



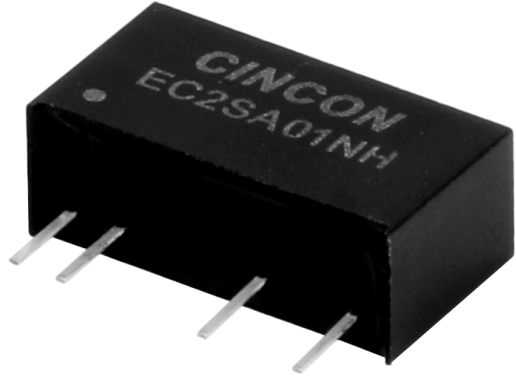
# EC2SANH SERIES

## 2WATT, UNREGULATED OUTPUT DC-DC CONVERTERS



### FEATURES

- \* Industry Standard SIP-7 Packages
- \* Efficiency up to 88%
- \* 3000VDC Isolation
- \* Unregulated Outputs
- \* Industry Standard Pinout
- \* No Tantalum Capacitors inside



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT |           | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|---------------|-----------|--------|---------------------|
|              |               |                |                | NO LOAD       | FULL LOAD |        |                     |
| EC2SA01NH    | 5 VDC         | 5 VDC          | 400 mA         | 40 mA         | 488 mA    | 82     | 220uF               |
| EC2SA02NH    | 5 VDC         | 12 VDC         | 167 mA         | 50 mA         | 477 mA    | 84     | 220uF               |
| EC2SA03NH    | 5 VDC         | 15 VDC         | 134 mA         | 55 mA         | 473 mA    | 85     | 220uF               |
| EC2SA04NH    | 5 VDC         | ±12 VDC        | ±83 mA         | 50 mA         | 469 mA    | 85     | 100uF               |
| EC2SA05NH    | 5 VDC         | ±15 VDC        | ±67 mA         | 45 mA         | 462 mA    | 87     | 100uF               |
| EC2SA06NH    | 5 VDC         | ±5 VDC         | ±200 mA        | 40 mA         | 482 mA    | 83     | 100uF               |
| EC2SA11NH    | 12 VDC        | 5 VDC          | 400 mA         | 20 mA         | 203 mA    | 82     | 220uF               |
| EC2SA12NH    | 12 VDC        | 12 VDC         | 167 mA         | 20 mA         | 192 mA    | 87     | 220uF               |
| EC2SA13NH    | 12 VDC        | 15 VDC         | 134 mA         | 20 mA         | 193 mA    | 87     | 220uF               |
| EC2SA14NH    | 12 VDC        | ±12 VDC        | ±83 mA         | 20 mA         | 193 mA    | 86     | 100uF               |
| EC2SA15NH    | 12 VDC        | ±15 VDC        | ±67 mA         | 20 mA         | 193 mA    | 87     | 100uF               |
| EC2SA16NH    | 12 VDC        | ±5 VDC         | ±200 mA        | 20 mA         | 198 mA    | 84     | 100uF               |
| EC2SA21NH    | 24 VDC        | 5 VDC          | 400 mA         | 10 mA         | 102 mA    | 82     | 220uF               |
| EC2SA22NH    | 24 VDC        | 12 VDC         | 167 mA         | 10 mA         | 96 mA     | 87     | 220uF               |
| EC2SA23NH    | 24 VDC        | 15 VDC         | 134 mA         | 10 mA         | 95 mA     | 88     | 220uF               |
| EC2SA24NH    | 24 VDC        | ±12 VDC        | ±83 mA         | 10 mA         | 96 mA     | 87     | 100uF               |
| EC2SA25NH    | 24 VDC        | ±15 VDC        | ±67 mA         | 10 mA         | 95 mA     | 88     | 100uF               |
| EC2SA26NH    | 24 VDC        | ±5 VDC         | ±200 mA        | 10 mA         | 100 mA    | 83     | 100uF               |

#### NOTE:

1. Nominal Input Voltage 5, 12 or 24 VDC
2. An External Input Capacitor 1uF tantalum for 24Vin Models are recommended to Reduce Input Ripple Voltage.

