

Efficiency >95% 370W/in³ Open Frame Package OCP 2.96Mhrs MTBF

Remote ON/OFF INPUT 2:1 OVP OTP



The **BQ** series provides up to 680W/60A outputs with industry standard quarter brick package. The efficient SR stage is combined with patented "Buck Reset" topology that would reduce power loss to achieve 370W/in³ power density. The multi-layer double-side circuit board design plus the patented Sink-Plate technology would enhance the thermal performance and improve its reliability. Modules are designed for Telecom, Servers, Networking equipments and other applications that use a 48V input bus.

Preliminary Data Sheet

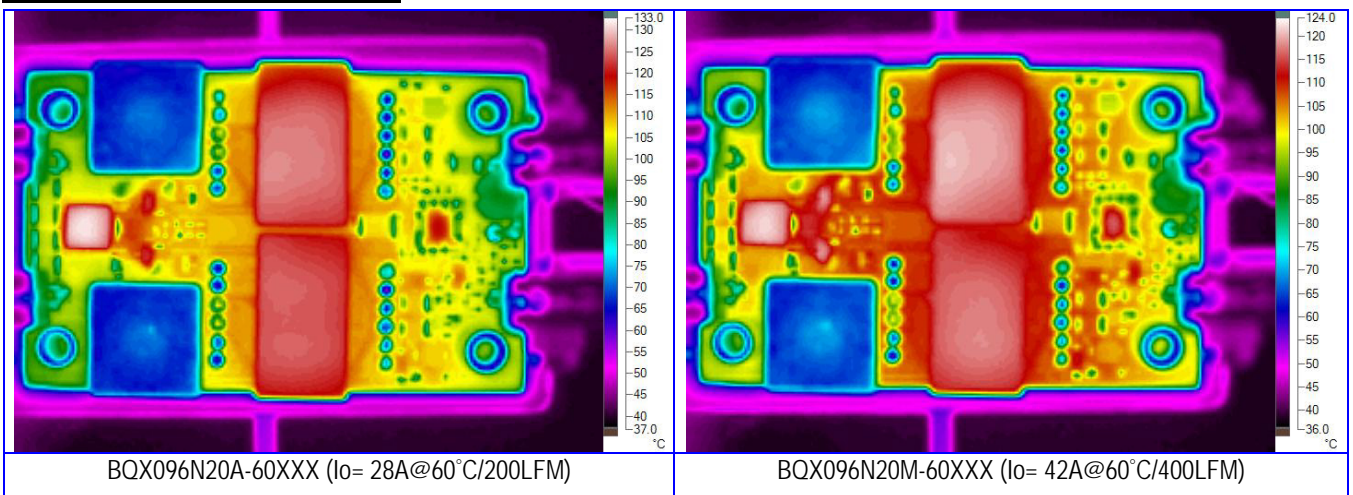
PART NUMBER SYSTEM

BQ	X	096	a	b	c	d	-	60	XX	X
Series Name	Input Voltage Range	Output Voltage	Enable Logic	Pin Dimension	Standoff Height	Base-Plate		Output Current	Suffix	Version
UQ	X= 36V~60V Non-regulated N= 40V~60V Regulated W= 36V~72V Regulated	Unit: 0.1V Increments 096= 9.6V 065= 6.5V	P: Positive N: Negative	0 : 0.12" 1 : 0.16" 2 : 0.20" 3 : 0.24"	0 : 0.02" 1 : 0.08" 2 : 0.16"	M : 1.0mm Metal Plate A : 3.0mm Sink-Plate		00~60 : For output current rating		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
BQX096abcd-60XXX	36V~60V	730W	7.2-12V/60A 680W 96%				
BQN072abcd-40XXX	40V~60V	460W	7.2V/60A 432W 95%				
BQW065abcd-60XXX	36V~72V	430W	6.5V/60A 390W 94%				

