CQB100-110S SERIES
100 WATT
DC-DC CONVERTERS

E176177

Railway System

FEATURES



* 100W Isolated Output
* Efficiency to 93%
* 200KHz Switching Frequency
* 3:1 Input Range
* Regulated Outputs
* Remote On/Off
* Over Temperature Protection
* Over Voltage/Current Protection
* Continuous Short Circuit Protection
* Quarter Brick Size Meets Industrial Standard
* UL60950-1 Approval (Except 3.3 Vout)
* Meets EN50155
* 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		
CQB100-110S3V3	66-160 VDC	3.3 VDC	0 mA	25 A	40 mA	833 mA	90	10000μF
CQB100-110S05	66-160 VDC	5.0 VDC	0 mA	20 A	30 mA	983 mA	92.5	10000μF
CQB100-110S12	66-160 VDC	12 VDC	0 mA	8.4 A	40 mA	985 mA	93	8800μF
CQB100-110S24	66-160 VDC	24 VDC	0 mA	4.2 A	60 mA	996 mA	92	1500μF

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 66-160V
Input Surge Voltage (100ms max.) ..... 180Vdc max.
Under Voltage Lockout ..... power up 62V
power down 56V
Positive Logic Remote On/Off:
Logic Compatibility ..... Open Collector Ref. to -Input
Module On..... > 3.5Vdc to 75Vdc or Open Circuit
Module Off ..... 0 to < 1.8Vdc
Input Filter ..... Pi Type

OUTPUT SPECIFICATIONS:

Voltage Accuracy ..... ±1.0% max.
3.3V ..... ±1.5% max.
Transient Response: 25% Step Load Change ..... <200μs
External Trim Adj. Range ..... ±10%
Ripple & Noise, 20MHz BW (note3)
3.3 & 5V..... 40mV RMS, 100mV pk-pk max.
12V ..... 60mV RMS, 150mV pk-pk max.
24V ..... 100mV RMS, 240mV 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%-180% Nominal Output
Start up Time ..... 45ms typ.

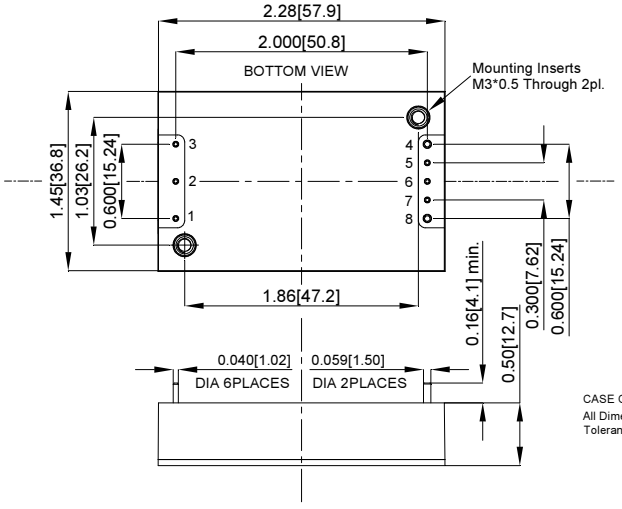
GENRAL SPECIFICATIONS:

Efficiency ..... See Table
Isolation Voltage ..... Input/Output, Input/Case ..... 2250VDC 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. ..... 105℃ typ.
Humidity ..... 95% RH max. Non Condensing

MTBF ..... MIL-HDBK-217F, GB, 25℃, Full Load ..... XXS05 ... 240Khrs typ.
XXS3V3 ..... 400Khrs typ., Others ..... 320Khrs typ.
Safety (Except 3.3 Vout) ..... UL60950-1 2nd (Basic Insulation) Approval
EMC (note7) ..... Meet EN50155(EN50121-3-2) with External Filter
Shock/Vibration ..... Meets EN50155(EN61373)
Environmental ..... Meets EN50155 (EN60068-2-1)
Dimensions ..... 2.28x1.45x0.50 inches (57.9x36.8x12.7 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. Suffix "N" to the model number with negative logic remote on/off
   Module on ..... 0 to < 1.8VDC
   Module off ..... >3.5VDC to 75VDC or open circuit
5. Suffix “-C” to the model number with clear mounting insert (3.2mm DIA.)
6. An external input capacitor 120uF for all models are recommended to reduce input ripple voltage.
7. Design meets EN50155 and RIA12 refer to application note.



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

EXTERNAL OUTPUT TRIM

