



The **Enclosed CBQ** series provides up to 125W/25A outputs with six-sides metal package. The efficient SR stage is combined with patented "Buck Reset" topology that would reduce power loss to achieve 101W/in³ power density. The multi-layer single side circuit board design would enhance the thermal performance and improve its reliability. Modules are designed for Telecom, Servers, Networking equipments and other applications that use a 24V or 48V input bus.

PART NUMBER SYSTEM

| CBQ100 | 48S | 5V0 | -L | a | b | c | XX | X |
|---------------|--|---|----|--|--|--|----------------------------|---------|
| Series Name | Input Voltage | Output Voltage | | Enable Logic | Pin Dimension | Base-Plate | Suffix | Version |
| CBQ100 | 48S =36V~75V 24S =18V~36V | Unit: 0.1V Increments 050 =5V 033 =3.3V | -L | P: Positive N: Negative | 0 : 0.12" 1 : 0.16" 2 : 0.20" 3 : 0.24" | E : Metallic enclosure (1.0mm Metal Plate) | For marketing purpose only | |

MODEL LIST (Contact to factory for special input / output)

| Part Number * | Maximum Input | | Maximum Output | | Efficiency | Part Number * | Maximum Input | | Maximum Output | | Efficiency |
|----------------------|---------------|------|----------------|------|------------|----------------------|---------------|------|----------------|------|------------|
| CBQ10048S5V0-LabcXXX | 36V~75V | 139W | 5.0V/25A | 125W | 90% | CBQ10024S5V0-LabcXXX | 18V~36V | 141W | 5.0V/25A | 125W | 89% |
| CBQ10048S3V3-LabcXXX | 36V~75V | 94W | 3.3V/25A | 83W | 89% | CBQ10024S3V3-LabcXXX | 18V~36V | 94W | 3.3V/25A | 83W | 88% |
| CBQ10048S2V5-LabcXXX | 36V~75V | 73W | 2.5V/25A | 63W | 87% | CBQ10024S2V5-LabcXXX | 18V~36V | 74W | 2.5V/25A | 63W | 86% |
| CBQ10048S2V0-LabcXXX | 36V~75V | 59W | 2.0V/25A | 50W | 85% | CBQ10024S2V0-LabcXXX | 18V~36V | 59W | 2.0V/25A | 50W | 85% |
| CBQ10048S1V8-LabcXXX | 36V~75V | 53W | 1.8V/25A | 45W | 85% | CBQ10024S1V8-LabcXXX | 18V~36V | 54W | 1.8V/25A | 45W | 84% |
| CBQ10048S1V5-LabcXXX | 36V~75V | 46W | 1.5V/25A | 38W | 83% | CBQ10024S1V5-LabcXXX | 18V~36V | 46W | 1.5V/25A | 38W | 83% |

REFERENCED THERMAL IMAGES

| | |
|-------------------------------|-------------------------------|
| To be updated in next version | To be updated in next version |
|-------------------------------|-------------------------------|

CBQ Series**SPECIFICATIONS**

| Absolute Maximum Ratings | | |
|--------------------------|--|---|
| Temperature | Operation Storage | -40°C to +110°C -55°C to +125°C |
| Input Voltage Range | Operation: 24V Models 48V Models Transient (100mS): 24V Models 48V Models | -0.5V to +40Vdc -0.5V to +80Vdc 50V Maximum 100V Maximum |
| Isolation Voltage | Input to Output Input to Case Output to Case | 2.0KV Minimum 1.0KV Minimum 1.0KV Minimum |
| Remote Control | | -0.5V to +12Vdc |

General Parameters

| | | |
|-----------------------|----------------------------|---|
| Conversion Efficiency | Typical | See table |
| Switching Frequency | Typical | 330KHz |
| MTBF | Bellcore TR-332 issue 6 | 4.57×10 ⁶ hrs @GB/25°C (CBQ10048S5V0-LabcXXX) |
| OTP | Internal | 110°C(Tc) ±5°C |
| Weight | Metallic enclosure | 55g |

Control Functions

| | | |
|-------------------------------------|-------------------------|-------------------------------|
| Remote Control | Logic High Logic Low | +3.0V to +6.5V 0V to +1.0V |
| Input Current of Remote Control Pin | | -0.5mA ~ +1.5mA |

