



# EC7B SERIES 20 WATT 2:1 INPUT RANGE DC-DC CONVERTERS



## FEATURES

- \* 20W Isolated Output
- \* Efficiency to 90%
- \* Fixed Switching Frequency
- \* 2:1 Input Range
- \* Regulated Outputs
- \* Continuous Short Circuit Protection
- \* Pi Input Filter
- \* UL60950-1 Approval
- \* 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		
EC7B-12D12	9-18 VDC	±12 VDC	42 mA	±835 mA	40 mA	1856 mA	90	1000uF
EC7B-12D15	9-18 VDC	±15 VDC	33 mA	±670 mA	40 mA	1861 mA	90	800uF
EC7B-24S18	18-36 VDC	1.8 VDC	0 mA	6000 mA	30 mA	523 mA	86	6000uF
EC7B-24S25	18-36 VDC	2.5 VDC	0 mA	6000 mA	30 mA	710 mA	88	6000uF
EC7B-24S33	18-36 VDC	3.3 VDC	0 mA	5000 mA	40 mA	764 mA	90	5000uF
EC7B-24S05	18-36 VDC	5 VDC	0 mA	4000 mA	60 mA	926 mA	90	4000uF
EC7B-24S12	18-36 VDC	12 VDC	0 mA	1670 mA	20 mA	928 mA	90	2000uF
EC7B-24S15	18-36 VDC	15 VDC	0 mA	1330 mA	20 mA	924 mA	90	2000uF
EC7B-24D12	18-36 VDC	±12 VDC	42 mA	±835 mA	20 mA	928 mA	90	1000uF
EC7B-24D15	18-36 VDC	±15 VDC	33 mA	±670 mA	20 mA	930 mA	90	800uF
EC7B-48S18	36-75 VDC	1.8 VDC	0 mA	6000 mA	30 mA	262 mA	86	6000uF
EC7B-48S25	36-75 VDC	2.5 VDC	0 mA	6000 mA	30 mA	359 mA	87	6000uF
EC7B-48S33	36-75 VDC	3.3 VDC	0 mA	5000 mA	30 mA	386 mA	89	5000uF
EC7B-48S05	36-75 VDC	5 VDC	0 mA	4000 mA	40 mA	463 mA	90	4000uF
EC7B-48S12	36-75 VDC	12 VDC	0 mA	1670 mA	15 mA	469 mA	89	2000uF
EC7B-48S15	36-75 VDC	15 VDC	0 mA	1330 mA	15 mA	472 mA	88	2000uF
EC7B-48D12	36-75 VDC	±12 VDC	42 mA	±835 mA	10 mA	464 mA	90	1000uF
EC7B-48D15	36-75 VDC	±15 VDC	33 mA	±670 mA	10 mA	471 mA	89	800uF

NOTE: 1. Nominal Input Voltage 12, 24, 48VDC

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range	12V	9 - 18V
	24V	18 - 36V
	48V	36 - 75V
Input Surge Voltage (100ms max.)	12V	25Vdc max.
	24V	50Vdc max.
	48V	100Vdc max.
Under Voltage Lockout	12Vin power up	8.8V
	12Vin power down	8.0V
	24Vin power up	17V
	24Vin power down	16V
	48Vin power up	34V
	48Vin power down	33V
Positive Logic Remote On/Off (see note3&4)		
Input Filter		Pi Type

## OUTPUT SPECIFICATIONS:

Voltage Accuracy		±1.5% max.
Voltage Balance (Dual)		±2.0% 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)		75mVpk-pk, max.
Temperature Coefficient		±0.03%/°C max.
Line Regulation (note1)	Single	±0.2% max.
	Dual	±0.5% max.
Load Regulation (note2)	Single/Dual	±1.0% max.
Over Voltage Protection		Zener or TVS Clamp
Output Short Circuit Protection		Continuous
External Trim Adj. Range	Single	±10%
Start up Time	EC7B-24S12/15	13ms typ.
	EC7B-48S12/15	22ms typ.
	Others	5ms typ.

