



# EC7BW18 SERIES

## 20 WATT 18:1 INPUT

### DC-DC CONVERTERS



### FEATURES

- \* 20W Isolated Output
- \* Efficiency up to 90%
- \* Fixed Switching Frequency
- \* 18:1 Input Range
- \* Regulated Outputs
- \* Remote On/Off
- \* Low No Load Power Consumption
- \* Over Temperature Protection
- \* Over Voltage/Current Protection
- \* Continuous Short Circuit Protection
- \* 2"x1"x0.4" Size Meet Industrial Standard
- \* 5000m Operating Altitude
- \* CB Test Certificate IEC62368-1
- \* Fire & Smoke Meet EN45545-2
- \* Shock & Vibration Meet EN50155 (EN61373)
- \* Meet EN50155 with External Circuits
- \* UL62368-1 2<sup>nd</sup> (Reinforce Insulation) Approval



MODEL NUMBER	INPUT VOLTAGE(3)	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.		CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD	(1)	(2)	
EC7BW18-72S05	8.5-160 VDC	5 VDC	0 mA	4000 mA	5 mA	323 mA	86	85	6800uF
EC7BW18-72S12	8.5-160 VDC	12 VDC	0 mA	1670 mA	8 mA	312 mA	89	88	3300uF
EC7BW18-72S15	8.5-160 VDC	15 VDC	0 mA	1330 mA	8 mA	312 mA	89	88	2200uF
EC7BW18-72D12	8.5-160 VDC	±12 VDC	0 mA	±833 mA	8 mA	312 mA	89	88	820uF
EC7BW18-72D15	8.5-160 VDC	±15 VDC	0 mA	±667 mA	8 mA	312 mA	89	88	680uF
EC7BW18-72D24	8.5-160 VDC	±24 VDC	0 mA	±417 mA	8 mA	309 mA	90	89	330uF

#### NOTE:

1. Measured at Nominal Input Voltage 72VDC
2. Measured at Input Voltage 110VDC
3. EC7BW18 has Derating by Input Voltage is Required Shown Fig.1

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range..... 72V ..... 8.5V-160V  
 Input Surge Voltage (100ms max.) ..... 200Vdc max.  
 Under Voltage Lockout ..... Power up ..... 9.0V  
 ..... Power down ..... 7.5V  
 Positive Logic Remote On/Off (note4&5)  
 Input Filter ..... PI Type

## OUTPUT SPECIFICATIONS:

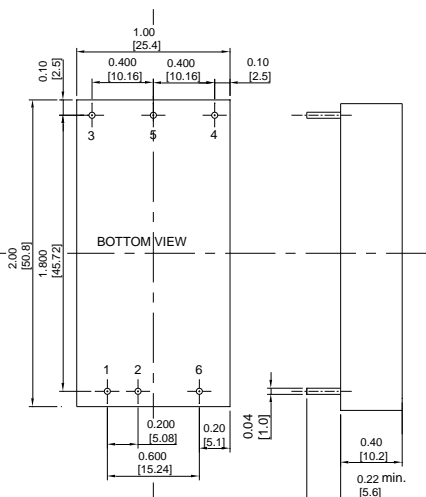
Voltage Accuracy ..... ±1.0% max.  
 Voltage Balance (Dual Output) ..... ±1.0% max.  
 Transient Response: 75%~100% Step Load Change  
 Error Band ..... ±5% Vout Nominal, Recovery Time ..... < 250µs  
 External Trim Adj. Range (Single Output Models Only) ..... -20%, +15%  
 Ripple & Noise, 20MHz BW (note3) ..... 5V ..... 40mV RMS, max.  
 ..... 75mV pk-pk, max.  
 ..... Other ..... 40mV RMS, max.  
 ..... 100mV pk-pk, max.  
 Temperature Coefficient ..... ±0.02%/°C max.  
 Short Circuit Protection ..... Continuous  
 Line Regulation (note1) ..... ±0.2% max.  
 Load Regulation (note2) ..... Single ..... ±0.2% max.  
 ..... Dual ..... ±1.0% max.  
 Cross Regulation (Dual Output) Load Cross Variation 25%/100% ..... ±5.0% max.  
 Over Voltage Protection ..... Zener Clamp  
 Current Limit ..... 110%-180% Nominal Output  
 Start up Time ..... 5V ..... 15ms typ.  
 ..... Other ..... 10ms 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 ..... > 4.0VDC to 160VDC 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 ..... > 4.0VDC to 160VDC 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= ±1.0, X.XX= ±0.25



PIN CONNECTION		
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	Trim	-V Output
5	-V Output	Common
6	Remote On/Off	

## GENERAL SPECIFICATIONS:

Efficiency ..... See Table  
 Isolation Voltage ..... Input/Output ..... 3000VAC min.  
 Isolation Resistance ..... 10<sup>9</sup> ohm min.  
 Isolation Capacitance ..... 20pF typ.  
 Switching Frequency ..... 200KHz typ.  
 Operating Ambient Temperature ..... -40°C to +85°C  
 Case Temperature ..... 105°C max.  
 Storage Temperature ..... -55°C to +125°C  
 Thermal Shutdown, Case Temp. ..... 110°C typ  
 De-rating, Above 67°C ..... Linearly to Zero power at 105°C  
 Humidity ..... 95% RH max. Non condensing  
 Operating Altitude ..... 5000m  
 MTBF ..... MIL-HDBK-217F, GB, 25°C, Full Load ..... 1570Khrs typ.  
 Safety ..... UL62368-1 2<sup>nd</sup> (Reinforce Insulation)  
 EMC (note6) ..... EN50155(EN50121-3-2) with External Filter  
 Shock/Vibration ..... EN50155(EN61373)  
 Environmental ..... EN50155(EN60068-2-1)  
 Fire & Smoke..... EN45545-2  
 Dimensions ..... 2.00x1.00x0.40 inches (50.8x25.4x10.2 mm)  
 Case Material ..... Non-Conductive Black Plastic  
 Base Material ..... FR4 PCB (Flammability to UL 94V-0 rated)  
 Weight ..... 28.5g

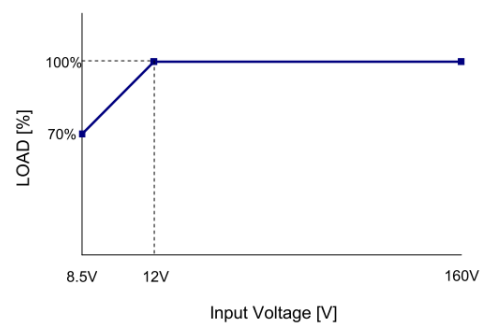
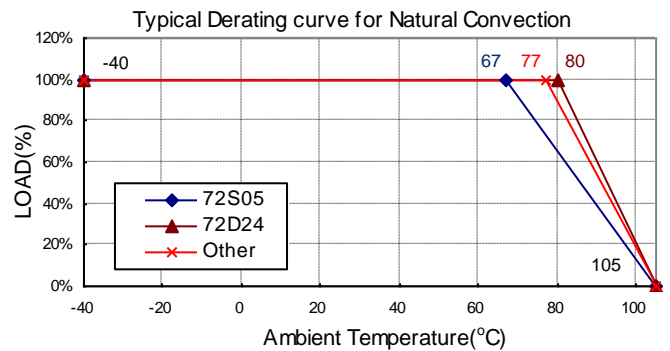


Fig.1 Input Voltage Derating Curve

## EXTERNAL OUTPUT TRIM

