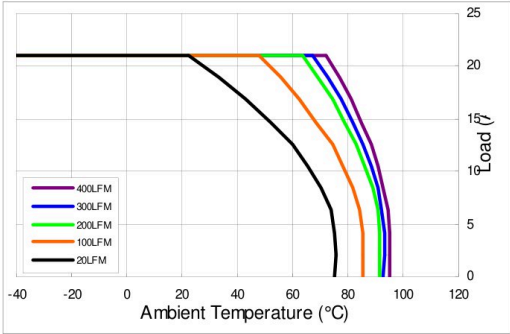
Start-up waveform of UQ48120abcd-21XXX (VIN: 50V, Load: 21A)

Transient response of UQ48120abcd-21XXX (VIN: 50V, Load: 20A/10A@2.5A/μS)

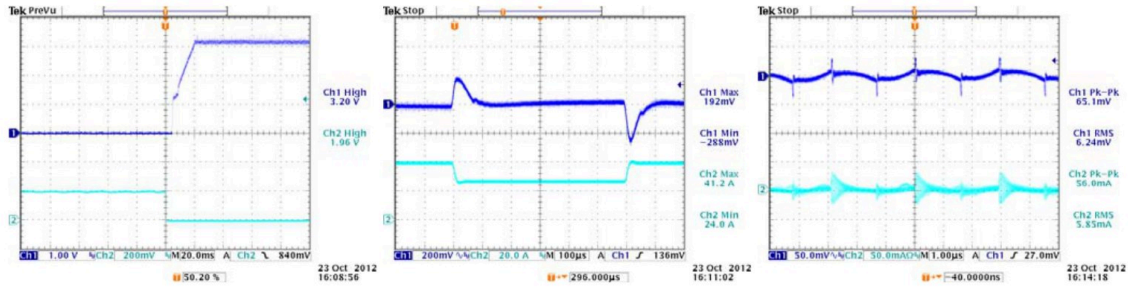
Input/Output ripples of UQ48120abcd-21XXX (VIN: 50V, Load: 21A, LIN=10uH)



Efficiency plot of UQ48120abcM-21XXX



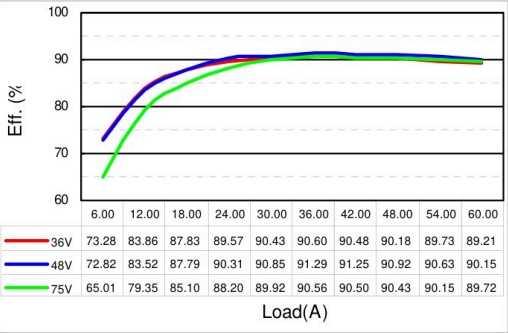
Derating curves of UQ48120abcM-21XXX for Tc= 110°C



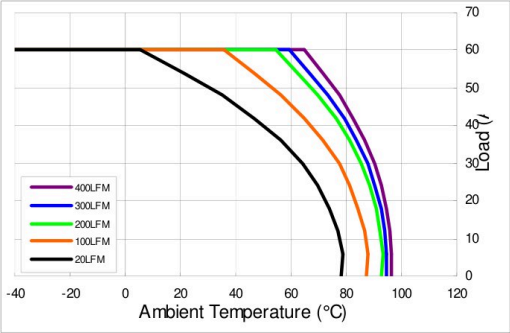
Start-up waveform of UQ48033abcd-60XXX (VIN: 48V, Load: 60A)

Transient response of UQ48033abcd-60XXX (VIN: 48V, Load: 41.0A/24.0A@2.5A/μS)

Input/Output ripples of UQ48033abcd-60XXX (VIN: 48V, Load: 60A, LIN=10uH)



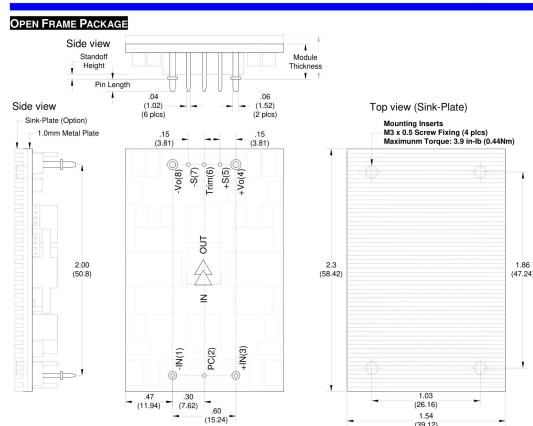
Efficiency plot of UQ48033abcM-60XXX



Derating curves of UQ48033abcM-60XXX for Tc= 110°C

MECHANICAL DRAWING - OPEN FRAME

VQ Series



Dimensions and Pin Connections

Designation	Function Description	Pin #	Dimensions: inches (mm)
-N	Negative input	1	Tolerance: .xx±0.02 (x±0.5)
PC	Remote control. To turn-on and turn-off output.	2	Weight: .xx±0.01 (x±25)
+IN	Positive input	3	Weight: 43g / 1.0mm metal plate 56g / 3.0mm metal plate
+Vo	Positive output	4	Base plate: Aluminum alloy with anode oxide
+S	Positive remote sense	5	Mounting inserts: Stainless steel
TRIM	Output voltage adjust	6	Maximum torque: 3.9 in-lb (0.44Nm)
-S	Negative remote sense	7	Pin material: Copper alloy or Brass
-Vo	Negative output	8	Pin plating: Golden over Nickel