REFERENCED THERMAL IMAGES



SPECIFICATIONS

Absolute Maximum Ratings		
Temperature	Operation Storage	-40°C to +110°C -55°C to +125°C
Input Voltage Range	Operation: 48V Models Transient (100mS): 48V Models	-0.5V to +80Vdc 100V Maximum
Isolation Voltage	Input to Output Input to Case Output to Case	1.5KV Minimum 1.0KV Minimum 1.0KV Minimum
Remote Control		-0.5V to +12Vdc

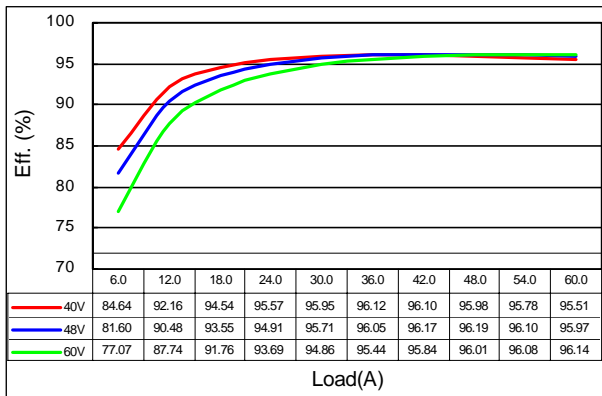
General Parameters		
Conversion Efficiency	Typical	See table
Switching Frequency	Typical	330KHz
MTBF	Bellcore TR-332 issue 6	2.96×10 ⁶ hrs @GB/25°C (BQ48096abcd-60XXX)
OTP	Internal	110°C(Tc) ±5°C
Weight	1.0mm metal plate 3.0mm metal plate	60g 75g

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

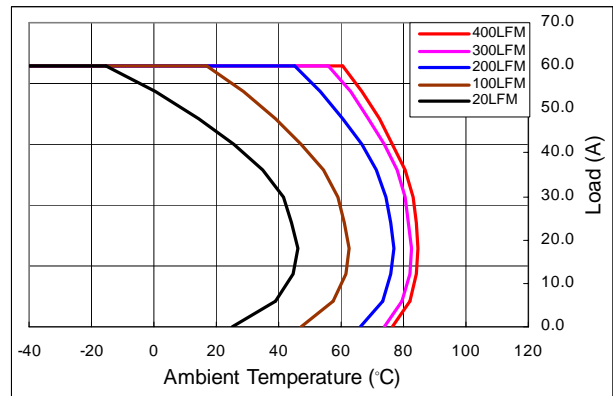
Input		
Operation Voltage Range	48V Models	See Part Number System
Reflected Ripple Current	L _{EXT} = 10uH	30mA rms/100mAp-p
Power ON Voltage Ranges	48V Models	+34.0V to +36.0Vdc
Power OFF Voltage Ranges	48V Models	+31.2V to +33.2Vdc
Off State Input Current	V _{NOM}	6mA Max
Latch-State Input Current	V _{NOM}	8mA Max
Input Capacitance	48V Models	12.0uF Max

Output		
Voltage Accuracy	Typical	Regulated: ±1.0% Non-regulated: ±5%
Line Regulation	Full Input Range	Regulated: ±0.3% Non-regulated: ±25%
Load Regulation	0%~100%	Regulated: ±0.3% Non-regulated: ±6%
Temperature Drift	-40°C ~100°C	Regulated: ±0.03%/°C Non-regulated: NA
Output Tolerance Band	All Conditions	Regulated: ±4% Non-regulated: NA
Ripple & Noise (20MHz)	Peak-Peak (RMS)	7% (2%) V _O
Over Voltage Protection	V _{NOM} , 10% Load	115~130 %V _{O(max)}
Output Current Limits	V _{NOM}	108%~125%
Voltage Trim	V _{NOM} , 10% Load	Regulated: ±10% Non-regulated: NA
Input Ripple Rejection (<1KHz)	V _{NOM} , Full Load	-50dB
Step Load (2.5A/μS)	50%~75% Load	Regulated: ±10%Vo/500μS Non-regulated: NA
Start-Up Delay Time	V _{NOM} , Full Load	20mS/250mS