Input

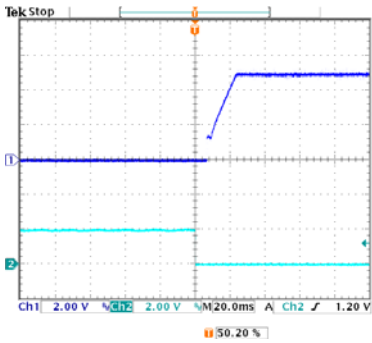
| | | |
|---------------------------|--------------------------|--|
| Operation Voltage Range | 24V Models 48V Models | +18V to +36Vdc +36V to +75Vdc |
| Reflected Ripple Current | L _{EXT} = 10uH | 20mA rms/60mAp-p |
| Power ON Voltage Ranges | 24V Models 48V Models | +17.0V to +18.0Vdc +34.0V to +36.0Vdc |
| Power OFF Voltage Ranges | 24V Models 48V Models | +15.6V to +16.6Vdc +31.2V to +33.2Vdc |
| Off State Input Current | V _{NOM} | 6mA Max |
| Latch-State Input Current | V _{NOM} | 8mA Max |
| Input Capacitance | 24V Models 48V Models | 22.0uF Max 10.0uF Max |

Output

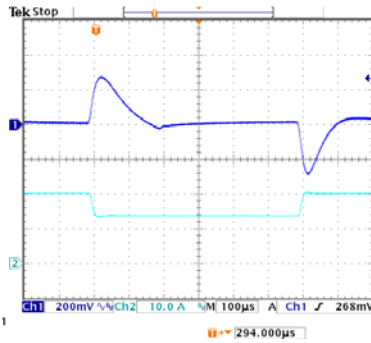
| | | |
|--------------------------------|------------------------------|-------------------------|
| Voltage Accuracy | Typical | ±1.0% |
| Line Regulation | Full Input Range | ±0.3% |
| Load Regulation | 0%~100% | ±0.3% |
| Temperature Drift | -40°C ~100°C | ±0.03%/°C |
| Output Tolerance Band | All Conditions | ±4% |
| Ripple & Noise (20MHz) | Peak-Peak (RMS) | 3% (1%) V _o |
| Over Voltage Protection | V _{NOM} , 10% Load | 115~130 %V _o |
| Output Current Limits | V _{NOM} | 108%~125% |
| Voltage Trim | V _{NOM} , 10% Load | ±10% |
| Input Ripple Rejection (<1KHz) | V _{NOM} , Full Load | -50dB |
| Step Load (2.5A/μS) | 50%~75% Load | ±6%Vo/500μS |
| Start-Up Delay Time | V _{NOM} , Full Load | 20mS/250mS |

CBQ Series

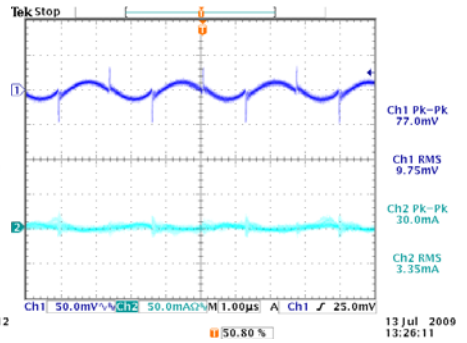
TYPICAL WAVES AND CURVES



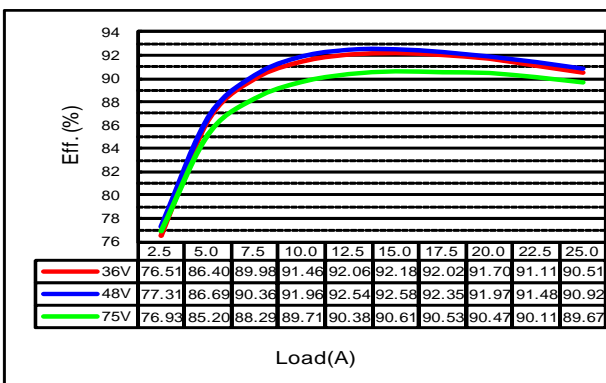
Start-up waveform of CBQ10048S5V0-LabcXXX
(V_{IN} : 48V, Load: 25A)



