

EC7C

S E R I E S



40 WATT 2 : 1 INPUT RANGE DC-DC CONVERTERS



Features

- 40W Isolated Output
- 2"x2" Six-Sided Shield Metal Case
- High Efficiency Up to 93%
- Fixed 350KHz Switching Frequency
- 2 : 1 Input Range
- Regulated Outputs
- Continuous Short Circuit Protection
- 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		
EC7C-12S25	9-18 VDC	2.5 VDC	0 mA	10000 mA	200 mA	2354 mA	88.5	10000uF
EC7C-12S33		3.3 VDC	0 mA	10000 mA	200 mA	3090 mA	89	10000uF
EC7C-12S05		5 VDC	0 mA	8000 mA	200 mA	3683 mA	90.5	8000uF
EC7C-12S12		12 VDC	0 mA	3333 mA	200 mA	3643 mA	91.5	3300uF
EC7C-12S15		15 VDC	0 mA	2666 mA	200 mA	3642 mA	91.5	2700uF
EC7C-12D12		±12 VDC	90 mA	±1800 mA	100 mA	4022 mA	89.5	1800uF
EC7C-12D15		±15 VDC	70 mA	±1400 mA	100 mA	3867 mA	90.5	1400uF
EC7C-12D3305		3.3/5.0V	0 mA	10A/7.5A	100 mA	3727 mA	89 ³	7270uF/7270uF
EC7C-12T3312		3.3/±12 V	0.6A/±40 mA	6A/±0.4A	200 mA	2768 mA	88.5	6000uF/400uF
EC7C-12T3315		3.3/±15 V	0.6A/±30 mA	6A/±0.3A	200 mA	2712 mA	88.5	6000uF/330uF
EC7C-12T0512	5.0/±12 V	0.6A/±40 mA	6A/±0.4A	200 mA	3729 mA	88.5	6000uF/400uF	
EC7C-12T0515	5.0/±15 V	0.6A/±30 mA	6A/±0.3A	200 mA	3611 mA	90	6000uF/330uF	
EC7C-24S25	18-36 VDC	2.5 VDC	0 mA	10000 mA	100 mA	1157 mA	90	10000uF
EC7C-24S33		3.3 VDC	0 mA	10000 mA	100 mA	1519 mA	90.5	10000uF
EC7C-24S05		5 VDC	0 mA	8000 mA	110 mA	1812 mA	92	8000uF
EC7C-24S12		12 VDC	0 mA	3333 mA	100 mA	1792 mA	93	3300uF
EC7C-24S15		15 VDC	0 mA	2666 mA	100 mA	1792 mA	93	2700uF
EC7C-24D12		±12 VDC	90 mA	±1800 mA	100 mA	1967 mA	91.5	1800uF
EC7C-24D15		±15 VDC	70 mA	±1400 mA	100 mA	1902 mA	92	1400uF
EC7C-24D3305		3.3/5.0V	0 mA	10A/7.5A	50 mA	1843 mA	90 ³	7270uF/7270uF
EC7C-24T3312		3.3/±12 V	0.6A/±40 mA	6A/±0.4A	100 mA	1361 mA	90	6000uF/400uF
EC7C-24T3315		3.3/±15 V	0.6A/±30 mA	6A/±0.3A	100 mA	1333 mA	90	6000uF/330uF
EC7C-24T0512	5.0/±12 V	0.6A/±40 mA	6A/±0.4A	100 mA	1813 mA	91	6000uF/400uF	
EC7C-24T0515	5.0/±15 V	0.6A/±30 mA	6A/±0.3A	100 mA	1786 mA	91	6000uF/330uF	
EC7C-48S25	36-75 VDC	2.5 VDC	0 mA	10000 mA	50 mA	585 mA	89	10000uF
EC7C-48S33		3.3 VDC	0 mA	10000 mA	50 mA	764 mA	90	10000uF
EC7C-48S05		5 VDC	0 mA	8000 mA	60 mA	906 mA	92	8000uF
EC7C-48S12		12 VDC	0 mA	3333 mA	60 mA	896 mA	93	3300uF
EC7C-48S15		15 VDC	0 mA	2666 mA	60 mA	906 mA	92	2700uF
EC7C-48D12		±12 VDC	90 mA	±1800 mA	50 mA	989 mA	91	1800uF
EC7C-48D15		±15 VDC	70 mA	±1400 mA	50 mA	962 mA	91	1400uF
EC7C-48D3305		3.3/5.0V	0 mA	10A/7.5A	50 mA	926 mA	89.5 ³	7270uF/7270uF
EC7C-48T3312		3.3/±12 V	0.6A/±40 mA	6A/±0.4A	50 mA	684 mA	89.5	6000uF/400uF
EC7C-48T3315		3.3/±15 V	0.6A/±30 mA	6A/±0.3A	50 mA	682 mA	88	6000uF/330uF
EC7C-48T0512	5.0/±12 V	0.6A/±40 mA	6A/±0.4A	50 mA	932 mA	88.5	6000uF/400uF	
EC7C-48T0515	5.0/±15 V	0.6A/±30 mA	6A/±0.3A	50 mA	903 mA	90	6000uF/330uF	

NOTE : 1. Nominal Input Voltage 12, 24, 48 VDC.
 2. The total power of EC7C-12D3305, EC7C-24D3305 and EC7C-48D3305 should not exceed 40W.
 3. The efficiency is measured with rated load current (3.3V/6A, 5V/4A).