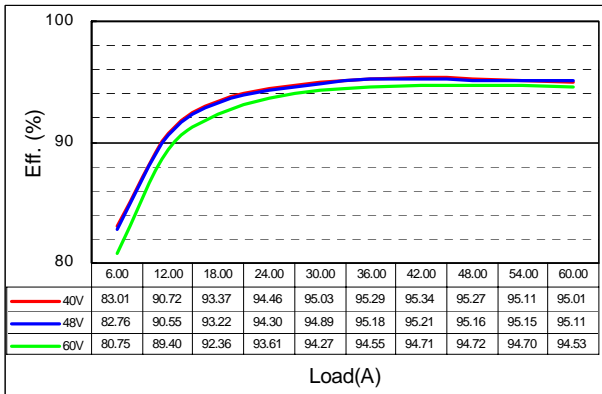
PERFORMANCE CURVES



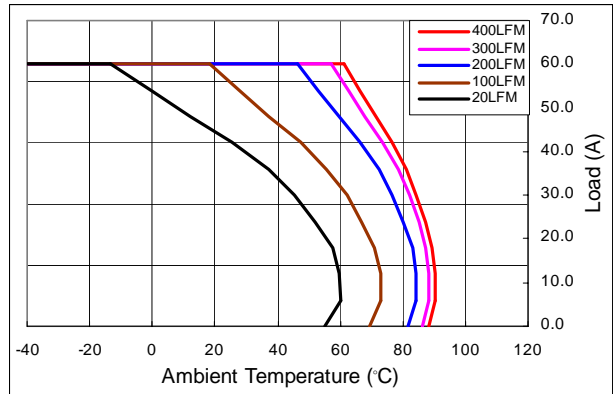
Efficiency plot of BQX096abcA-60XXX



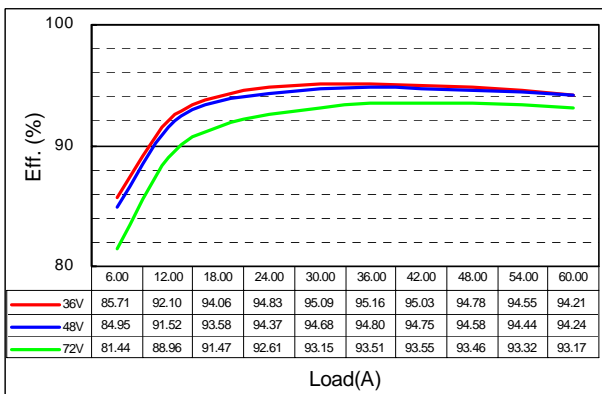
Derating curves of BQX096abcA-60XXX for $T_C = 110^\circ\text{C}$



