

# EC7BW SERIES

## 20 WATT 4:1 INPUT DC-DC CONVERTERS



### FEATURES

- \* 20W Isolated Output
- \* 2"x1"x0.4" Shielded Metal Case
- \* Efficiency to 90%
- \* Fixed Switching Frequency
- \* 4:1 Wide Input Range
- \* Regulated Outputs
- \* Continuous Short Circuit Protection
- \* Pi Input Filter
- \* Safety Meets IEC/EN/UL 62368-1
- \* Meets EN50155 with External Circuits
- \* Shock & Vibration Meets EN50155 (EN61373)
- \* Fire & Smoke Meets EN45545-2



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
EC7BW-24S33	9-36 VDC	3.3 VDC	0 mA	5500 mA	55 mA	869 mA	87	5500uF
EC7BW-24S05	9-36 VDC	5 VDC	0 mA	4000 mA	55 mA	926 mA	90	4000uF
EC7BW-24S12	9-36 VDC	12 VDC	0 mA	1670 mA	55 mA	928 mA	90	1800uF
EC7BW-24S15	9-36 VDC	15 VDC	0 mA	1330 mA	55 mA	924 mA	90	1500uF
EC7BW-24D05	9-36 VDC	± 5 VDC	0 mA	±2000 mA	70 mA	937 mA	89	2000uF
EC7BW-24D12	9-36 VDC	± 12 VDC	0 mA	±835 mA	35 mA	947 mA	88	1000uF
EC7BW-24D15	9-36 VDC	± 15 VDC	0 mA	±666 mA	35 mA	947 mA	88	800uF
EC7BW-48S33	18-75 VDC	3.3 VDC	0 mA	5500 mA	25 mA	430 mA	88	5500uF
EC7BW-48S05	18-75 VDC	5 VDC	0 mA	4000 mA	25 mA	463 mA	90	4000uF
EC7BW-48S12	18-75 VDC	12 VDC	0 mA	1670 mA	25 mA	464 mA	90	1800uF
EC7BW-48S15	18-75 VDC	15 VDC	0 mA	1330 mA	25 mA	462 mA	90	1500uF
EC7BW-48D05	18-75 VDC	± 5 VDC	0 mA	±2000 mA	35 mA	468 mA	89	2000uF
EC7BW-48D12	18-75 VDC	± 12 VDC	0 mA	±835 mA	25 mA	474 mA	88	1000uF
EC7BW-48D15	18-75 VDC	± 15 VDC	0 mA	±666 mA	25 mA	474 mA	88	800uF

NOTE: 1. Nominal Input Voltage 24, 48VDC

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range	24V	9-36V
	48V	18-75V
Input Surge Voltage (100ms max.)	24V	50Vdc max.
	48V	100Vdc max.
Under Voltage Lockout	24Vin power up	8.8V typ.
	24Vin power down	8.0V typ.
	48Vin power up	17V typ.
	48Vin power down	16V typ.

Positive Logic Remote On/Off (note3&4)

Input Filter ..... PI Type

## OUTPUT SPECIFICATIONS:

Voltage Accuracy	±1.5% max.
Voltage Balance (Dual Output)	±1.0% max.
Transient Response: 75% - 100% Step Load Change	
Error Band	±5% Vout Nominal, Recovery Time < 500us
Ripple & Noise, 20MHz BW (Measured with 0.1uF MLCC)	~75mV pk-pk max.
Temperature Coefficient	±0.03%/°C max.
Line Regulation (note1)	Single ..... ±0.2% max.
	Dual ..... ±0.5% max.
Load Regulation (note2)	±1.0% max.
Cross Regulation (Dual output) Load Cross Variation 25%/100%	±5.0% max.
Over Voltage Protection	Zener or TVS Clamp
Output Short Circuit Protection	Continuous
External Trim Adj. Range (Single Output Models Only)	±10%
Start up Time	5ms typ.

