



EC4BU SERIES 10 WATT 2:1 INPUT DC-DC CONVERTERS



FEATURES

- * 10W Isolated Output
- * Efficiency to 87%
- * 2:1 Input Range
- * Regulated Outputs
- * Fixed Switching Frequency
- * Input Under Voltage Protection
- * Over Current Protection
- * Conductive EMI Meets EN55022 Class A
- * Continuous Short Circuit Protection
- * Without Tantalum Capacitors Inside
- * 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 | | |
| EC4BU-05S33 | 4.7-9 VDC | 3.3 VDC | 0 mA | 2500 mA | 120 mA | 1897 mA | 87 | 2470uF |
| EC4BU-05S05 | 4.7-9 VDC | 5 VDC | 0 mA | 2000 mA | 120 mA | 2299 mA | 87 | 2000uF |
| EC4BU-05S12 | 4.7-9 VDC | 12 VDC | 0 mA | 833 mA | 50 mA | 2298 mA | 87 | 940uF |
| EC4BU-05S15 | 4.7-9 VDC | 15 VDC | 0 mA | 666 mA | 50 mA | 2297 mA | 87 | 690uF |
| EC4BU-05D05 | 4.7-9 VDC | ±5 VDC | 0 mA | ±1000 mA | 50 mA | 2353 mA | 85 | 1000uF |
| EC4BU-05D12 | 4.7-9 VDC | ±12 VDC | 0 mA | ±416 mA | 50 mA | 2295 mA | 87 | 440uF |
| EC4BU-05D15 | 4.7-9 VDC | ±15 VDC | 0 mA | ±333 mA | 50 mA | 2297 mA | 87 | 330uF |
| EC4BU-12S33 | 9-18 VDC | 3.3 VDC | 0 mA | 2500 mA | 30 mA | 838 mA | 82 | 2470uF |
| EC4BU-12S05 | 9-18 VDC | 5 VDC | 0 mA | 2000 mA | 30 mA | 980 mA | 85 | 2000uF |
| EC4BU-12S12 | 9-18 VDC | 12 VDC | 0 mA | 833 mA | 35 mA | 957 mA | 87 | 940uF |
| EC4BU-12S15 | 9-18 VDC | 15 VDC | 0 mA | 666 mA | 35 mA | 956 mA | 87 | 690uF |
| EC4BU-12D05 | 9-18 VDC | ±5 VDC | 0 mA | ±1000 mA | 45 mA | 980 mA | 85 | 1000uF |
| EC4BU-12D12 | 9-18 VDC | ±12 VDC | 0 mA | ±416 mA | 45 mA | 957 mA | 87 | 440uF |
| EC4BU-12D15 | 9-18 VDC | ±15 VDC | 0 mA | ±333 mA | 45 mA | 957 mA | 87 | 330uF |
| EC4BU-24S33 | 18-36 VDC | 3.3 VDC | 0 mA | 2500 mA | 25 mA | 419 mA | 82 | 2470uF |
| EC4BU-24S05 | 18-36 VDC | 5 VDC | 0 mA | 2000 mA | 25 mA | 490 mA | 85 | 2000uF |
| EC4BU-24S12 | 18-36 VDC | 12 VDC | 0 mA | 833 mA | 25 mA | 478 mA | 87 | 940uF |
| EC4BU-24S15 | 18-36 VDC | 15 VDC | 0 mA | 666 mA | 25 mA | 478 mA | 87 | 690uF |
| EC4BU-24D05 | 18-36 VDC | ±5 VDC | 0 mA | ±1000 mA | 25 mA | 490 mA | 85 | 1000uF |
| EC4BU-24D12 | 18-36 VDC | ±12 VDC | 0 mA | ±416 mA | 25 mA | 478 mA | 87 | 440uF |
| EC4BU-24D15 | 18-36 VDC | ±15 VDC | 0 mA | ±333 mA | 25 mA | 478 mA | 87 | 330uF |
| EC4BU-48S33 | 36-75 VDC | 3.3 VDC | 0 mA | 2500 mA | 20 mA | 212 mA | 81 | 2470uF |
| EC4BU-48S05 | 36-75 VDC | 5 VDC | 0 mA | 2000 mA | 20 mA | 245 mA | 85 | 2000uF |
| EC4BU-48S12 | 36-75 VDC | 12 VDC | 0 mA | 833 mA | 20 mA | 239 mA | 87 | 940uF |
| EC4BU-48S15 | 36-75 VDC | 15 VDC | 0 mA | 666 mA | 20 mA | 239 mA | 87 | 690uF |
| EC4BU-48D05 | 36-75 VDC | ±5 VDC | 0 mA | ±1000 mA | 20 mA | 245 mA | 85 | 1000uF |
| EC4BU-48D12 | 36-75 VDC | ±12 VDC | 0 mA | ±416 mA | 20 mA | 239 mA | 87 | 440uF |
| EC4BU-48D15 | 36-75 VDC | ±15 VDC | 0 mA | ±333 mA | 20 mA | 239 mA | 87 | 330uF |