Specifications

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, Power Down.....	8.0V
24Vin Power Up.....	17V, Power Down.....	1.6V
48Vin Power Up.....	34V, Power Down.....	3.2V
Positive/Negative Logic Remote ON/OFF (see note 5 & 6)		
Input Filter.....	Pi Type	

OUTPUT SPECIFICATIONS:

Voltage Accuracy.....	Single/Dual.....	±1.5% max.
Dual Positive.....	3.3V±1.5% max., 5V±3% max.	
Triple.....	Main.....±1.5% max., Auxiliary.....	±3.0% max.
Voltage Balance (Dual).....	±2.0% max.	
Transient Response:75%-100% Step Load Change (Main Output)		
Error Band.....	±5% Vout Nominal, Recovery Time..... < 300µs	
Output Voltage Adjustment Range...Single/Dual Vout±10%. Dual Positive ±5%		
Ripple & Noise, 20MHz BW (Measured with 0.1µF MLCC)		
2.5V & 3.3V & 5V.....	50mV pk-pk max.	
12V & 15V.....	75mV pk-pk max.	
Dual ±12V.....	120mV pk-pk max., ±15V.....	150mV pk-pk max.
Dual Positive +3.3V /+5V.....	100mVpk-pk max.	
Temperature Coefficient.....	±0.02%/°C	
Line Regulation ¹Single/Dual/Dual positive..... ± 0.5% max.		
Triple.....	Main.....±1.0% max., Auxiliary.....	±3.0% max.
Load Regulation ²Single..... ± 0.5% max.		
Dual.....	±1.0% max.	
Dual Positive ³	3.3V ±1.5% max., 5V±4% max.	
Triple.....	Main.....±1.0% max., Auxiliary.....	±4.0% max.
Cross Regulation ⁴ +3.3V±1.0% max. +5V±4.0% max.		
Over Voltage Protection (Zener Diode Clamp).....2.5V.....3.6VDC typ.		
3.3V.....	3.9VDC typ., 5V.....	6.2VDC typ.
12V.....	15VDC typ., 15V.....	18VDC typ.
Output Current Limit, % Nominal Output..... 110%-140%		
Output Short Circuit Protection..... Continuous (Hiccup Mode)		
Start up time	10ms typ.	

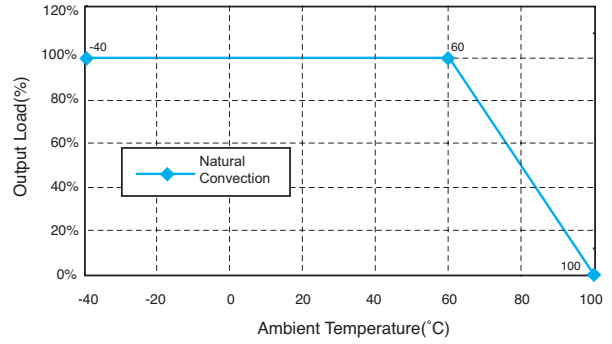
GENERAL SPECIFICATIONS:

Efficiency.....	See Table	
Isolation Voltage.....	Input/Output.....	1500VDC min.
Isolation Resistance.....	10 ⁹ ohm min.	
Isolation Capacitance	1000pF typ.	
Switching Frequency.....	350KHz typ.	
Operating Ambient Temperature.....	-40°C to + 85°C	
De-rating, Above 60°C.....	Linearly to Zero Power at 100°C	
Case Temperature ⁵	100°C max.	
Storage Temperature.....	-55°C to + 125°C	
Humidity	95% RH max. Non condensing	
MTBF... MIL-STD-217F, GB, 25°C, Full Load		
XXD3305 ...	500Khrs typ., Others	700Khrs typ.
Thermal Shutdown, Case Temperature.....110°C typ.		
Dimensions.....	2.00x2.00x0.40 inches (50.8x50.8x10.2 mm)	
Case Material.....	Black Coated Copper with Non-Conductive Base	
Weight.....	65g	

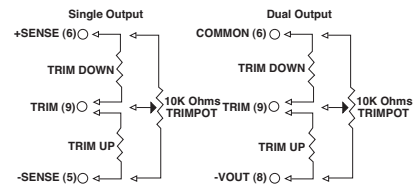
NOTE:

- Measured From High Line to Low Line(Dual positive at rated load).
- Measured From Full Load to 10% Load.
- Measured From Max. Load to Zero Load, other output at Zero Load.
- Measured From Max. Load to 10% Load, other output at 10% Load.
- Logic Compatibility CMOS or Open Collector TTL, ref. to -Vin
Module ON >3.5Vdc to 75Vdc or Open Circuit
Module OFF <1.8Vdc
- Suffix "N" to the Model Number with Negative Logic Remote ON/OFF
Module ON <1.8Vdc
Module OFF >3.5Vdc to 75Vdc or Open Circuit
- If +/-Sense is not being used, the +Sense should be connected to +Vout and likewise the -Sense should be connected to -Vout.
- Maximum case temperature under any operating condition should not be exceeded 100°C.

EC7C Series Derating Curve



External Output Trimming



PIN CONNECTION

Pin	Single	Dual	Dual Positive	Triple
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
3	ON / OFF	ON / OFF	ON / OFF	ON / OFF
4	NC	NO Pin	+3.3Vout	+Aux. Out
5	-Sense	+Vout	Com(3.3V RTN)	Common
6	+Sense	Common	Trim	-Aux. Out
7	+Vout	Common	NC	+Vout
8	-Vout	-Vout	+5Vout	-Vout (Common)
9	Trim	Trim	Com(5V RTN)	NC

*NC: No Connection With Pin

CASE C

All Dimensions In Inches(mm)
Tolerance Inches: x.xx= ±0.02, x.xxx= ±0.010
Millimeters: x.x= ±0.5, x.xxx= ±0.25
Pin Diameter: 1.0 ± 0.05mm

