



# EC4AB SERIES

## 5-6 WATT 2:1 INPUT RANGE

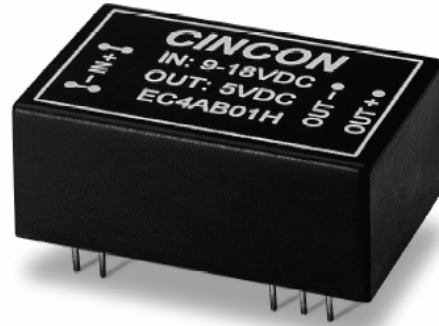
## DC-DC CONVERTERS



H/HM Versions Only

### FEATURES

- \* 5-6W Isolated Output
- \* DIP-24/SMD Package
- \* Efficiency to 84%
- \* Regulated Outputs
- \* Pi Input Filter
- \* Continuous Short Circuit Protection
- \* Meets EN55022 Class B, Conducted
- \* Remote ON/OFF (Option)



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT |           | % EFF. | CASE   |
|--------------|---------------|----------------|----------------|---------------|-----------|--------|--------|
|              |               |                |                | NO LOAD       | FULL LOAD |        |        |
| EC4AB01      | 9-18VDC       | 5VDC           | 1000 mA        | 7.5 mA        | 548 mA    | 76     | DIP-24 |
| EC4AB02      | 9-18VDC       | 12VDC          | 470 mA         | 7.5 mA        | 588 mA    | 80     | DIP-24 |
| EC4AB03      | 9-18VDC       | 15VDC          | 400 mA         | 7.5 mA        | 617 mA    | 81     | DIP-24 |
| EC4AB04      | 9-18VDC       | ±12VDC         | ±230 mA        | 12 mA         | 568 mA    | 81     | DIP-24 |
| EC4AB05      | 9-18VDC       | ±15VDC         | ±190 mA        | 12 mA         | 586 mA    | 81     | DIP-24 |
| EC4AB06      | 9-18VDC       | ±5VDC          | ±500 mA        | 12 mA         | 548 mA    | 76     | DIP-24 |
| EC4AB07      | 9-18VDC       | 3.3VDC         | 1000 mA        | 7.5 mA        | 382 mA    | 72     | DIP-24 |
| EC4AB11      | 18-36VDC      | 5VDC           | 1000 mA        | 5 mA          | 264 mA    | 79     | DIP-24 |
| EC4AB12      | 18-36VDC      | 12VDC          | 470 mA         | 5 mA          | 283 mA    | 83     | DIP-24 |
| EC4AB13      | 18-36VDC      | 15VDC          | 400 mA         | 5 mA          | 298 mA    | 84     | DIP-24 |
| EC4AB14      | 18-36VDC      | ±12VDC         | ±230 mA        | 7.5 mA        | 284 mA    | 81     | DIP-24 |
| EC4AB15      | 18-36VDC      | ±15VDC         | ±190 mA        | 7.5 mA        | 290 mA    | 82     | DIP-24 |
| EC4AB16      | 18-36VDC      | ±5VDC          | ±500 mA        | 7.5 mA        | 264 mA    | 79     | DIP-24 |
| EC4AB17      | 18-36VDC      | 3.3VDC         | 1000 mA        | 5 mA          | 188 mA    | 73     | DIP-24 |
| EC4AB21      | 36-72VDC      | 5VDC           | 1000 mA        | 2 mA          | 132 mA    | 79     | DIP-24 |
| EC4AB22      | 36-72VDC      | 12VDC          | 470 mA         | 2 mA          | 143 mA    | 82     | DIP-24 |
| EC4AB23      | 36-72VDC      | 15VDC          | 400 mA         | 2 mA          | 154 mA    | 81     | DIP-24 |
| EC4AB24      | 36-72VDC      | ±12VDC         | ±230 mA        | 3 mA          | 142 mA    | 81     | DIP-24 |
| EC4AB25      | 36-72VDC      | ±15VDC         | ±190 mA        | 3 mA          | 148 mA    | 80     | DIP-24 |
| EC4AB26      | 36-72VDC      | ±5VDC          | ±500 mA        | 3 mA          | 132 mA    | 79     | DIP-24 |
| EC4AB27      | 36-72VDC      | 3.3VDC         | 1000 mA        | 3 mA          | 94 mA     | 73     | DIP-24 |

