



# EC3SA SERIES

## 3 WATT WIDE INPUT DC-DC CONVERTERS



### FEATURES

- \* 3W Isolated Output
- \* Compact SIP-8 Package
- \* Efficiency to 86%
- \* 2:1 Input Range
- \* Regulated Outputs
- \* Remote On/Off Control
- \* 1500VDC Isolation
- \* Continuous Short Circuit Protection
- \* Under Voltage Protection
- \* 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		
EC3SA-05S33N	4.5-9.0 VDC	3.3 VDC	0 mA	700 mA	60 mA	632 mA	73	700uF
EC3SA-05S05N	4.5-9.0 VDC	5 VDC	0 mA	600 mA	60 mA	769 mA	78	600uF
EC3SA-05S12N	4.5-9.0 VDC	12 VDC	0 mA	250 mA	60 mA	759 mA	81	250uF
EC3SA-05S15N	4.5-9.0 VDC	15 VDC	0 mA	200 mA	60 mA	741 mA	81	200uF
EC3SA-05D05N	4.5-9.0 VDC	±5 VDC	±0 mA	±300 mA	60 mA	769 mA	78	300uF
EC3SA-05D12N	4.5-9.0 VDC	±12 VDC	±0 mA	±125 mA	60 mA	741 mA	81	125uF
EC3SA-05D15N	4.5-9.0 VDC	±15 VDC	±0 mA	±100 mA	60 mA	741 mA	81	100uF
EC3SA-12S33N	9-18 VDC	3.3 VDC	0 mA	700 mA	30 mA	253 mA	76	700uF
EC3SA-12S05N	9-18 VDC	5 VDC	0 mA	600 mA	30 mA	309 mA	81	600uF
EC3SA-12S12N	9-18 VDC	12 VDC	0 mA	250 mA	30 mA	301 mA	83	250uF
EC3SA-12S15N	9-18 VDC	15 VDC	0 mA	200 mA	30 mA	298 mA	84	200uF
EC3SA-12D05N	9-18 VDC	±5 VDC	±0 mA	±300 mA	30 mA	305 mA	82	300uF
EC3SA-12D12N	9-18 VDC	±12 VDC	±0 mA	±125 mA	30 mA	301 mA	83	125uF
EC3SA-12D15N	9-18 VDC	±15 VDC	±0 mA	±100 mA	30 mA	298 mA	84	100uF
EC3SA-24S33N	18-36 VDC	3.3 VDC	0 mA	700 mA	18 mA	125 mA	77	700uF
EC3SA-24S05N	18-36 VDC	5 VDC	0 mA	600 mA	18 mA	154 mA	81	600uF
EC3SA-24S12N	18-36 VDC	12 VDC	0 mA	250 mA	18 mA	149 mA	84	250uF
EC3SA-24S15N	18-36 VDC	15 VDC	0 mA	200 mA	18 mA	147 mA	85	200uF
EC3SA-24D05N	18-36 VDC	±5 VDC	±0 mA	±300 mA	18 mA	156 mA	80	300uF
EC3SA-24D12N	18-36 VDC	±12 VDC	±0 mA	±125 mA	18 mA	149 mA	84	125uF
EC3SA-24D15N	18-36 VDC	±15 VDC	±0 mA	±100 mA	18 mA	147 mA	85	100uF
EC3SA-48S33N	36-75 VDC	3.3 VDC	0 mA	700 mA	9 mA	63mA	77	700uF
EC3SA-48S05N	36-75 VDC	5 VDC	0 mA	600 mA	9 mA	77 mA	81	600uF
EC3SA-48S12N	36-75 VDC	12 VDC	0 mA	250 mA	9 mA	73 mA	86	250uF
EC3SA-48S15N	36-75 VDC	15 VDC	0 mA	200 mA	9 mA	73 mA	86	200uF
EC3SA-48D05N	36-75 VDC	±5 VDC	±0 mA	±300 mA	9 mA	77 mA	81	300uF
EC3SA-48D12N	36-75 VDC	±12 VDC	±0 mA	±125 mA	9 mA	73 mA	86	125uF
EC3SA-48D15N	36-75 VDC	±15 VDC	±0 mA	±100 mA	9 mA	73 mA	86	100uF

NOTE: 1. Nominal Input Voltage 5, 12, 24 or 48VDC

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range	5V	4.5-9V
	12V	9-18V
	24V	18-36V
	48V	36-75V
Input Surge Voltage (100ms max.)	5V	15Vdc max.
	12V	25Vdc max.
	24V	50Vdc max.
	48V	100Vdc max.

