

# EC7A

S E R I E S

## 10 WATT 2:1 INPUT RANGE DC-DC CONVERTERS



### Features

- 10W Isolated Output
- DIP-24 / SMD Metal Package
- Very High Efficiency Up to 89%
- 2 : 1 Input Range
- Regulated Outputs
- PI Input Filter
- Continuous Short Circuit Protection
- No Tantalum Capacitor Inside
- 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		
EC7A-12S25	9-18 VDC	2.5 VDC	0 mA	3000 mA	40 mA	735 mA	85	3000uF
EC7A-12S33		3.3 VDC	0 mA	3000 mA	50 mA	971 mA	85	3000uF
EC7A-12S05		5 VDC	0 mA	2000 mA	60 mA	947 mA	88	2000uF
EC7A-12S12		12 VDC	0 mA	835 mA	40 mA	949 mA	88	835uF
EC7A-12S15		15 VDC	0 mA	666 mA	40 mA	946 mA	88	666uF
EC7A-12D12		±12 VDC	0 mA	±416 mA	30 mA	956 mA	87	416uF
EC7A-12D15		±15 VDC	0 mA	±333 mA	30 mA	968 mA	86	333uF
EC7A-24S25	18-36 VDC	2.5 VDC	0 mA	3000 mA	30 mA	368 mA	85	3000uF
EC7A-24S33		3.3 VDC	0 mA	3000 mA	30 mA	480 mA	86	3000uF
EC7A-24S05		5 VDC	0 mA	2000 mA	30 mA	473 mA	88	2000uF
EC7A-24S12		12 VDC	0 mA	835 mA	30 mA	469 mA	89	835uF
EC7A-24S15		15 VDC	0 mA	666 mA	30 mA	473 mA	88	666uF
EC7A-24D12		±12 VDC	0 mA	±416 mA	20 mA	467 mA	89	416uF
EC7A-24D15		±15 VDC	0 mA	±333 mA	20 mA	478 mA	87	333uF
EC7A-48S25	36-75 VDC	2.5 VDC	0 mA	3000 mA	15 mA	184 mA	85	3000uF
EC7A-48S33		3.3 VDC	0 mA	3000 mA	15 mA	243 mA	85	3000uF
EC7A-48S05		5 VDC	0 mA	2000 mA	15 mA	237 mA	88	2000uF
EC7A-48S12		12 VDC	0 mA	835 mA	15 mA	235 mA	89	835uF
EC7A-48S15		15 VDC	0 mA	666 mA	15 mA	237 mA	88	666uF
EC7A-48D12		±12 VDC	0 mA	±416 mA	10 mA	236 mA	88	416uF
EC7A-48D15		±15 VDC	0 mA	±333 mA	10 mA	242 mA	86	333uF

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

## 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
	12Vin Power Down.....	8V
	24Vin Power Up.....	17V
	24Vin Power Down.....	16V
	48Vin Power Up.....	34V
	48Vin Power Down.....	32V
Input Filter.....	PI Type	

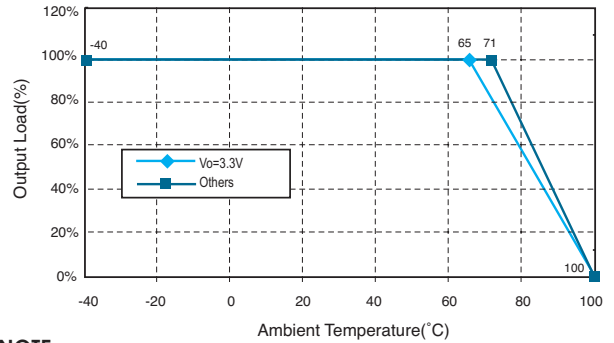
### OUTPUT SPECIFICATIONS:

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.....	< 300µs	
Ripple and Noise, 20MHz BW.....	Single.....	75mV pk-pk, max.
	Dual.....	100mV pk-pk, max.
Temperature Coefficient.....	±0.05%/°C	
Line Regulation <sup>1</sup> .....	Single.....	± 0.2% max.
	Dual.....	± 0.5% max.
Load Regulation <sup>2</sup> .....	Single...DIP±0.5% max., SMD±	1.0% max.
	Dual.....	± 1.0% max.
Output Short Circuit Protection.....	Continuous	
Over Voltage Protection (Zener Diode Clamp, Single Output Only)		
2.5V, 3.3V.....	3.9VDC typ.	
5V.....	6.2VDC typ., 12V.....	
15V.....	18VDC typ.	
Start up time .....	24(48)S25(33) .....	120ms typ.
	24(48)S05(12) .....	60ms typ.
	Others .....	8ms typ.

### GENERAL SPECIFICATIONS:

Efficiency.....	See Table	
Isolation Voltage.....	Input/Output.....	1500VDC min.
Isolation Resistance.....	10 <sup>9</sup> ohm min.	
Isolation Capacitance.....	1000pF typ.	
Switching Frequency.....	380KHz, Typical	
Operating Ambient Temperature.....	-40°C to + 85°C	
De-rating, Above 71°C.....	Linearly to Zero Power at 100°C	
Case Temperature <sup>3</sup> .....	100°C max	
Cooling.....	Natural Convection	
Storage Temperature.....	-40°C to + 125°C	
Humidity.....	95% RH max. Non Condensing	
MTBF.....	MIL-STD-217F, GB, 25°C, Full Load .....	1150Khrs
Dimensions.....	DIP.....	1.25x0.80x0.40 inches(31.8x20.3x10.2 mm)
	SMD.....	1.25x0.80x0.45 inches(31.8x20.3x11.4 mm)
Case Material.....	Black Coated Copper with Non-Conductive Base	
Weight.....	18.4g	

## EC7A Series Derating Curve



### NOTE:

1. Measured From High Line to Low Line.
2. Measured From Full Load to 10% Load.
3. Suffix "S" to the Model Number with SMD package.
4. Maximum case temperature under any operating condition should not be exceeded 100°C.

### PIN CONNECTION

Pin	Single Output		Dual Output	
	DIP	SMD	DIP	SMD
1, 24	NP	NC	NP	NC
2, 3	-V Input		-V Input	
4,5	NP	NC	NP	NC
9	NP	NC	Common	
10	NP	NC	NP	NC
11	NC		-V Output	
12	NP	NC	NP	NC
13	NP	+V Output	NP	NC
14	+V Output		+V Output	
15	NP	-V Output	NP	NC
16	-V Output		Common	
20, 21	NP	NC	NP	NC
22, 23	+V Input		+V Input	

\*NP-NO PIN

\*NC-NO CONNECTION WITH PIN

## CASE A

NOTE: Pin Size is 0.02" Inch (0.5mm) DIA ±0.05  
 All Dimensions in Inches(mm)  
 Tolerance Inches: x.xx= ±0.02, x.xxx= ±0.010  
 Millimeters: x.x= ±0.5, x.xx= ±0.25

