



electronic powersolutions



# CQB150W-110S SERIES

## 150 WATT 4:1 INPUT

## DC-DC CONVERTERS

## SINGLE OUTPUT

### FEATURES

- \* 150W Isolated Output
- \* Efficiency up to 92%
- \* Fixed Switching Frequency
- \* 4:1 Input Range
- \* Regulated Outputs
- \* Remote On/Off
- \* Low No Load Power Consumption
- \* Over Temperature Protection
- \* Over Voltage/Current Protection
- \* Continuous Short Circuit Protection
- \* Quarter Brick Size Meet Industrial Standard
- \* UL60950-1 2<sup>nd</sup> (Basic Insulation) Approval (Except 3.3 & 15Vout)
- \* CB Test Certificate IEC60950-1 (Except 3.3 & 15Vout)
- \* Meets EN50155 with External Circuits
- \* Shock & Vibration Meets EN50155 (EN61373)
- \* Fire & Smoke Meets EN45545-2
- \* 3000m Operating Altitude
- \* Safety Meets IEC/EN/UL 62368-1



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITIVE LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
CQB150W-110S3V3	43-160 VDC	3.3 VDC	0 mA	30 A	10mA	1.50A	89	30000μF
CQB150W-110S05	43-160 VDC	5.0 VDC	0 mA	30 A	10mA	1.50A	91	30000μF
CQB150W-110S12	43-160 VDC	12 VDC	0 mA	12.5 A	10mA	1.48A	92	12500μF
CQB150W-110S15	43-160 VDC	15 VDC	0 mA	10 A	10mA	1.50A	91	10000μF
CQB150W-110S24	43-160 VDC	24 VDC	0 mA	6.3 A	10mA	1.54A	89	6300μF
CQB150W-110S28	43-160 VDC	28 VDC	0 mA	5.4 A	10mA	1.54A	89	5400μF
CQB150W-110S48	43-160 VDC	48 VDC	0 mA	3.2 A	10mA	1.54A	90.5	1000μF

NOTE: 1. Nominal Input Voltage 110VDC

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range ..... 110V ..... 43-160V  
 Input Surge Voltage (100ms max.) ..... 110V..... 200Vdc max.  
 Under Voltage Lockout ..... 110Vin power up ..... 41.5V  
 110Vin power down ..... 38V  
 Positive Logic Remote On/Off (note 4&5)  
 Input Filter (note7) ..... PI Type

## OUTPUT SPECIFICATIONS:

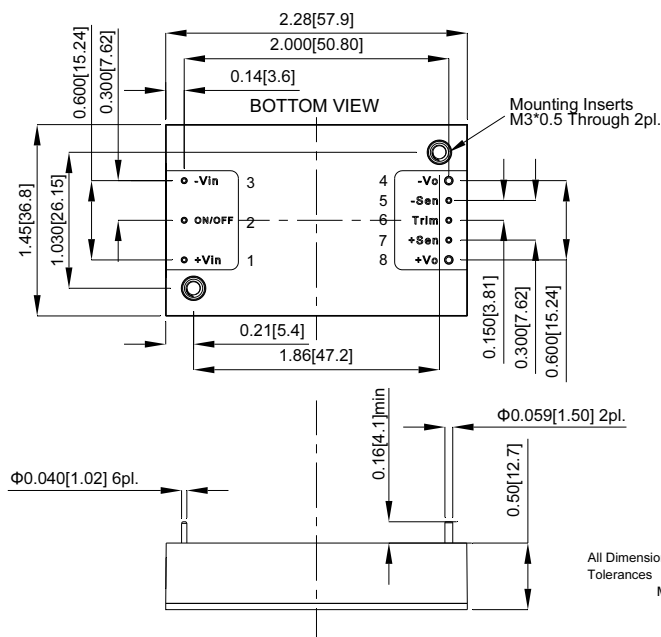
Voltage Accuracy ..... ±1.0% max.  
 Transient Response:75%-100% Step Load Change  
 Error Band ..... ±5% Vout  
 Recovery Time ..... <250us  
 External Trim Adj. Range ..... ±10%  
 3.3V&15V ..... +10%, -20%  
 Ripple & Noise, 20MHz BW (note3)  
 3.3V&5V ..... 40mV RMS, 100mV pk-pk max.  
 12V&15V ..... 60mV RMS, 150mV pk-pk max.  
 24V&28V..... 100mV RMS, 280mV pk-pk max.  
 48V ..... 200mV RMS, 480mV pk-pk max.  
 Temperature Coefficient ..... ±0.02%/°C 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%-160% Nominal Output  
 Start up Time ..... 60ms typ.

## GENERAL SPECIFICATIONS:

Efficiency ..... See Table  
 Isolation Voltage  
 Input/Output ..... 3000VDC min.  
 Input/Case..... 2250VDC min.  
 Output/Case ..... 500VAC min.  
 Isolation Resistance ..... 10<sup>8</sup> ohm min.  
 Isolation Capacitance ..... 1500pF typ.  
 Switching Frequency ..... 300KHz typ.  
 Operating Case Temperature ..... -40°C to +105°C  
 Storage Temperature .....-55°C to +125°C  
 Thermal Shutdown, Case Temperature ..... 110°C typ.  
 Humidity ..... 95% RH max. Non Condensing  
 MTBF ... MIL-HDBK-217F, GB, 25°C, Full Load ... 3.3V/5V/12V ... 720Khrs typ.  
 Others ..... 840Khrs typ.  
 Dimensions ..... 2.28×1.45×0.50 inches (57.9x36.8×12.7 mm)  
 Safety .....UL60950-1 2<sup>nd</sup> (Basic Insulation)  
 EMC (note8) ..... EN50155 (EN50121-3-2) with External Filter  
 Shock/Vibration ..... EN50155(EN61373)  
 Environmental ..... EN50155(EN60068-2-1)  
 Case Material ..... Aluminum Base Plate with Plastic Case  
 Weight ..... 68g

## NOTE:

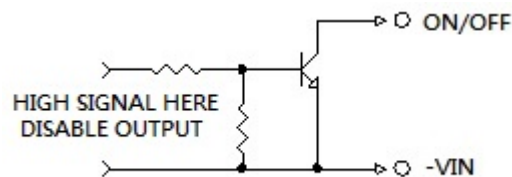
- Measured from high line to low line.
- Measured from full load to zero load.
- Output ripple and noise measured with 10uF aluminum and 1uF ceramic capacitor across output for 48Vout and with 10uF tantalum and 1uF ceramic capacitor for others.
- Logic compatibility ..... open collector ref to -Input  
 Module on ..... >3.5Vdc to 160Vdc or open circuit  
 Module off ..... 0 to < 1.2Vdc
- Suffix "N" to the model number with negative logic remote on/off  
 Module on ..... 0 to < 1.2Vdc  
 Module off ..... >3.5Vdc to 160Vdc or open circuit
- Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.).
- An external input capacitor 220uF for all models are recommended to reduce input ripple voltage.
- For information about EN50155 and RIA12, refer to application note.



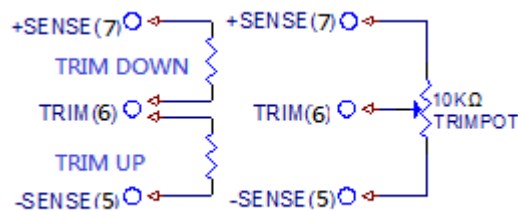
PIN CONNECTION	
PIN	Function
1	+V Input
2	On/Off
3	-V Input
4	-V Output
5	-Sense
6	Trim
7	+Sense
8	+V Output

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



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