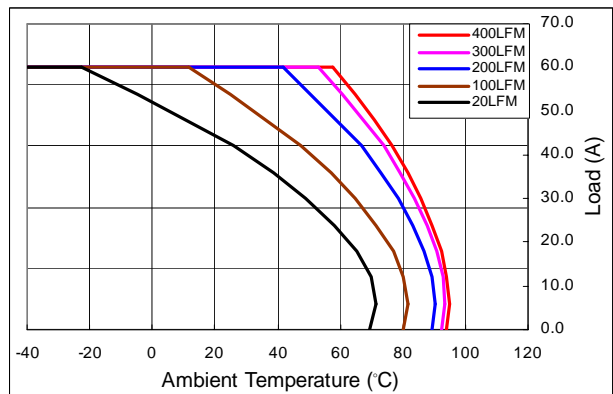
Efficiency plot of BQN8072abcA-60XXX



Derating curves of BQN8072abcA-60XXX for $T_C = 110^\circ\text{C}$

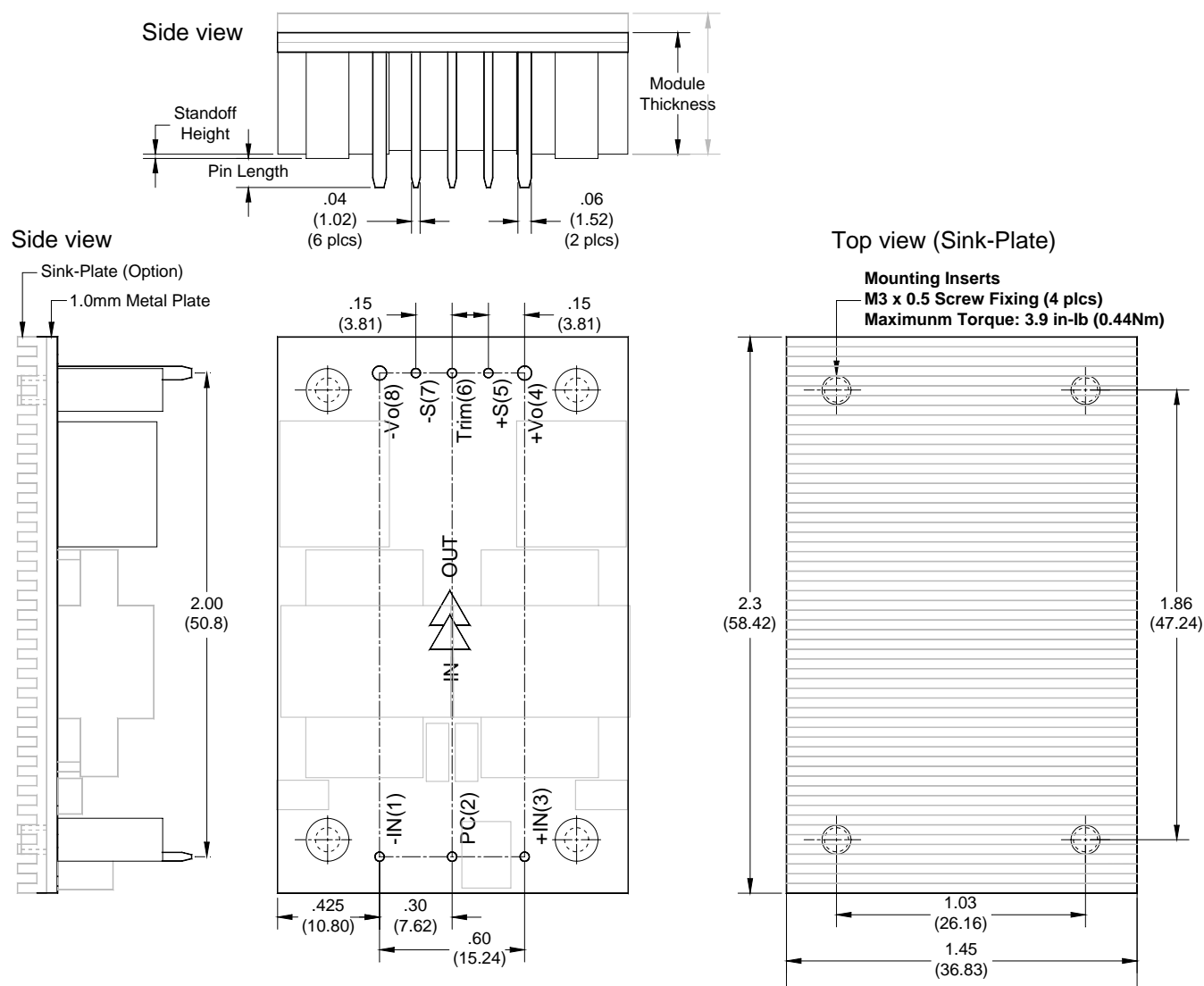


Efficiency plot of BQW8065abcA-60XXX



Derating curves of BQW8065abcA-60XXX for $T_C = 110^\circ\text{C}$

OPEN FRAME 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: 60g / 1.0mm metal plate
75g / 3.0mm metal plate

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