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

E176177

FEATURES



* 20W Isolated Output
* Efficiency to 90%
* Fixed Switching Frequency
* 2:1 Input Range
* Regulated Outputs
* Continuous Short Circuit Protection
* Pi Input Filter
* CE Mark Meets 2004/108/EC
* UL60950-1 Approval

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℃ 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
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.
Other ..... 5ms typ.

GENERAL SPECIFICATIONS:

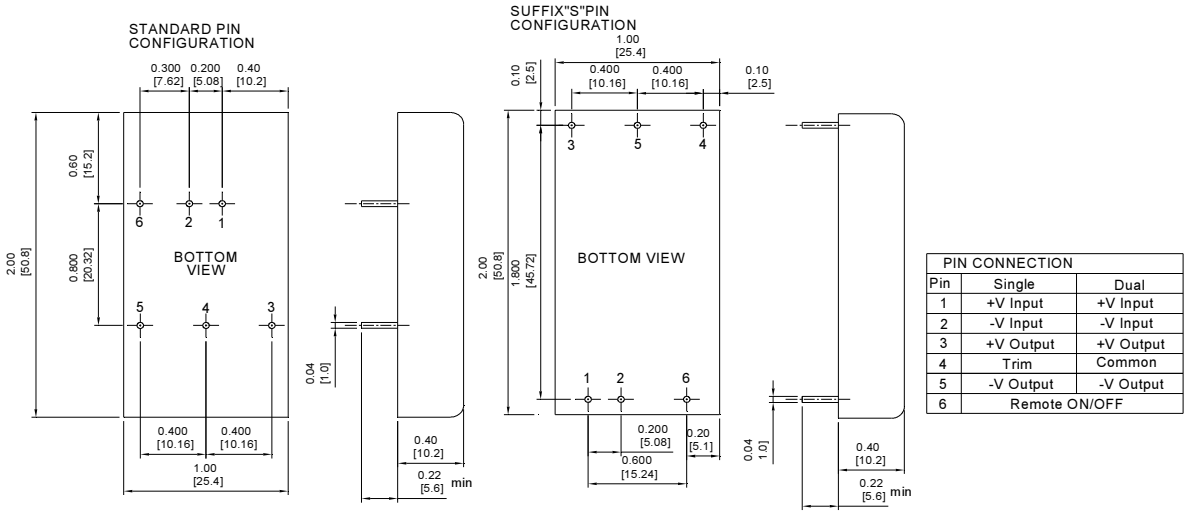
Efficiency ..... See Table
Isolation Voltage ..... Input/Output ..... 1500VDC max.
Isolation Resistance ..... 10^8 ohm min.
Isolation Capacitance ..... 1000pF typ.
Switching Frequency ..... 350KHz typ.
EMI/RFI ..... Six Sided Continuous Shield
Operating Ambient Temperature ..... -40℃ to +85℃
De-rating, Above 71℃ ..... Linearly to Zero power at 100℃
Case Temperature (note6) ..... 100℃ max.
Cooling ..... Natural Convection
Storage Temperature ..... -55℃ to +125℃
Humidity ..... 95% RH max. Non condensing
MTBF .... MIL-STD-217F, GB, 25℃, 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 :

1. Measured from high line to low line.
2. Measured from full load to 10% load.
3. Logic compatibility .... CMOS or open collector TTL, ref. to -Vin
   Module on ..... >5.5VDC or open circuit
   Module off ..... <1.2VDC
4. Suffix "N" to the model number with negative logic remote on/off
   Module on ..... <1.2VDC
   Module off ..... >5.5VDC 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 100℃.

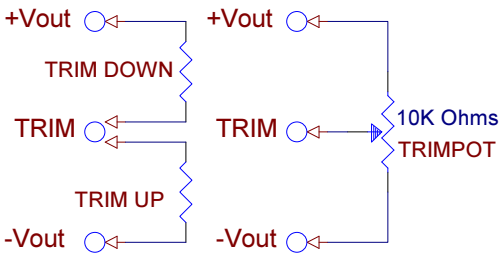
Case B Dimensions:

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±.04 , X.XXX= ±.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	

EXTERNAL OUTPUT TRIM



Typical Derating curve for Natural Convection

