

EC2SA

S E R I E S



2 WATT WIDE INPUT DC-DC CONVERTERS

Features

- 2W Isolated Output
- Compact SIP-8 Package
- Efficiency to 84%
- 2:1 Input Range
- Regulated Outputs
- Under Voltage Protection
- Remote On/Off Control
- 1500VDC Isolation
- Continuous Short Circuit Protection
- CE Mark Meets 2004/108/EC
- Safety Meets UL60950-1, EN60950-1, and IEC60950-1

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

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

Specifications

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	5.8Vdc 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.

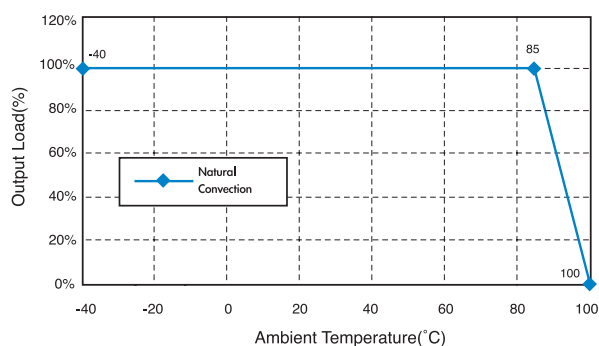
OUTPUT SPECIFICATIONS:

Voltage Accuracy :	±1.5% max.
Voltage Balance(Dual)	±1.0% max.
Cross regulation(Dual) ¹Asymmetrical 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
Line Regulation ²	±0.5% max.
Load Regulation ³Single.....	±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 ⁹ 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 ⁴	100°C max.
Cooling.....	Natural Convection
Storage Temperature	-55°C to +125°C
Humidity	95% RH max. Non condensing
MTBF	MIL-STD-217F, GB, 25°C, Full Load 2500khrs typ.
Dimensions	0.86×0.36×0.44 inches(21.80×9.20×11.10 mm)
Case Material	Non-Conductive Black Plastic
Weight.....	4.8g

EC2SA Series Derating Curve



NOTE:

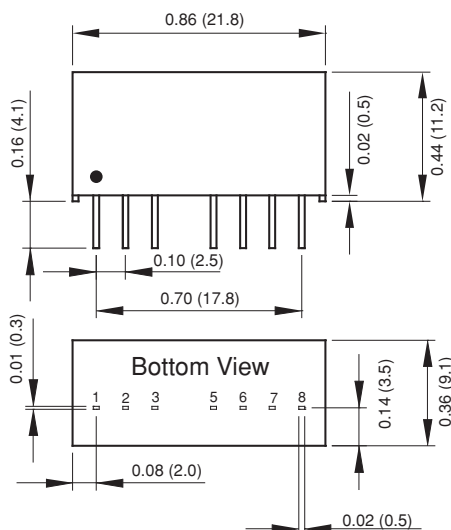
- For asymmetric loading, Both channels must be at 25% load or more.
- Measured From High Line to Low Line
- Measured From Full Load to 10% Load
- Maximum case temperature under any operating condition should not be exceeded 100°C.
- Suffix "N" to the Model with Under Voltage Protection.
- Suffix "N" Models: Module On < 0.8VDC or Open Circuit
Module Off 4 to 15VDC
Other Models: Module On < 1.2VDC or Open Circuit
Module Off..... 5.5 to 15VDC

PIN CONNECTION

Pin	Single Output	Dual Outputs
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

CASE SIP-8

All Dimensions In Inches(mm)	
Tolerance	Inches Millimeters
	X.XX ±0.02 X.X ±0.5
Pin	±0.002 ±0.05



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