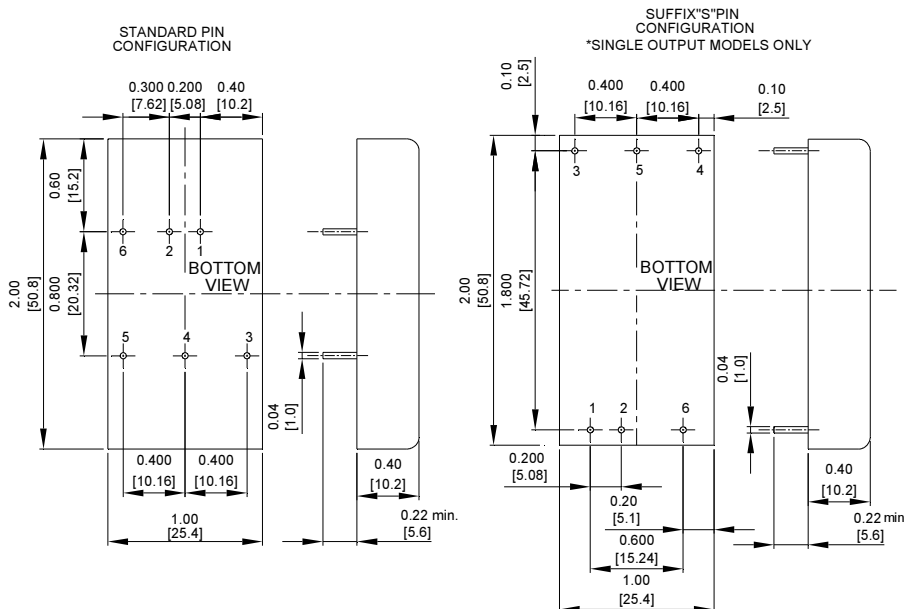
## GENERAL SPECIFICATIONS:

Efficiency	See Table
Isolation Voltage	Input/Output ..... 1500VDC max.
Isolation Resistance	..... 10 <sup>8</sup> Ohm min.
Isolation Capacitance	..... 1000pF typ.
Switching Frequency	Single ..... 350KHz typ.
	Dual ..... 400KHz typ.
EMI/RFI	..... Six Sided Continuous Shield
Operating Ambient Temperature	..... -40°C to +85°C
De-rating, Above 71°C	..... Linearly to Zero Power at 105°C
Case Temperature (note6)	..... 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 ..... 720Khrs typ.
Dimensions	..... 2.00x1.00x0.40 inches (50.8x25.4x10.2 mm)
Case Material	..... Black Coated Copper with Non-Conductive Base
Weight	..... 35g

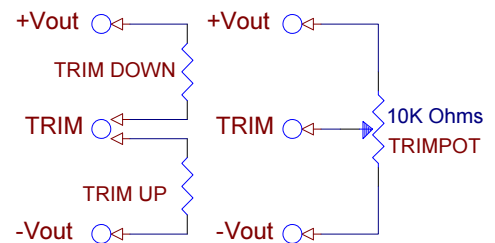
## NOTE:

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility .... CMOS or open collector TTL, ref. to -Vin  
 Module on ..... >5.5VDC to 75VDC or open circuit  
 Module off ..... 0 to <1.2VDC
4. Suffix "N" to the model number with negative logic remote on/off  
 Module on ..... 0 to <1.2VDC  
 Module off ..... >5.5VDC to 75VDC or open circuit
5. Suffix "S" to the model number with alternative pin configuration, single output models only.
6. Maximum case temperature under any operating condition should not be exceeded 105°C

## Case B Dimensions:



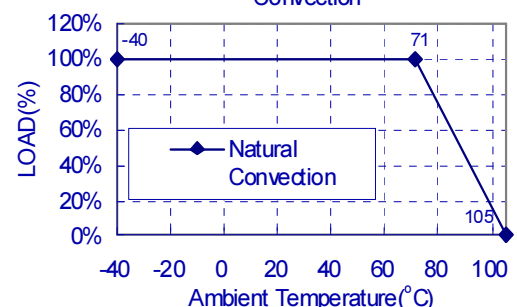
## EXTERNAL OUTPUT TRIM



NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA  
 All Dimensions In Inches (mm)  
 Tolerances Inches: X.XX= ±0.04, 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	Common
5	-V Output	-V Output
6	Remote On/Off	

Typical Derating curve for Natural Convection



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