



# EC2SA SERIES

## 2 WATT WIDE INPUT DC-DC CONVERTERS



### FEATURES

- \* 2W Isolated Output
- \* Compact SIP-8 Package
- \* Efficiency to 84%
- \* 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		
EC2SA-05S33N	4.5-9.0 VDC	3.3 VDC	0 mA	500 mA	60 mA	452 mA	73	500uF
EC2SA-05S05N	4.5-9.0 VDC	5 VDC	0 mA	400 mA	60 mA	526 mA	76	400uF
EC2SA-05S12N	4.5-9.0 VDC	12 VDC	0 mA	167 mA	60 mA	501 mA	80	167uF
EC2SA-05S15N	4.5-9.0 VDC	15 VDC	0 mA	134 mA	60 mA	503 mA	80	134uF
EC2SA-05D05N	4.5-9.0 VDC	±5 VDC	±0 mA	±200 mA	60 mA	519 mA	77	200uF
EC2SA-05D12N	4.5-9.0 VDC	±12 VDC	±0 mA	±83 mA	60 mA	504 mA	79	83uF
EC2SA-05D15N	4.5-9.0 VDC	±15 VDC	±0 mA	±67 mA	60 mA	503 mA	80	67uF
EC2SA-12S33N	9-18 VDC	3.3 VDC	0 mA	500 mA	30 mA	181 mA	76	500uF
EC2SA-12S05N	9-18 VDC	5 VDC	0 mA	400 mA	30 mA	211 mA	79	400uF
EC2SA-12S12N	9-18 VDC	12 VDC	0 mA	167 mA	30 mA	204 mA	82	167uF
EC2SA-12S15N	9-18 VDC	15 VDC	0 mA	134 mA	30 mA	202 mA	83	134uF
EC2SA-12D05N	9-18 VDC	±5 VDC	±0 mA	±200 mA	30 mA	211 mA	79	200uF
EC2SA-12D12N	9-18 VDC	±12 VDC	±0 mA	±83 mA	30 mA	202 mA	82	83uF
EC2SA-12D15N	9-18 VDC	±15 VDC	±0 mA	±67 mA	30 mA	202 mA	83	67uF
EC2SA-24S33N	18-36 VDC	3.3 VDC	0 mA	500 mA	18 mA	90 mA	76	500uF
EC2SA-24S05N	18-36 VDC	5 VDC	0 mA	400 mA	18 mA	105 mA	79	400uF
EC2SA-24S12N	18-36 VDC	12 VDC	0 mA	167 mA	18 mA	102 mA	82	167uF
EC2SA-24S15N	18-36 VDC	15 VDC	0 mA	134 mA	18 mA	101 mA	83	134uF
EC2SA-24D05N	18-36 VDC	±5 VDC	±0 mA	±200 mA	18 mA	105 mA	79	200uF
EC2SA-24D12N	18-36 VDC	±12 VDC	±0 mA	±83 mA	18 mA	102 mA	81	83uF
EC2SA-24D15N	18-36 VDC	±15 VDC	±0 mA	±67 mA	18 mA	100 mA	84	67uF
EC2SA-48S33N	36-75 VDC	3.3 VDC	0 mA	500 mA	9 mA	46 mA	74	500uF
EC2SA-48S05N	36-75 VDC	5 VDC	0 mA	400 mA	9 mA	53 mA	79	400uF
EC2SA-48S12N	36-75 VDC	12 VDC	0 mA	167 mA	9 mA	51 mA	82	167uF
EC2SA-48S15N	36-75 VDC	15 VDC	0 mA	134 mA	9 mA	50 mA	84	134uF
EC2SA-48D05N	36-75 VDC	±5 VDC	±0 mA	±200 mA	9 mA	53 mA	78	200uF
EC2SA-48D12N	36-75 VDC	±12 VDC	±0 mA	±83 mA	9 mA	51 mA	82	83uF
EC2SA-48D15N	36-75 VDC	±15 VDC	±0 mA	±67 mA	9 mA	50 mA	84	67uF

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):

5V <sub>in</sub> power up	4.2Vdc max.
power down	3Vdc min.
12V <sub>in</sub> power up	7.3Vdc max.
power down	5.6Vdc min.
24V <sub>in</sub> power up	15.5Vdc max.
power down	12Vdc min.
48V <sub>in</sub> power up	31Vdc max.
power down	24Vdc min.

Input Filter ..... Capacitive

### Remote On/Off control (note7):

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% V <sub>out</sub> 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.

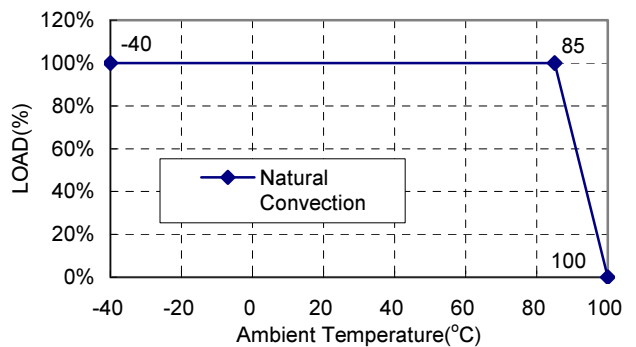
## GENERAL SPECIFICATIONS:

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 85°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(21.80x9.20x11.10 mm)
Case Material	Non-Conductive Black Plastic
Weight	4.8g

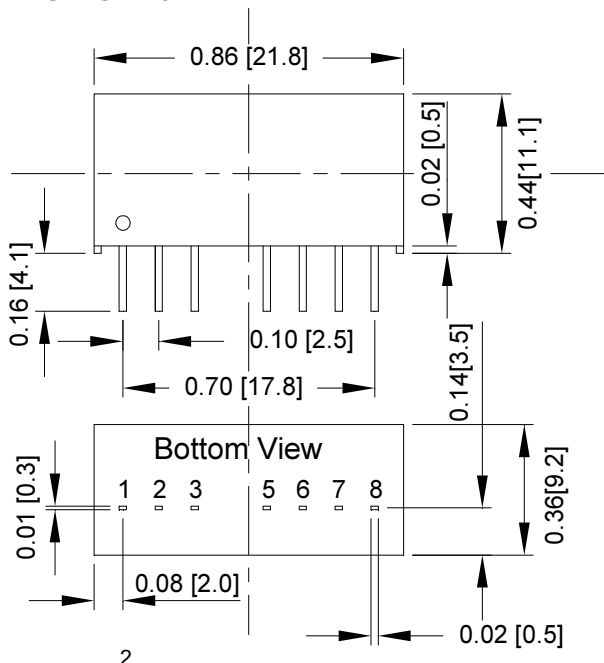
## NOTE:

- 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" to the model is present standard and recommend, without suffix "N" Models are not recommend for new design.
- 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



## CASE SIP-8:



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

Vitec POWER GmbH

Bahnstraße 65-67/2/2, 2230 Gänserndorf, AUSTRIA  
 Tel.: +43 (0) 2282 3144, E-Mail: office@vitecpower.com