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

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

|                     |     |        |
|---------------------|-----|--------|
| Input Voltage Range | 12V | 9-18V  |
|                     | 24V | 18-36V |
|                     | 48V | 36-72V |

Positive Logic Remote ON/OFF ( see note6 )

Input Filter ..... Pi Type

## OUTPUT SPECIFICATIONS:

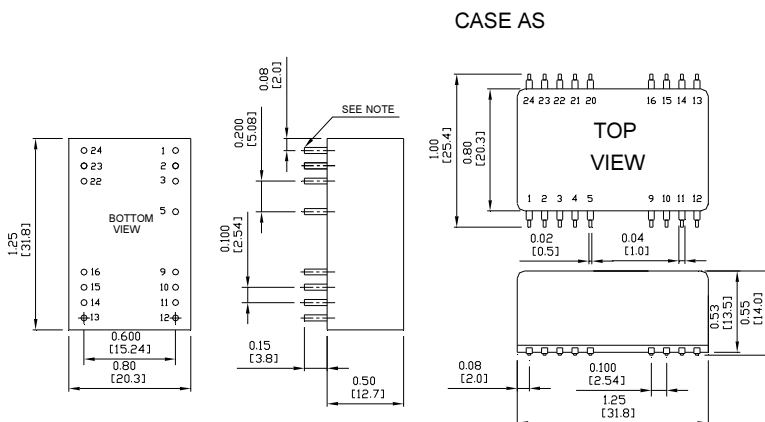
|                                     |                                |
|-------------------------------------|--------------------------------|
| Voltage Accuracy                    | ±2.0% max.                     |
| Voltage Balance (Dual)              | ±1.0% max.                     |
| Temperature Coefficient             | ±0.05%/°C                      |
| Ripple & Noise, 20MHz BW            | 3.3V/5V ..... 100mV pk-pk max. |
|                                     | 12V/15V ..... 1% pk-pk max.    |
| Short Circuit Protection            | Continuous                     |
| Line Regulation (note1) Single/Dual | ±0.5% max.                     |
| Load Regulation (note2) Single      | ±0.5% max.                     |
|                                     | Dual (note3) ..... ±1.0% max.  |

## GENERAL SPECIFICATIONS:

|                                       |                                                    |
|---------------------------------------|----------------------------------------------------|
| Efficiency                            | See Table                                          |
| Isolation Resistance                  | 10 <sup>9</sup> ohm min.                           |
| Switching Frequency                   | 100KHz min.                                        |
| Operating Ambient Temperature Range   | -25°C to +71°C                                     |
| De-rating, Above 71°C (Plastic Case)  | Linearly to Zero power at 95°C                     |
| De-rating, Above 71°C (Copper Case)   | Linearly to Zero power at 100°C                    |
| Case Temperature (Plastic case note8) | 95°C max.                                          |
|                                       | (Copper case note8) ..... 100°C max.               |
| Cooling                               | Natural Convection                                 |
| Storage Temperature Range             | -40°C to +100°C                                    |
| EMI/RFI                               | Conductive EMI Meet EN55022 Class B                |
| Dimensions                            | DIP ..... 1.25×0.80×0.50 inches(31.8×20.3×12.7 mm) |
|                                       | SMD ..... 1.25×0.80×0.55 inches(31.8×20.3×14.0 mm) |
| Weight                                | 15g                                                |

## Case A Dimensions:

NOTE: Pin Size is 0.02±0.002 Inch (0.5±0.05 mm) DIA  
All Dimensions In Inches (mm)  
Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010  
Millimeters: X.X= ±0.5 , X.XX=±0.25



## ISOLATION VOLTAGE:

|                     |                    |
|---------------------|--------------------|
| 500 VDC min.        | Standard Models    |
| 3K VDC min. (note4) | Suffix "H" Models  |
| 1.5K VDC min.       | Suffix "HM" Models |