### Under Voltage Protection (note5):

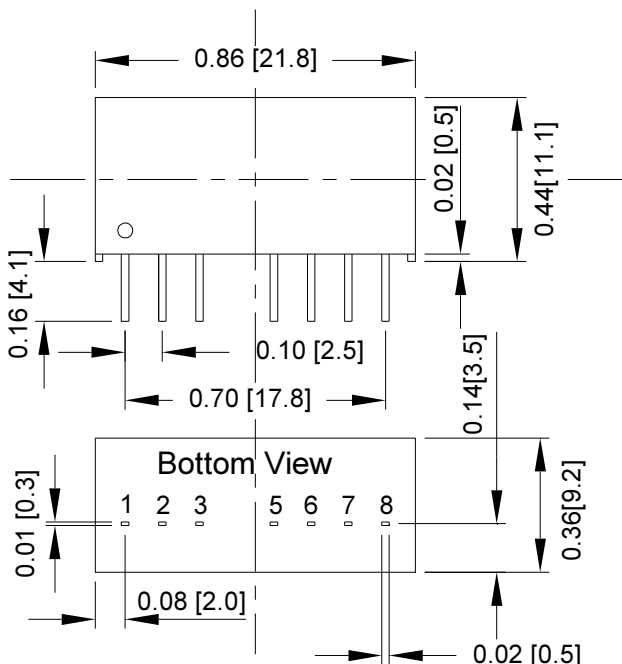
5Vin power up	4.2Vdc max.
power down	3Vdc min.
12Vin power up	7.3Vdc max.
power down	5.6Vdc min.
24Vin power up	15.5Vdc max.
power down	12Vdc min.
48Vin power up	31Vdc max.
power down	24Vdc min.

Input Filter	Capacitive
Remote On/Off Control (note6):	
Module Off (Input Idle Current)	1mA max.

## OUTPUT SPECIFICATIONS:

Voltage Accuracy	±1.5% max.
Voltage Balance (Dual)	±1.0% max.
Cross regulation (Dual) (note1)	Asymmetrical Load 25%/100% ±5.0% max.
Transient Response: 25% Step Load Change	
Error Band	±6% Vout Nominal
Recovery Time	< 500us
Ripple & Noise 20MHz BW	75mV pk-pk max.
Temperature Coefficient	±0.03%/°C max.
Line Regulation (note2)	±0.5% max.
Load Regulation (note3)	Single ±0.5% max.
	Dual ±1.0% max.
Output Short Circuit Protection	Continuous
Start up Time	1ms typ.

## CASE SIP-8:



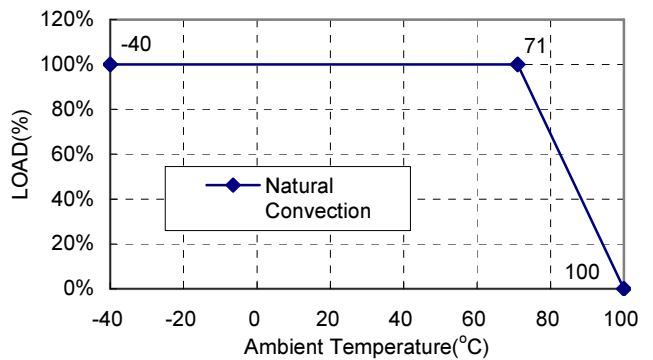
## GENERAL SPECIFICATIONS:

Efficiency	See Table
Isolation Voltage	1500VDC min.
Isolation Resistance	10 <sup>9</sup> ohm min.
Isolation Capacitance	500pF typ.
Switching Frequency	100KHz min.
Operating Ambient Temperature	-40°C to +85°C
De-rating, Above 71°C	Linearly to Zero Power at 100°C
Case Temperature (note4)	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 2500khrs typ.
Dimensions	0.86x0.36x0.44 inches(21.8x9.2x11.1 mm)
Case Material	Non-Conductive Black Plastic
Weight	4.8g

## NOTE:

- For asymmetric loading both channels must be at 25% load or more.
- Measured from high line to low line.
- Measured from full load to 10% load.
- Maximum case temperature under any operating condition should not be exceeded 100°C.
- Suffix "N" to the model with under voltage protection.
- Suffix "N" Models: Module on 0 to < 0.8VDC or open circuit  
Module off 4 to 15VDC  
Other Models: Module on 0 to < 1.2VDC or open circuit  
Module off 5.5 to 15VDC

Typical Derating curve for Natural Convection



PIN CONNECTION		
Pin	Single	Dual
1	-V Input	-V Input
2	+V Input	+V Input
3	On/Off	On/Off
5	NC	NC
6	+V Output	+V Output
7	-V Output	Common
8	NC	-V Output

NC: NO CONNECTION WITH PIN

All Dimensions In Inches(mm)  
Tolerances : Inches millimeters  
X.XX±0.02 X.X±0.5  
Pin ±0.002 ±0.05