



## EC2SBW SERIES 10 WATT 4:1 INPUT DC-DC CONVERTERS



### FEATURES

- \* 10W Isolated Output
- \* 1"×1"×0.4" Shielded Metal Case
- \* Efficiency to 86%
- \* 4:1 Input Range
- \* Regulated Outputs
- \* Input Under Voltage Protection
- \* Remote On/Off
- \* 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		
EC2SBW-24S33	9-36 VDC	3.3 VDC	0 mA	2500 mA	5 mA	425 mA	81	3300uF
EC2SBW-24S05	9-36 VDC	5 VDC	0 mA	2000 mA	5 mA	496 mA	84	2200uF
EC2SBW-24S12	9-36 VDC	12 VDC	0 mA	835 mA	10 mA	486 mA	86	1000uF
EC2SBW-24S15	9-36 VDC	15 VDC	0 mA	666 mA	10 mA	486 mA	86	680uF
EC2SBW-24D05	9-36 VDC	± 5 VDC	0 mA	±1000 mA	10 mA	496 mA	84	1200uF
EC2SBW-24D12	9-36 VDC	± 12 VDC	0 mA	±416 mA	10 mA	486 mA	86	470uF
EC2SBW-24D15	9-36 VDC	± 15 VDC	0 mA	±333 mA	10 mA	486 mA	86	330uF
EC2SBW-48S33	18-75 VDC	3.3 VDC	0 mA	2500 mA	5 mA	210 mA	82	3300uF
EC2SBW-48S05	18-75 VDC	5 VDC	0 mA	2000 mA	5 mA	248 mA	84	2200uF
EC2SBW-48S12	18-75 VDC	12 VDC	0 mA	835 mA	5 mA	243 mA	86	1000uF
EC2SBW-48S15	18-75 VDC	15 VDC	0 mA	666 mA	5 mA	243 mA	86	680uF
EC2SBW-48D05	18-75 VDC	± 5 VDC	0 mA	±1000 mA	5 mA	248 mA	84	1200uF
EC2SBW-48D12	18-75 VDC	± 12 VDC	0 mA	±416 mA	8 mA	243 mA	86	470uF
EC2SBW-48D15	18-75 VDC	± 15 VDC	0 mA	±333 mA	8 mA	243 mA	86	330uF

NOTE: 1. Nominal Input Voltage 24 or 48 VDC

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range	24V	9 – 36V
	48V	18 – 75V
Input Surge Voltage (100ms max.)	24V	50Vdc max.
	48V	100Vdc max.
Under voltage lockout	24Vin power up	8.8V typ.
	24Vin power down	8.0V typ.
	48Vin power up	17V typ.
	48Vin power down	16V typ.
Input Filter		LC Type
Positive Logic Remote on/off Control (note3):		
Logic Compatibility		CMOS or Open Collector TTL, Ref. to -Vin
Module ON		>+3.5V to 36VDC or Open Circuit
Module OFF		<1.2VDC

## OUTPUT SPECIFICATIONS:

Voltage Accuracy		±1.5% max.
Voltage Balance (Dual)		±1.0% max.
Transient Response: 75% - 100% Step Load Change		
Error Band	5% Vout nominal, Recovery Time	<500us
Ripple & Noise, 20MHz BW (note4)		
	Vo=3.3 & 5V	75mV pk-pk max.
	Vo=12 & 15V	100mV pk-pk max.
Temperature Coefficient		±0.03%/°C
Short Circuit Protection		Continuous
Line Regulation(note1)		±0.5% max.
Load Regulation(note2)	Single	±0.5% max.
	Dual	±1.0% max.
Cross Regulation(Dual output) Load cross variation 25%/100%		±5% max
Over Voltage Protection		Zener or TVS Clamp
External Trim Adj. Range (Single Output Models Only)		±10%
Start up time		3.5ms typ.

## GENERAL SPECIFICATIONS:

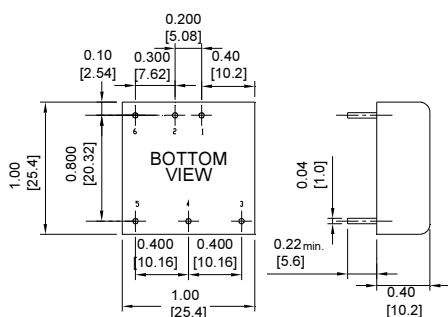
Efficiency		See Table
Isolation Voltage		1500 VDC min.
Isolation Resistance		10 <sup>9</sup> ohm min.
Isolation Capacitance		1000pF typ.
Switching Frequency		100KHz min.
Operating Ambient Temperature Range		-40°C to +85°C
Derating, Above 71°C		Linearly to Zero Power at +105°C
Case Temperature (note5)		105°C max.
Cooling		Natural Convection
Storage Temperature Range		-55°C to +125°C
Humidity		95% RH max. Non condensing
MTBF	MIL-STD-217F, GB	1300Khrs typ.
Dimensions		1.00x1.00x0.4 inches (25.4x25.4x10.2 mm)
Case Material		Black Coated Copper with Non-Conductive Base
Weight		18g

## NOTE :

1. Measured from high line to low line.
2. Measured from full load to min. load.
3. Suffix "N" to the model number with negative logic remote on/off
  - Module on <1.2VDC
  - Module off >+3.5VDC to 36VDC or open circuit
4. The output ripple and noise is measured with 10uF tantalum and 1uF ceramic capacitor across output.
5. Maximum case temperature under any operating condition should not be exceeded 105°C.

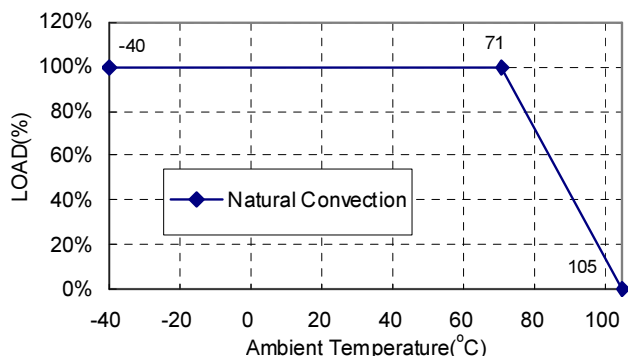
## SIZE SB Dimensions:

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA  
 All Dimensions In Inches (mm)  
 Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010  
 Millimeters: X.X= ±0.5, X.XX=±0.25



Pin	PIN CONNECTION	
	DIP Function	
1	Single	Dual
1	+Input	+Input
2	-Input	-Input
3	+V Output	+V Output
4	Trim	Common
5	-V Output	-V Output
6	Remote	Remote

Typical Derating curve for Natural Convection



## EXTERNAL OUTPUT TRIM