NOTE: 1. Nominal Input Voltage 5, 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 | 5V | 4.7 - 9V |
| | 12V | 9 - 18V |
| | 24V | 18 - 36V |
| | 48V | 36 - 75V |
| Under Voltage Lockout | 5Vin power up: 4.4V | power down: 4.2V |
| | 12Vin power up: 8.4V | power down: 8V |
| | 24Vin power up: 17V | power down: 16V |
| | 48Vin power up: 34V | power down: 32V |
| Input Surge Voltage (100mS max.) | 5Vin | 12Vdc max. |
| | 12Vin | 25Vdc max. |
| | 24Vin | 50Vdc max. |
| | 48Vin | 100Vdc max. |
| Input Filter | PI Type | |

OUTPUT SPECIFICATIONS:

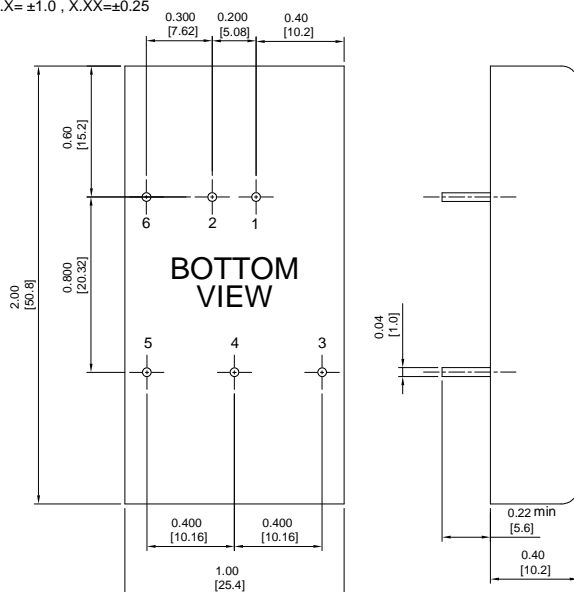
| | |
|--|----------------------------|
| Voltage Accuracy | ±1.5% max. |
| Voltage Balance (Dual) | ±2.0% max. |
| Transient Response: 25% Step Load Change | <500us |
| Ripple and Noise, 20MHz BW (Measured with 0.1uF MLCC) | 100mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note1) | Single ±0.2% max. |
| | Dual ±0.5% max. |
| Load Regulation (note2) | Single ±0.2% max. |
| | Dual ±1.0% max. |
| Cross Regulation (Dual output) Load cross variation 10%/100% | ±5% max. |
| Over Voltage Protection | Zener or TVS Clamp |
| Current Limit | 110% - 140% Nominal Output |
| Start up time | 20ms max. |

OPTION:

- Suffix "T" to the model number with remote positive on/off control:
 Logic Compatibility CMOS or open collector TTL, referenced to -Vin
 Module on >5.5VDC to 75VDC or open circuit
 Module off <1.2VDC
- Suffix "A" to the model number with output voltage adjustable
 external trim adj. range ≤ ±10%, single output models only.

CASE B Dimensions:

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA
 All Dimensions In Inches (mm)
 Tolerances Inches: X.XX= ±0.04 , X.XXX= ±0.010
 Millimeters: X.X= ±1.0 , X.XX=±0.25

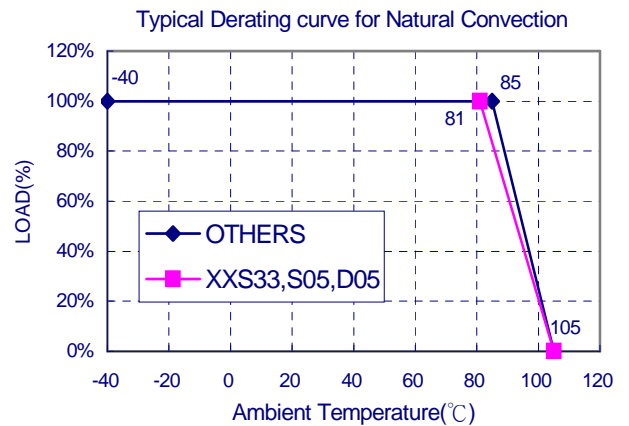


GENERAL SPECIFICATIONS:

| | |
|-------------------------------------|--|
| Efficiency | See Table |
| Isolation Voltage | 1500 VDC min. |
| Isolation Resistance | 10 ⁹ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 350KHz typ. |
| EMI/RFI | Conductive EMI Meets EN55022 Class A |
| Case Grounding | Connect Case to -Vin with Decoupling Y Cap. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Derating, Above 85°C | Linearly to Zero Power at +105°C |
| Case Temperature (Note 4) | 105°C |
| Cooling | Natural Convection |
| Storage Temperature Range | -55°C to +125°C |
| Humidity | 95% RH max. Non condensing |
| MTBF | MIL-STD-217-F, GB, 25°C, Full Load 1200Khrs |
| Dimensions | 2.00x1.00x0.4 inches (50.8x25.4x10.2 mm) |
| Case Material | Black Coated Copper with Non-Conductive Base |
| Weight | 35g |

NOTE:

- Measured from high line to low line.
- Measured from full load to min. load.
- Maximum case temperature under any operating condition should not be exceeded 105°C.



| PIN CONNECTION | |
|----------------|--------------------------|
| Pin | Function |
| 1 | +Input |
| 2 | -Input |
| 3 | +V Output |
| 4 | Common/NP/Trim(Optional) |
| 5 | -V Output |
| 6 | NP/Remote(Optional) |

*NP-NO PIN ON SINGLE OUTPUT