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℃ 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 (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% 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.

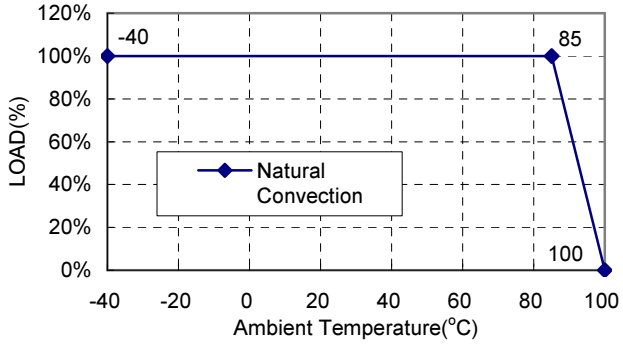
GENERAL SPECIFICATIONS:

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℃ to +85℃
De-rating, Above 85℃ ..... Linearly to Zero Power at 100℃
Case Temperature (note4) ..... 100℃ max.
Cooling ..... Natural Convection
Storage Temperature ..... -55℃ to +125℃
Humidity ..... 95% RH max. Non Condensing
MTBF .....MIL-HDBK-217F, GB, 25℃, Full Load ..... 2500Khrs typ.
Dimensions ..... 0.86x0.36x0.44 Inches(21.80x9.20x11.10 mm)
Case Material ..... Non-Conductive Black Plastic
Weight 4.8g

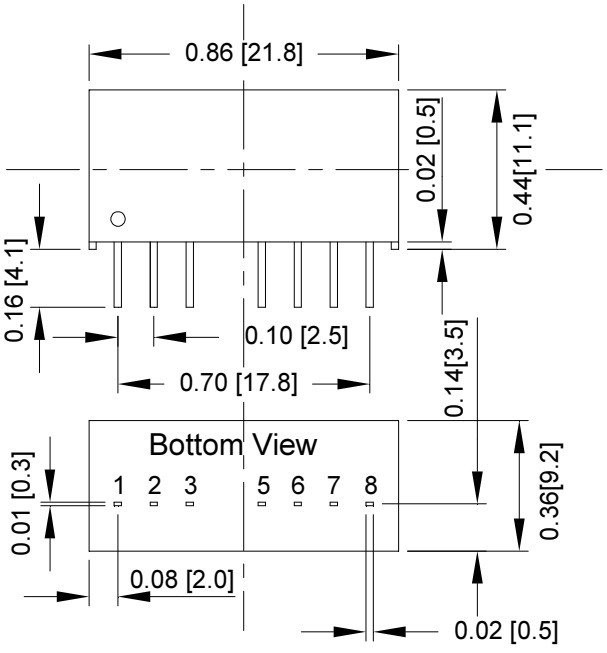
NOTE:

1. For asymmetric loading both channels must be at 25% load or more.
2. Measured from high line to low line.
3. Measured from full load to 10% load.
4. Maximum case temperature under any operating condition should not be exceeded 100℃.
5. Suffix "N" to the model with under voltage protection.
6. Suffix "N" to the model is present standard and recommend, without suffix "N" Models are not recommend for new design.
7. 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