



EC3SA SERIES

3 WATT WIDE INPUT DC-DC CONVERTERS



FEATURES

- * 3W Isolated Output
- * Compact SIP-8 Package
- * Efficiency to 86%
- * 2:1 Input Range
- * Regulated Outputs
- * Remote On/Off Control
- * 1500VDC Isolation
- * Continuous Short Circuit Protection
- * Under Voltage 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 | | |
| EC3SA-05S33N | 4.5-9.0 VDC | 3.3 VDC | 0 mA | 700 mA | 60 mA | 632 mA | 73 | 700uF |
| EC3SA-05S05N | 4.5-9.0 VDC | 5 VDC | 0 mA | 600 mA | 60 mA | 769 mA | 78 | 600uF |
| EC3SA-05S12N | 4.5-9.0 VDC | 12 VDC | 0 mA | 250 mA | 60 mA | 759 mA | 81 | 250uF |
| EC3SA-05S15N | 4.5-9.0 VDC | 15 VDC | 0 mA | 200 mA | 60 mA | 741 mA | 81 | 200uF |
| EC3SA-05D05N | 4.5-9.0 VDC | ±5 VDC | ±0 mA | ±300 mA | 60 mA | 769 mA | 78 | 300uF |
| EC3SA-05D12N | 4.5-9.0 VDC | ±12 VDC | ±0 mA | ±125 mA | 60 mA | 741 mA | 81 | 125uF |
| EC3SA-05D15N | 4.5-9.0 VDC | ±15 VDC | ±0 mA | ±100 mA | 60 mA | 741 mA | 81 | 100uF |
| EC3SA-12S33N | 9-18 VDC | 3.3 VDC | 0 mA | 700 mA | 30 mA | 253 mA | 76 | 700uF |
| EC3SA-12S05N | 9-18 VDC | 5 VDC | 0 mA | 600 mA | 30 mA | 309 mA | 81 | 600uF |
| EC3SA-12S12N | 9-18 VDC | 12 VDC | 0 mA | 250 mA | 30 mA | 301 mA | 83 | 250uF |
| EC3SA-12S15N | 9-18 VDC | 15 VDC | 0 mA | 200 mA | 30 mA | 298 mA | 84 | 200uF |
| EC3SA-12D05N | 9-18 VDC | ±5 VDC | ±0 mA | ±300 mA | 30 mA | 305 mA | 82 | 300uF |
| EC3SA-12D12N | 9-18 VDC | ±12 VDC | ±0 mA | ±125 mA | 30 mA | 301 mA | 83 | 125uF |
| EC3SA-12D15N | 9-18 VDC | ±15 VDC | ±0 mA | ±100 mA | 30 mA | 298 mA | 84 | 100uF |
| EC3SA-24S33N | 18-36 VDC | 3.3 VDC | 0 mA | 700 mA | 18 mA | 125 mA | 77 | 700uF |
| EC3SA-24S05N | 18-36 VDC | 5 VDC | 0 mA | 600 mA | 18 mA | 154 mA | 81 | 600uF |
| EC3SA-24S12N | 18-36 VDC | 12 VDC | 0 mA | 250 mA | 18 mA | 149 mA | 84 | 250uF |
| EC3SA-24S15N | 18-36 VDC | 15 VDC | 0 mA | 200 mA | 18 mA | 147 mA | 85 | 200uF |
| EC3SA-24D05N | 18-36 VDC | ±5 VDC | ±0 mA | ±300 mA | 18 mA | 156 mA | 80 | 300uF |
| EC3SA-24D12N | 18-36 VDC | ±12 VDC | ±0 mA | ±125 mA | 18 mA | 149 mA | 84 | 125uF |
| EC3SA-24D15N | 18-36 VDC | ±15 VDC | ±0 mA | ±100 mA | 18 mA | 147 mA | 85 | 100uF |
| EC3SA-48S33N | 36-75 VDC | 3.3 VDC | 0 mA | 700 mA | 9 mA | 63mA | 77 | 700uF |
| EC3SA-48S05N | 36-75 VDC | 5 VDC | 0 mA | 600 mA | 9 mA | 77 mA | 81 | 600uF |
| EC3SA-48S12N | 36-75 VDC | 12 VDC | 0 mA | 250 mA | 9 mA | 73 mA | 86 | 250uF |
| EC3SA-48S15N | 36-75 VDC | 15 VDC | 0 mA | 200 mA | 9 mA | 73 mA | 86 | 200uF |
| EC3SA-48D05N | 36-75 VDC | ±5 VDC | ±0 mA | ±300 mA | 9 mA | 77 mA | 81 | 300uF |
| EC3SA-48D12N | 36-75 VDC | ±12 VDC | ±0 mA | ±125 mA | 9 mA | 73 mA | 86 | 125uF |
| EC3SA-48D15N | 36-75 VDC | ±15 VDC | ±0 mA | ±100 mA | 9 mA | 73 mA | 86 | 100uF |

