



# EC5BU SERIES 15 WATT 2:1 INPUT DC-DC CONVERTERS

## FEATURES

- \* 15W Isolated Output
- \* Efficiency to 90%
- \* 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		
EC5BU-12S33	9-18 VDC	3.3 VDC	0 mA	4000 mA	90 mA	1280 mA	85	4000uF
EC5BU-12S05	9-18 VDC	5 VDC	0 mA	3000 mA	85 mA	1453 mA	88	3000uF
EC5BU-12S12	9-18 VDC	12 VDC	0 mA	1250 mA	70 mA	1420 mA	88	1330uF
EC5BU-12S15	9-18 VDC	15 VDC	0 mA	1000 mA	70 mA	1420 mA	88	1000uF
EC5BU-12D05	9-18 VDC	±5 VDC	0 mA	±1500mA	45 mA	1470mA	85	1470uF
EC5BU-12D12	9-18 VDC	±12 VDC	0 mA	±625mA	45 mA	1436mA	87	660uF
EC5BU-12D15	9-18 VDC	±15 VDC	0 mA	±500mA	45 mA	1420mA	88	550uF
EC5BU-24S33	18-36 VDC	3.3 VDC	0 mA	4000 mA	50 mA	640 mA	86	4000uF
EC5BU-24S05	18-36 VDC	5 VDC	0 mA	3000 mA	50 mA	718 mA	89	3000uF
EC5BU-24S12	18-36 VDC	12 VDC	0 mA	1250 mA	20 mA	695 mA	90	1330uF
EC5BU-24S15	18-36 VDC	15 VDC	0 mA	1000 mA	20 mA	695 mA	90	1000uF
EC5BU-24D05	18-36 VDC	±5 VDC	0 mA	±1500mA	25 mA	726 mA	86	1470uF
EC5BU-24D12	18-36 VDC	±12 VDC	0 mA	±625mA	25 mA	710 mA	88	660uF
EC5BU-24D15	18-36 VDC	±15 VDC	0 mA	±500mA	25 mA	702 mA	89	550uF
EC5BU-48S33	36-75 VDC	3.3 VDC	0 mA	4000 mA	25 mA	320 mA	86	4000uF
EC5BU-48S05	36-75 VDC	5 VDC	0 mA	3000 mA	30 mA	359 mA	88	3000uF
EC5BU-48S12	36-75 VDC	12 VDC	0 mA	1250 mA	20 mA	347 mA	90	1330uF
EC5BU-48S15	36-75 VDC	15 VDC	0 mA	1000 mA	20 mA	351 mA	90	1000uF
EC5BU-48D05	36-75 VDC	±5 VDC	0 mA	±1500mA	20 mA	363 mA	86	1470uF
EC5BU-48D12	36-75 VDC	±12 VDC	0 mA	±625mA	20 mA	355 mA	88	660uF
EC5BU-48D15	36-75 VDC	±15 VDC	0 mA	±500mA	20 mA	351 mA	89	550uF

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 - 75V
Under voltage lockout	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.)	12Vin	25Vdc max.
	24Vin	50Vdc max.
	48Vin	100Vdc max.
Input Filter		PI Type

## OUTPUT SPECIFICATIONS:

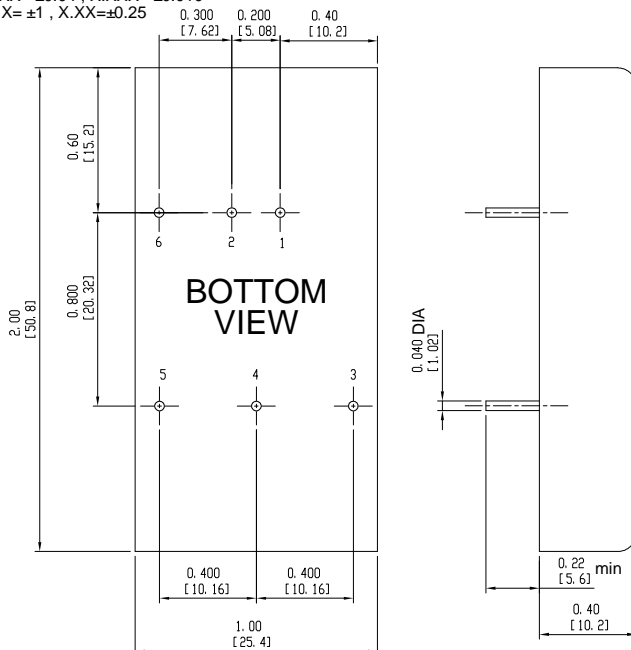
Voltage Accuracy	±1.5% max.
Voltage Balance (Dual)	±2.0% max.
Transient Response: 25% Step Load Change	<500u sec.
Ripple and Noise, 20MHz BW (Measured with 0.1uF MLCC)	100mV p-p max.
Temperature Coefficient	±0.03%/°C max.
Short Circuit Protection	Continuous
Line Regulation (Note 1)	Single ±0.2% max.
	Dual ±0.5% max.
Load Regulation (Note 2)	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:

All Dimensions In Inches (mm)  
 Tolerances Inches: X.XX= ±0.04 , X.XXX= ±0.010  
 Millimeters: X.X= ±1 , X.XX= ±0.25



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

\*NP-NO PIN ON SINGLE OUTPUT

## GENERAL SPECIFICATIONS:

Efficiency	See Table
Isolation Voltage	1500 VDC min.
Isolation Resistance	10 <sup>9</sup> Ohms 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 78°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 ..... 1200K.hrs typ.
Dimensions	2.00x1.00x0.4 inches (50.8x25.4x10.2mm)
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.

Typical Derating curve for Natural Convection