## GENERAL SPECIFICATIONS:

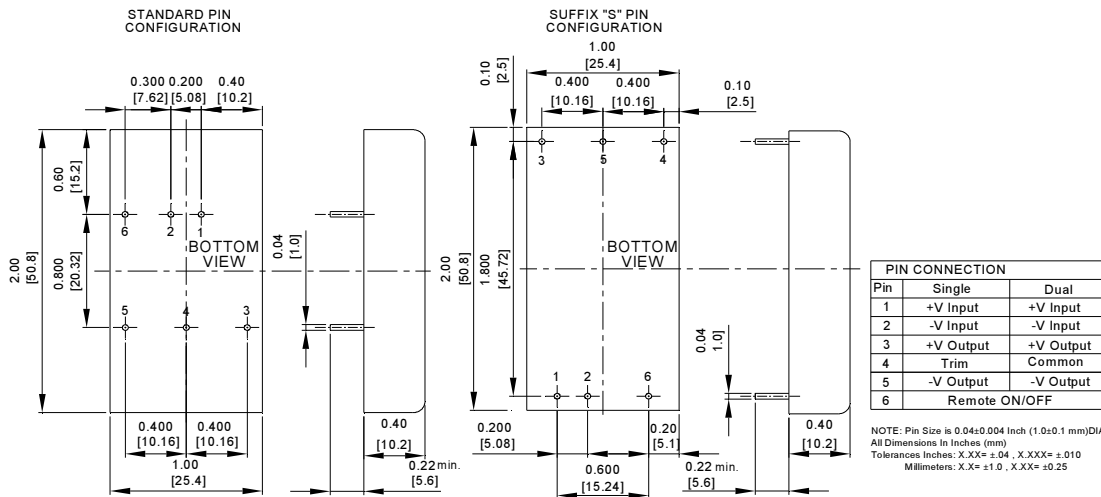
Efficiency		See Table
Isolation Voltage	Input/Output	1500VDC max.
Isolation Resistance		10 <sup>8</sup> Ohm min.
Isolation Capacitance		1000pF typ.
Switching Frequency		350KHz typ.
EMI/RFI		Six Sided Continuous Shield
Operating Ambient Temperature		-40°C to +85°C
De-rating. Above 71°C		Linearly to Zero power at 100°C
Case Temperature (note6)		100°C max.
Cooling		Natural Convection
Storage Temperature		-55°C to +125°C
Humidity		95% RH max. Non Condensing
MTBF	MIL-HDBK-217F, GB, 25°C, Full Load	Single ... 900Khrs typ.
		Dual ... 740Khrs typ.

Dimensions	2.00x1.00x0.40 inches (50.8x25.4x10.2 mm)
Case Material	Black Coated Copper with Non-Conductive Base
Weight	35g

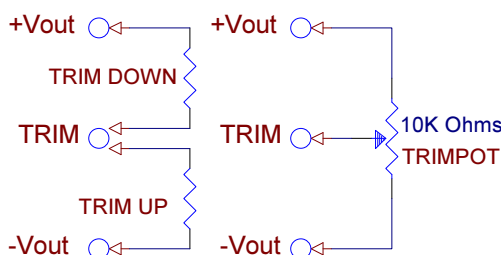
## NOTE:

- Measured from high line to low line.
- Measured from full load to 10% load.
- Logic compatibility ... CMOS or open collector TTL, ref. to -Vin
  - Module on ... >5.5VDC or open circuit
  - Module off ... 0 to <1.2VDC
- Suffix "N" to the model number with negative logic remote on/off, **(dual output models only)**
  - Module on ... 0 to <1.2VDC
  - Module off ... >5.5VDC or open circuit
- Suffix "S" to the model number with alternative pin configuration, single output models only.
- Maximum case temperature under any operating condition should not be exceeded 100°C.

## Case B Dimensions:



## EXTERNAL OUTPUT TRIM



Typical Derating curve for Natural Convection

