



# EC7BW-110 SERIES

## 20 WATT 4:1 INPUT

### DC-DC CONVERTERS



## FEATURES

- \* 20W Isolated Output
- \* Efficiency to 90%
- \* 250KHz Switching Frequency
- \* 4:1 Input Range
- \* Regulated Outputs
- \* Remote On/Off
- \* Low No Load Power Consumption
- \* Continuous Short Circuit Protection
- \* 2"x1"x0.4" Size Meet Industrial Standard
- \* UL60950-1 (Basic Insulation) Approval
- \* Meet EN50155
- \* Fire & Smoke meet EN45545-2



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
EC7BW-110S05	43-160 VDC	5 VDC	0 mA	4000 mA	3 mA	205.4 mA	88.5	5600uF
EC7BW-110S12	43-160 VDC	12 VDC	0 mA	1670 mA	3 mA	202.0 mA	90	1000uF
EC7BW-110S15	43-160 VDC	15 VDC	0 mA	1330 mA	3 mA	203.1 mA	89.5	1000uF
EC7BW-110D12	43-160 VDC	±12 VDC	0 mA	±833 mA	3 mA	204.3 mA	89	680uF
EC7BW-110D15	43-160 VDC	±15 VDC	0 mA	±667 mA	3 mA	205.4 mA	88.5	350uF

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.) ..... 200Vdc max.  
 Under Voltage Lockout ..... Power up ..... 40V  
 ..... Power down ..... 38V  
 Positive Logic Remote On/Off (note4&5)  
 Input Filter ..... Pi Type

## OUTPUT SPECIFICATIONS:

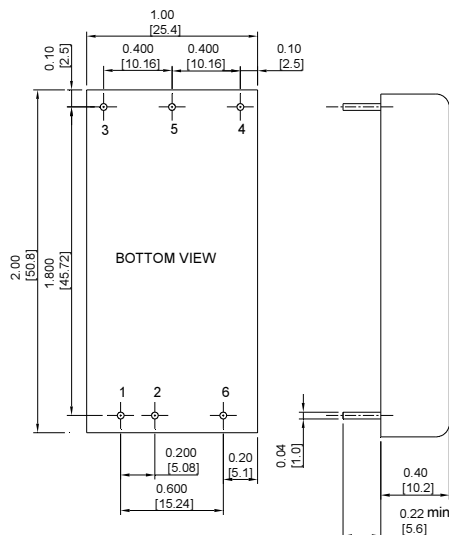
Voltage Accuracy ..... ±1.5% max.  
 Voltage Balance (Dual Output) ..... ±1.0% max.  
 Transient Response: 25% Step Load Change ..... <250µs  
 External Trim Adj. Range (Single Output Models Only) ..... ±10%  
 Ripple & Noise, 20MHz BW (note3) ..... 5V ..... 40mV RMS, max.  
 ..... 75mV pk-pk, max.  
 ..... 12V & 15V & ±12V & ±15V ..... 40mV RMS, max.  
 ..... 100mV pk-pk, max.  
 Temperature Coefficient ..... ±0.03%/°C  
 Short Circuit Protection ..... Continuous  
 Line Regulation (note1) ..... ±0.2% max.  
 Load Regulation (note2) ..... Single ..... ±0.5% max.  
 ..... Dual..... ±1.0% max.  
 Cross Regulation (Dual output) Load cross variation 10%/100% ..... ±5.0% max.  
 Over Voltage Protection ..... Zener or TVS Clamp  
 Current Limit ..... 110%-160% Nominal Output  
 Start up time ..... Single ..... 15ms typ.  
 ..... Dual ..... 25ms typ.

## NOTE:

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 1µF 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 < 1.2VDC
5. Suffix "N" to the model number with negative logic remote on/off  
 Module on ..... 0 to < 1.2VDC  
 Module off ..... >3.5VDC to 75VDC or open circuit
6. Design meet EN50155 and RIA12 refer to application note.

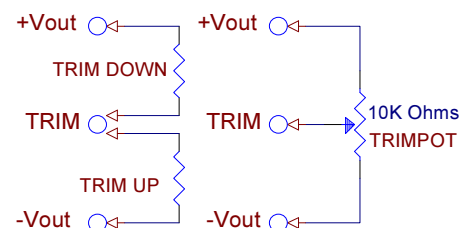
## Case B Dimensions:

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA  
 All Dimensions In Inches (mm)  
 Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010  
 Millimeters: X.X= ±0.5 , X.XX= ±0.25



PIN CONNECTION		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	-Vout
5	-Vout	Common
6	Remote ON/OFF	

## EXTERNAL OUTPUT TRIM



## GENERAL SPECIFICATIONS:

Efficiency ..... See Table  
 Isolation Voltage ..... Input/Output ..... 3000VDC min.  
 Isolation Resistance ..... 10<sup>9</sup> ohm min.  
 Isolation Capacitance ..... 1000pF typ.  
 Switching Frequency ..... 250KHz typ.  
 EMI/RFI ..... Conductive EMI Meets EN55022 Class A  
 Operating Ambient Temperature ..... -40°C to +85°C  
 De-rating, Above 73°C ..... Linearly to Zero power at 105°C  
 Case Temperature ..... 105°C max.  
 Storage Temperature ..... -55°C to +125°C  
 Humidity ..... 95% RH max. Non condensing  
 MTBF ..... MIL-HDBK-217F, GB, 25°C, Full Load ..... 880Khrs typ.  
 Safety ..... UL60950-1 2nd (Basic insulation)  
 EMC (note6) ..... meet EN50155(EN50121-3-2) with external filter  
 Shock/Vibration ..... meet EN50155(EN61373)  
 Fire & Smoke..... Meet EN45545-2  
 Dimensions ..... 2.00x1.00x0.40 inches (50.8x25.4x10.2 mm)  
 Case Material ..... Black Coated Copper with Non-Conductive Base  
 Weight ..... 35g

Typical Derating curve for Natural Convection