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):

| | |
|----------------|--------------|
| 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. |

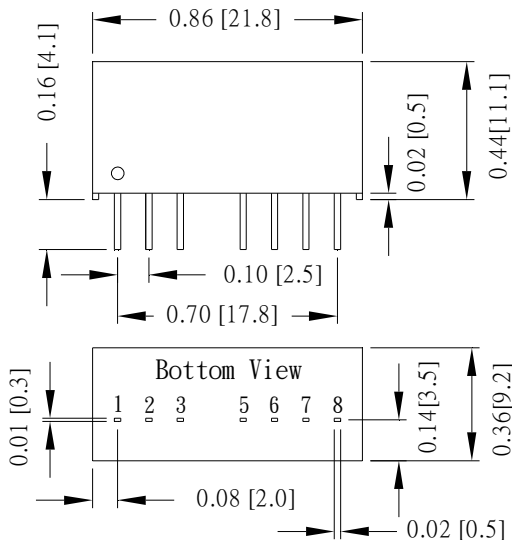
| | |
|---------------------------------|------------|
| Input Filter | Capacitive |
| Remote on/off control (note6): | |
| Module Off (input idle current) | 1mA max. |

OUTPUT SPECIFICATIONS:

| | |
|--|-------------------|
| Voltage Accuracy | ±1.5% max. |
| Voltage Balance(Dual) | ±1.0% max. |
| Cross regulation (Dual)(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 |
| 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. |

CASE SIP-8:

All Dimensions In Inches(mm)
 Tolerances : Inches millimeters
 X.XX±0.02 X.X±0.5
 Pin ±0.002 ±0.05



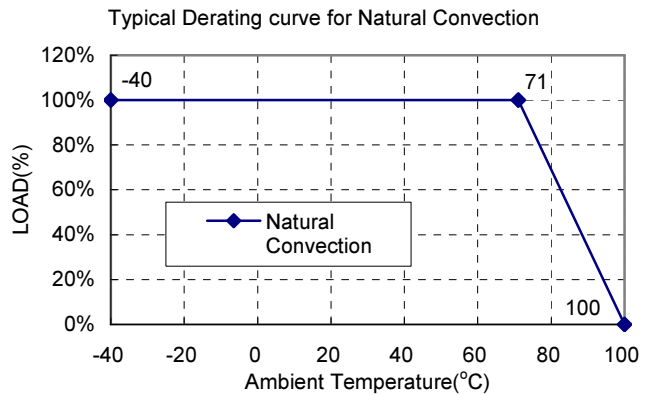
| PIN CONNECTION | | |
|----------------|--------|--------|
| Pin | Single | Dual |
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | On/Off | On/Off |
| 5 | NC | NC |
| 6 | +Vo | +Vo |
| 7 | -Vo | Common |
| 8 | NC | -Vo |

GENERAL SPECIFICATIONS:

| | |
|-------------------------------|---|
| Efficiency | See Table |
| Isolation Voltage | 1500VDC min. |
| Isolation Resistance | 10 ⁹ ohm min. |
| Isolation Capacitance | 500pF typ. |
| Switching Frequency | 100KHz max. |
| Operating Ambient Temperature | -40°C to +85°C |
| De-rating, Above 71°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-STD-217F, GB, 25°C, Full Load 2500khrs typ. |
| Dimensions | 0.86x0.36x0.44 inches(21.8x9.2x11.1 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" 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



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