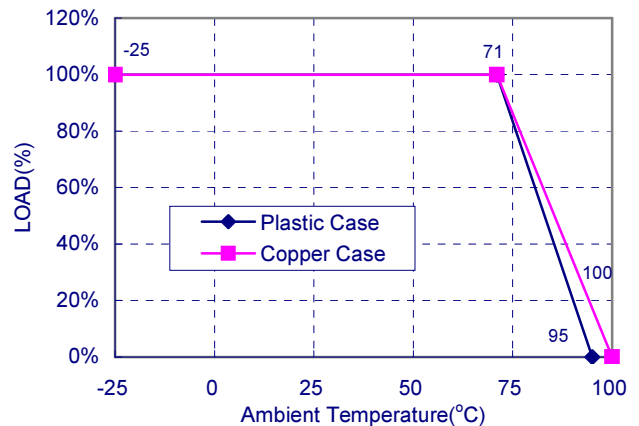
## CASE MATERIAL:

|                   |                                              |
|-------------------|----------------------------------------------|
| Standard Models   | Non-Conductive Black Plastic                 |
| Suffix "M" Models | Black Coated Copper with Non-conductive Base |

## NOTE:

1. Measured from high line to low line.
2. Measured from full load to 10% load.
3. Measured from full load to 1/4 load.
4. Non-conductive black plastic only.
5. Suffix "T" to the model number with remote on/off for "H"/"HM" versions only.
6. Logic Compatibility .... CMOS or Open Collector TTL, ref. to -Vin  
Module on ..... >5.5VDC or open circuit  
Module off ..... <1.8Vdc.  
Shutdown Idle ..... 10mA  
Control Common ..... referenced to input minus
7. Suffix "S" to the model number with SMD packages.
8. Maximum case temperature under any operating condition should not be exceeded 95°C (Plastic Case), 100°C (Copper Case).

Typical Derating curve for Natural Convection



| PIN CONNECTION |               |     |             |     |               |                      |                      |                      |                      |
|----------------|---------------|-----|-------------|-----|---------------|----------------------|----------------------|----------------------|----------------------|
| 500 VDC        |               |     |             |     | 1.5K & 3K VDC |                      |                      |                      |                      |
| Pin            | Single Output |     | Dual Output |     | Pin           | Single Output        |                      | Dual Output          |                      |
|                | DIP           | SMD | DIP         | SMD |               | DIP                  | SMD                  | DIP                  | SMD                  |
| 1,24           | +V Input      |     | +V Input    |     | 1,24          | NP                   | NC                   | NP                   | NC                   |
| 2,23           | NC            |     | -V Output   |     | 2,3           | -V Input             |                      | -V Input             |                      |
| 3,22           | NC            |     | Common      |     | 4             | NP                   | NC                   | NP                   | NC                   |
| 4              | NP            | NC  | NP          | NC  | 5             | NP/<br>Remote On/Off | NC/<br>Remote On/Off | NP/<br>Remote On/Off | NC/<br>Remote On/Off |
| 5              | NP            | NC  | NP          | NC  | 9             | NC                   |                      | Common               |                      |
| 9              | NP            | NC  | NP          | NC  | 10,15         | NC                   |                      | NC                   |                      |
| 10,15          | -V Output     |     | Common      |     | 11            | NC                   |                      | -V Output            |                      |
| 11,14          | +V Output     |     | +V Output   |     | 12,13         | NP                   | NC                   | NP                   | NC                   |
| 12,13          | -V Input      |     | -V Input    |     | 14            | +V Output            |                      | +V Output            |                      |
| 16             | NP            | NC  | NP          | NC  | 16            | -V Output            |                      | Common               |                      |
| 20             | NP            | NC  | NP          | NC  | 20,21         | NP                   | NC                   | NP                   | NC                   |
| 21             | NP            | NC  | NP          | NC  | 22,23         | +V Input             |                      | +V Input             |                      |

\* NC-NO CONNECTION WITH PIN  
\* NP-NO PIN  
\* Remote On/Off (Option)

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