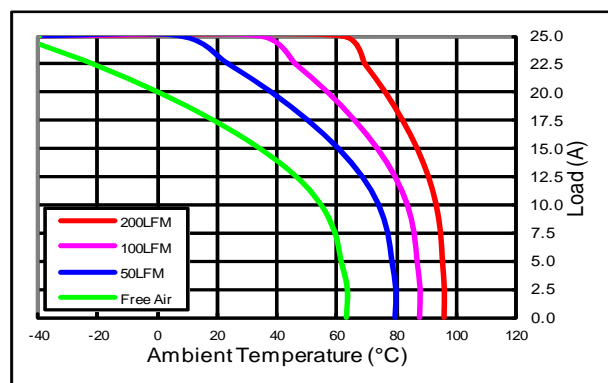
Transient response of CBQ10048S5V0-LabcXXX
(V_{IN} : 48V, Load: 20.5A/13.0A@2.5A/µs)



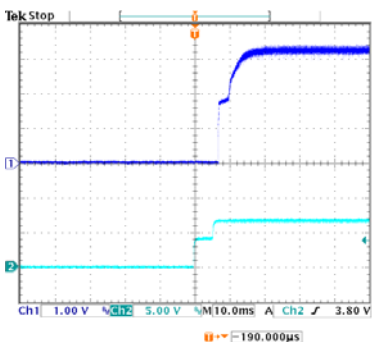
Input/Output ripples of CBQ10048S5V0-LabcXXX
(V_{IN} : 48V, Load: 25A, L_{IN} =10uH, C_{IN} =100uH)



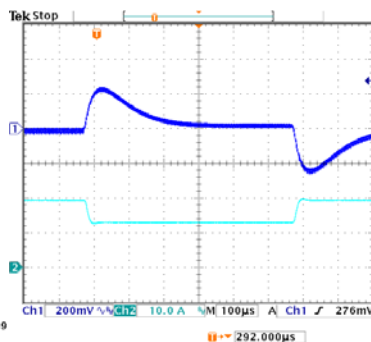
Efficiency plot of CBQ10048S5V0-LabcXXX



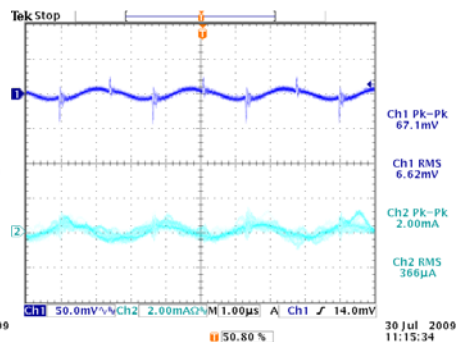
Derating curves of CBQ10048S5V0-LabcXXX for $T_c = 110^\circ\text{C}$



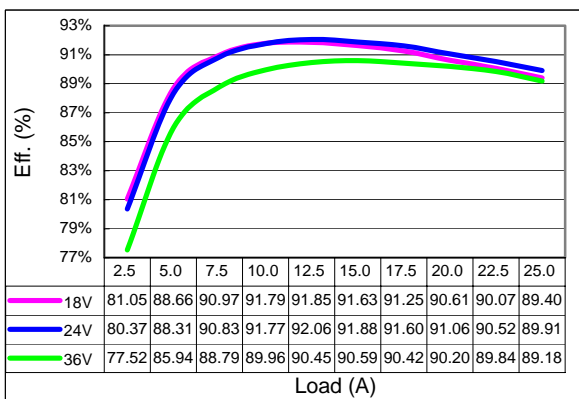
Start-up waveform of CBQ10024S3V3-LabcXXX
(V_{IN} : 24V, Load: 25A)



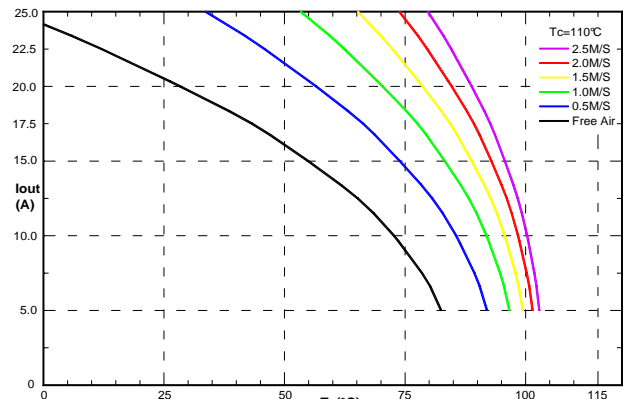
Transient response of CBQ10024S3V3-LabcXXX
(V_{IN} : 24V, Load: 20A/12.5A@2.5A/µs)