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS :

|  |                      |
|--|----------------------|
| Input Voltage Range .....              | ±10%                 |
| Input Surge Voltage (100ms max.) ..... | 5V ..... 9Vdc max.   |
|  | 12V ..... 18Vdc max. |
|  | 24V ..... 30Vdc max. |
| Input Filter (note 5) .....            | Capacitive           |

## OUTPUT SPECIFICATIONS :

|   |                           |
|---|---------------------------|
| Voltage Accuracy .....                    | ±3.0% max.                |
| Voltage Balance (Dual) .....              | ±1.0% max.                |
| Ripple and Noise, 20MHz BW (note 3) ..... | 200mV pk-pk max.          |
| Temperature Coefficient .....             | ±0.05%/°C max.            |
| Short Circuit Protection.....             | Continuous, Self-Recovery |
| Line Regulation (note 1) .....            | ±1.2% max.                |
| Load Regulation (note 2) .....            | ±10% max.                 |

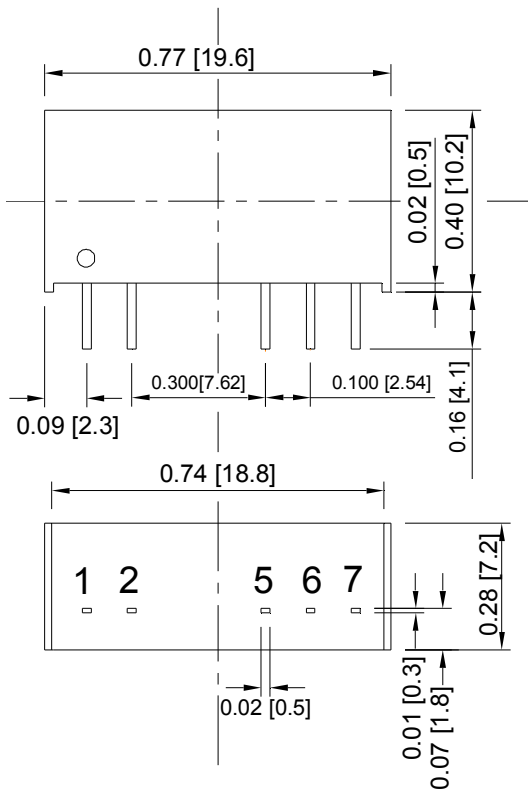
## NOTE:

1. Line regulation is per 1.0% change in input voltage.
2. Load regulation is for load change from 100% to 20%.
3. The output noise is measured with 0.33uF ceramic capacitor.
4. Maximum case temperature under any operating condition should not be exceeded 120°C.
5. The EC2SA2XNH input terminal need to parallel with 1uF tantalum capacitor.

## CASE SIP-7 Dimensions:

All Dimensions In Inches(mm)

|           |             |             |
|-----------|-------------|-------------|
| Tolerance | Inches      | Millimeters |
|           | X.XX±0.01   | X.X±0.25    |
|           | X.XXX±0.005 | X.XX±0.13   |
| Pin       | ±0.002      | ±0.05       |



| PIN CONNECTION |               |             |
|----------------|---------------|-------------|
| Pin            | Single Output | Dual Output |
| 1              | +V Input      | +V Input    |
| 2              | -V Input      | -V Input    |
| 5              | -V Output     | -V Output   |
| 6              | No Pin        | Common      |
| 7              | +V Output     | +V Output   |

## GENERAL SPECIFICATIONS :

|   |   |
|---|---|
| Efficiency .....                          | See Table                               |
| Isolation Voltage .....                   | 3000 VDC min.                           |
| Isolation Resistance .....                | 10 <sup>9</sup> ohm min.                |
| Isolation Capacitance .....               | 18 pF typ.                              |
| Switching Frequency .....                 | 60KHz typ.                              |
| Operating Ambient Temperature Range ..... | -40°C to +105°C                         |
| De-rating, Above 85°C .....               | See Derating Curve                      |
| Case temperature (note 4) .....           | +120°C max.                             |
| Cooling .....                             | Natural Convection                      |
| Storage Temperature Range .....           | -55°C to +125°C                         |
| Humidity .....                            | 95% RH max. Non condensing              |
| MTBF .....                                | MIL-HDBK-217F, GB ..... 3.3Mhrs min.    |
| Dimensions .....                          | 0.77x0.28x0.40 inches(19.6x7.2x10.2 mm) |
| Case Material .....                       | Non-conductive black plastic            |
| Weight .....                              | 2.7g                                    |