Pin Connections

Pin	Designation	Function
1	-IN	Negative input
2	PC	Remote control
3	+IN	Positive input
4	+Vo	Positive output
5	+S	Positive remote sense
6	TRIM	Output voltage adjust
7	-S	Negative remote sense
8	-Vo	Negative output

Weight: 43g (1.0mm) / 56g (3.0mm metal plate)

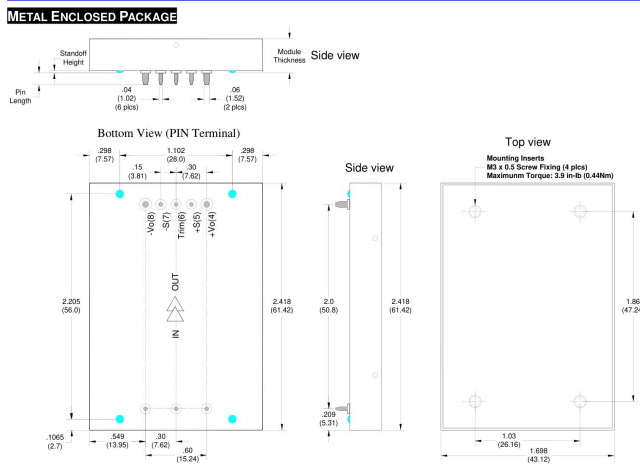
Mounting: M3 x 0.5 threaded (4 plcs), max 3.9 in-lb

ENCLOSED UQ SERIES

Quarter Brick up to 300W/60A - Metal Enclosed Package

Silicone potted six-sides metal package for extreme environments.

Enclosed UQ Series



Dimensions and Pin Connections

Designation	Function Description	Pin #	Dimensions: inches (mm)
-IN	Negative input	1	Tolerances: .xxx±0.02 (.x±0.5)
PC	Remote control. To turn-on and turn-off output.	2	.xxx±0.01 (.x±0.25)
+IN	Positive input	3	Weight: 105g / 3.0mm metal plate
+Vo	Positive output	4	119g / 5.0mm metal plate
+S	Positive remote sense	5	Base plate: Aluminum alloy with anode oxide
TRIM	Output voltage adjust	6	Mounting inserts: Stainless steel
-S	Negative remote sense	7	Maximum torque: 3.9 in-lb (0.44Nm)
-Vo	Negative output	8	Pin material: Copper alloy or Brass
			Pin plating: Golden over Nickel

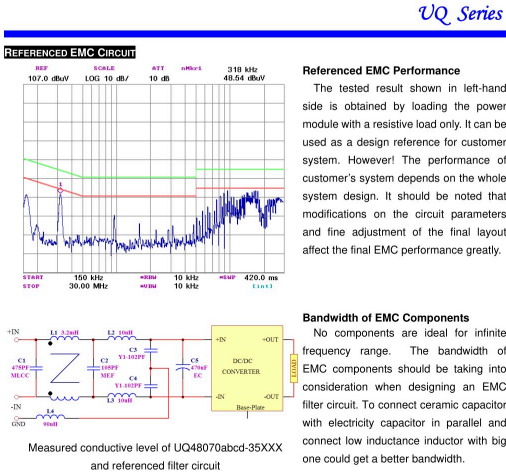
Pin Connections (same as open frame)

Pin	Designation	Function
1	-IN	Negative input
2	PC	Remote control
3	+IN	Positive input
4	+Vo	Positive output
5	+S	Positive remote sense
6	TRIM	Output voltage adjust
7	-S	Negative remote sense
8	-Vo	Negative output

Weight: 105g (3.0mm) / 119g (5.0mm metal plate)

Silicone potted for extreme environments.

REFERENCED EMC CIRCUIT



NOTE:

1. It is recommended that the input should be protected by fuses or other protection devices.
2. All specifications are typical at nominal input, full load and 25°C unless otherwise noted.
3. Specifications are subject to change without notice.
4. Printed or downloaded datasheets are not subject to Onetech document control.
5. Product labels shown, including safety agency certificates, may vary based on the date of manufacture.
6. Information provided in this documentation is for ordering purposes only.
7. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications, which necessitate specific safety and regulatory standards other than the ones listed in this datasheet.

IMPORTANT

① General specifications and the performances are related to standard series only, no special customer specification display here except requested items.

② In order to secure effective usage of converter and the validity of Onetech's service and warranty coverage, please refer to the application notes for general usage. For needs of usage beyond the application notes, please contact to Onetech headquarter or our regional sales representative office for help.

NOTES:

- 1. Use fuses or other protection devices on the input.
- 2. Specs typical at nominal input, full load, 25C unless noted.
- 3. Specifications subject to change without notice.
- 4. Labels may vary by date of manufacture.
- 5. Not for critical life support applications.
- 6. Information provided is for ordering purposes only.

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