Input/Output ripples of CBQ10024S3V3-LabcXXX
(V_{IN} : 24V, Load: 25A, L_{IN} =10uH)

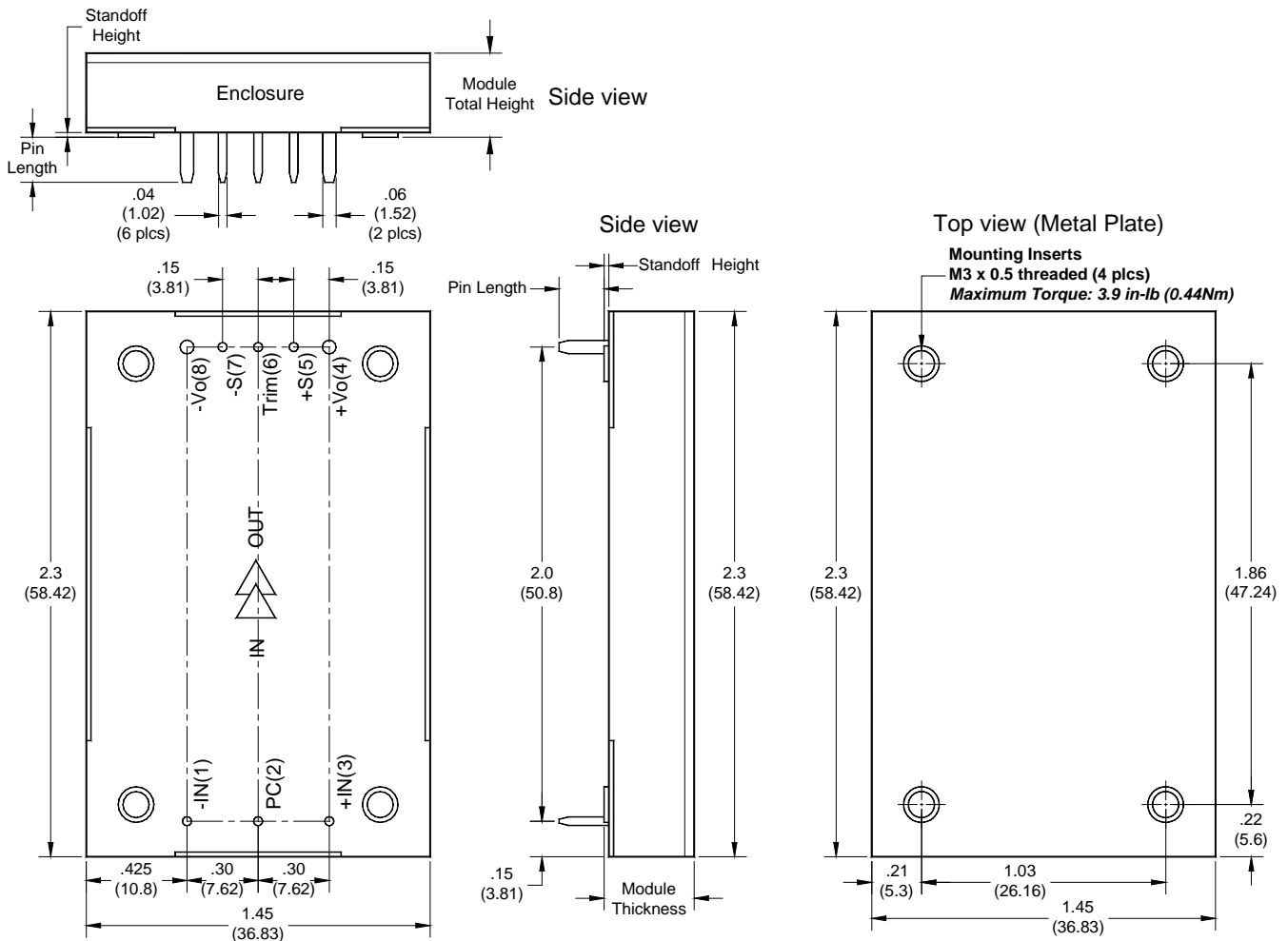


Efficiency plot of CBQ10024S3V3-LabcXXX



Derating curves of CBQ10024S3V3-LabcXXX

METAL ENCLOSED PACKAGE



Dimensions and Pin Connections

| Designation | Function Description | Pin # |
|-------------|---|-------|
| -IN | Negative input | 1 |
| PC | Remote control. To turn-on and turn-off output. | 2 |
| +IN | Positive input | 3 |
| +Vo | Positive output | 4 |
| +S | Positive remote sense | 5 |
| TRIM | Output voltage adjust | 6 |
| -S | Negative remote sense | 7 |
| -Vo | Negative output | 8 |

Dimensions: inches (mm)

Tolerances: .xx±0.02 (.x±0.5)
.xxx±0.01 (.x±0.25)

Weight: 55g

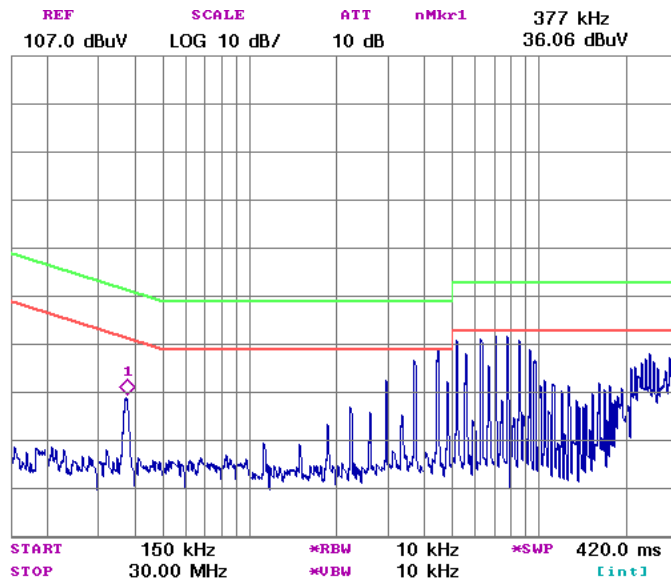
Base plate: Aluminum alloy with anode oxide

Mounting inserts: Stainless steel
Maximum torque: 3.9 in-lb (0.44Nm)

Pin material: Copper alloy or Brass

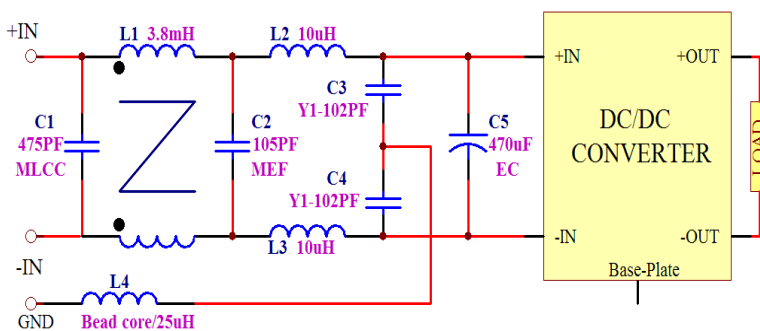
Pin plating: Golden over Nickel

REFERENCED EMC CIRCUIT



Referenced EMC Performance

The tested result shown in left-hand side is obtained by loading the power module with a resistive load only. It can be used as a design reference for customer system. However! The performance of customer's system depends on the whole system design. It should be noted that modifications on the circuit parameters and fine adjustment of the final layout affect the final EMC performance greatly.



Measured conductive level of CBQ10048S5V0-LabcXXX and referenced filter circuit

Bandwidth of EMC Components

No components are ideal for infinite frequency range. The bandwidth of EMC components should be taking into consideration when designing an EMC filter circuit. To connect ceramic capacitor with electricity capacitor in parallel and connect low inductance inductor with big one could get a better bandwidth.

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 Glary 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

- ✳ General specifications and the performances are related to standard series only, no special customer specification display here except requested items.
- ✳ In order to secure effective usage of converter and the validity of Glary'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 Glary headquarter or our regional sales representative office for help.