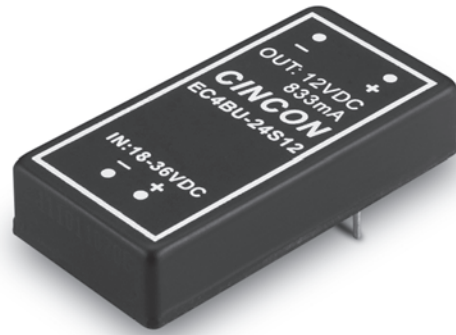


# EC4BU

S E R I E S

## 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
- Continuous Short Circuit 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	1987 mA	87	2470uF
EC4BU-05S05		5 VDC	0 mA	2000 mA	120 mA	2299 mA	87	2000uF
EC4BU-05S12		12 VDC	0 mA	833 mA	50 mA	2298 mA	87	940uF
EC4BU-05S15		15 VDC	0 mA	666 mA	50 mA	2297 mA	87	690uF
EC4BU-05D05		±5 VDC	0 mA	±1000 mA	50 mA	2353 mA	85	1000uF
EC4BU-05D12		±12 VDC	0 mA	±416 mA	50 mA	2295 mA	87	440uF
EC4BU-05D15		±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		5 VDC	0 mA	2000 mA	30 mA	980 mA	85	2000uF
EC4BU-12S12		12 VDC	0 mA	833 mA	35 mA	957 mA	87	940uF
EC4BU-12S15		15 VDC	0 mA	666 mA	35 mA	956 mA	87	690uF
EC4BU-12D05		±5 VDC	0 mA	±1000 mA	45 mA	980 mA	85	1000uF
EC4BU-12D12		±12 VDC	0 mA	±416 mA	45 mA	957 mA	87	440uF
EC4BU-12D15		±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		5 VDC	0 mA	2000 mA	25 mA	490 mA	85	2000uF
EC4BU-24S12		12 VDC	0 mA	833 mA	25 mA	478 mA	87	940uF
EC4BU-24S15		15 VDC	0 mA	666 mA	25 mA	478 mA	87	690uF
EC4BU-24D05		±5 VDC	0 mA	±1000 mA	25 mA	490 mA	85	1000uF
EC4BU-24D12		±12 VDC	0 mA	±416 mA	25 mA	478 mA	87	440uF
EC4BU-24D15		±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		5 VDC	0 mA	2000 mA	20 mA	245 mA	85	2000uF
EC4BU-48S12		12 VDC	0 mA	833 mA	20 mA	239 mA	87	940uF
EC4BU-48S15		15 VDC	0 mA	666 mA	20 mA	239 mA	87	690uF
EC4BU-48D05		±5 VDC	0 mA	±1000 mA	20 mA	245 mA	85	1000uF
EC4BU-48D12		±12 VDC	0 mA	±416 mA	20 mA	239 mA	87	440uF
EC4BU-48D15		±15 VDC	0 mA	±333 mA	20 mA	239 mA	87	330uF

NOTE: 1. Nominal Input Voltage 5, 12, 24 or 48 VDC

## Specifications

### 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 .....	< 500µs	
Ripple and Noise, 20MHz BW (Measured with 0.1µF MLCC) ..	100mV pk-pk max.	
Temperature Coefficient .....	±0.03%/°C max.	
Short Circuit Protection .....	Continuous	
Line Regulation <sup>1</sup> .....	Single .....	±0.2% max.
	Dual.....	±0.5% max.
Load Regulation <sup>2</sup> .....	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.	

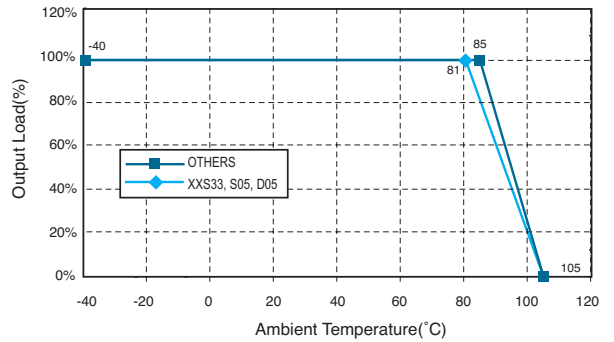
### OPTION:

- Suffix "T" to the Model Number With Remote Positive On/Off Control:  
 Logic Compatibility ...CMOS or Open Collector TTL, Referenced to -Vin  
 Module On .....
- Suffix "A" to the Model Number with Output Voltage Adjustable  
 External Trim Adj. Range ≥±10%, Single Output Models Only

### GENERAL SPECIFICATIONS:

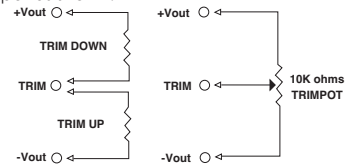
Efficiency .....	See Table
Isolation Voltage .....	1500 VDC min.
Isolation Resistance .....	10 <sup>9</sup> ohm min.
Isolation Capacitance .....	1000pF typ.
Switching Frequency .....	350KHz typ.
EMI/RFI .....	Conductive EMI Meets EN55022 Class A
Case Grounding .....	Connect Case to -Vin with Decoupling Y Cap
Operating Ambient Temperature Range .....	-40°C to +85°C
Derating, Above 85°C .....	Linearly to Zero Power at +105°C
Case Temperature <sup>1</sup> .....	105°C max.
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 .....
Dimensions .....	2.00x1.00x0.4 inches (50.8x25.4x10.2 mm)
Case Material .....	Black Coated Copper with Non-Conductive Base
Weight .....	35g

## EC4BU Series Derating Curve



### External Output Trimming

Output may optionally be externally trimmed (±10%) with a fixed resistor or an external trimpot as shown.



### 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	+Output
4	Common/NP/Trim(Optional)
5	-V Output
6	NP/Remote(Optional)

\*NP-NO PIN ON SINGLE OUTPUT

## CASE B

All Dimensions In Inches(mm)  
 Tolerance Inches: x.xx= ±0.04, x.xxx= ±0.010  
 Millimeters: x.x= ±1.0, x.xx= ±0.25

