CQB60W-110S SERIES
60 WATT
DC-DC CONVERTERS

E176177

Railway System

FEATURES



* 60W Isolated Output
* Efficiency to 92%
* Low No Load Power Consumption
* 4:1 Input Range
* Regulated Outputs
* Remote On/Off
* Over Temperature/Voltage/Current Protection
* Continuous Short Circuit Protection
* Quarter Brick Size Meet Industrial Standard
* UL60950-1 (Basic Insulation) Approval
* Meets EN50155 with External Circuits
* Shock & Vibration Meets EN50155 (EN61373)
* Fire & Smoke Meets EN45545-2
* 4000m Operating Altitude
* Safety Meets IEC/EN/UL 62368-1

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
CQB60W-110S05	43-160 VDC	5 VDC	0 mA	12 A	5 mA	600 mA	91	6800μF
CQB60W-110S12	43-160 VDC	12 VDC	0 mA	5 A	5 mA	593 mA	92	3300μF
CQB60W-110S15	43-160 VDC	15 VDC	0 mA	4 A	5 mA	606 mA	90	3300μF
CQB60W-110S24	43-160 VDC	24 VDC	0 mA	2.5 A	5 mA	606 mA	90	1200μF
CQB60W-110S28	43-160 VDC	28 VDC	0 mA	2.14 A	5 mA	606 mA	90	1200μF
CQB60W-110S48	43-160 VDC	48 VDC	0 mA	1.25 A	5 mA	613 mA	89	470μF

NOTE:

1. Nominal Input Voltage 110VDC

SPECIFICATIONS

All Specifications Typical at Nominal Line, Full Load, and 25℃ Unless Otherwise Noted

INPUT SPECIFICATIONS:

Input Voltage Range ..... 110V 43-160V
Input Surge Voltage (100ms max.) ..... 180Vdc max.
Under Voltage Lockout ..... power up 42V
power down 38V
Positive Logic Remote On/Off (note 4&5)
Input Filter ..... PI Type

OUTPUT SPECIFICATIONS:

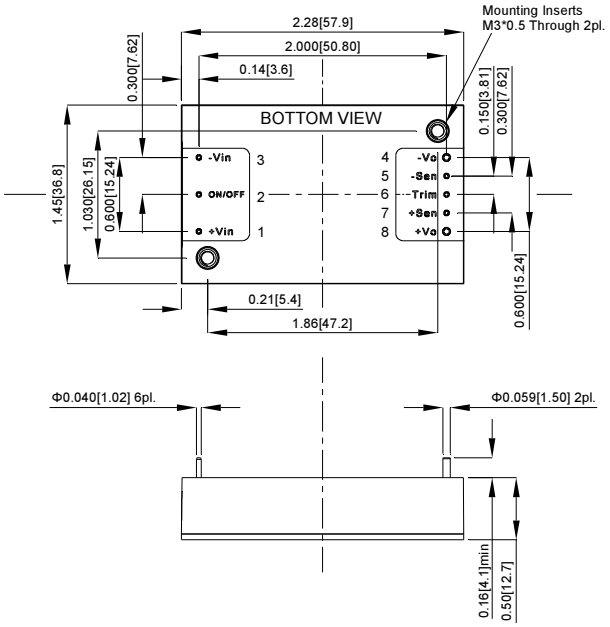
Voltage Accuracy ..... ±1.0% max.
Transient Response (25% Step Load Change) ..... <250μs
External Trim Adj. Range ..... ±10%
Ripple & Noise, 20MHz BW (note 3)
5V ..... 40mV RMS, 100mV pk-pk max.
12V/15V ..... 60mV RMS, 150mV pk-pk max.
24V/28V ..... 100mV RMS, 240mV pk-pk max.
48V ..... 200mV RMS, 480mV pk-pk max.
Temperature Coefficient ..... ±0.03%/℃ max.
Short Circuit Protection ..... Continuous
Line Regulation (note1) ..... ±0.2% max.
Load Regulation (note2) ..... ±0.2% max.
Over Voltage Protection trip Range, % Vo Nom. 115-140%
Current Limit ..... 110% - 165% Nominal Output
Start up Time ..... 15ms typ.

GENRAL SPECIFICATIONS:

Efficiency ..... See Table
Isolation Voltage ..... Input/Output ..... 3000VDC min.
Input/Case ..... 3000VDC min.
Output/Case ..... 1500VDC min.
Isolation Resistance ..... 10^7 Ohm min.
Isolation Capacitance ..... 1000pF typ.
Switching Frequency ..... 200KHz typ.
Operating Case Temperature ..... -40℃ to +100℃
Storage Temperature ..... -55℃ to +105℃
Thermal Shutdown, Case Temp. ..... 110℃ typ.
Humidity ..... 95% RH max. Non Condensing
Operating Altitude 4000m
MTBF ..... MIL-HDBK-217F, GB, 25℃, Full Load ..... 650Khrs typ.
Safety ..... UL60950-1 2nd (Basic Insulation)
EMI ..... EN50155 (EN50121-3-2) with External Filter
Shock/Vibration EN50155 (EN61373)
Dimensions ..... 2.28×1.45x0.50 inches (57.9x36.8×12.7 mm)
Case Material ..... Aluminum Baseplate with Plastic Case
Weight ..... 61.5 g

NOTE:

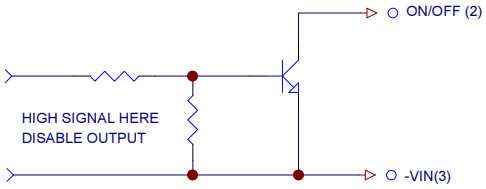
1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10uF tantalum and 1uF ceramic capacitor across output.
4. Logic compatibility ..... open collector ref to -Input
   Module on..... > 3.5VDC to 75VDC or open circuit
   Module off ..... 0 to < 1.2 VDC
5. Suffix "N" to the model number with negative logic remote on/off
   Module on ..... 0 to < 1.2 VDC
   Module off ..... >3.5VDC to 75VDC or open circuit
6. Suffix “-C” to the model number with clear mounting insert (3.2mm DIA.)
7. An external input capacitor 68uF for all models are recommended to reduce input ripple voltage.
8. Design meets EN50155 and RIA12 refer to application note.



PIN CONNECTION	
PIN	Function
1	+V Input
2	On/Off
3	-V Input
4	-V Output
5	-Sense
6	Trim
7	+Sense
8	+V Output

CASE QB
All Dimensions In Inches(mm)
Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
Millimeters: X.X= ±0.5 , X.XX=±0.25

REMOTE ON/OFF CONTROL



EXTERNAL OUTPUT TRIM

