



# EC9BW SERIES 30 WATT 4:1 INPUT DC-DC CONVERTERS

## FEATURE

- \* 30W Isolated Output
- \* Efficiency to 91%
- \* 1" X 2" Six-Sided Shield Metal Case
- \* 4:1 INPUT RANGE
- \* Regulated Outputs
- \* Fixed Switching Frequency
- \* Input under-voltage Protection
- \* Over Current Protection
- \* Remote ON/OFF
- \* Continuous Short Circuit Protection
- \* **Without Tantalum Capacitors inside**

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITIVE LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
EC9BW-24S33	9-36 VDC	3.3 VDC	0 mA	7500 mA	100 mA	1200 mA	88.5	7500µF
EC9BW-24S05	9-36 VDC	5 VDC	0 mA	6000 mA	110 mA	1421 mA	89.5	6000µF
EC9BW-24S12	9-36 VDC	12 VDC	0 mA	2500 mA	35 mA	1405 mA	90.5	2500µF
EC9BW-24S15	9-36 VDC	15 VDC	0 mA	2000 mA	35 mA	1405 mA	91	2000µF
EC9BW-24D12	9-36 VDC	±12 VDC	0 mA	±1250mA	35 mA	1437 mA	90	1250µF
EC9BW-24D15	9-36 VDC	±15 VDC	0 mA	±1000mA	35 mA	1437 mA	90	1000µF
EC9BW-48S33	18-75 VDC	3.3 VDC	0 mA	7500 mA	55 mA	600 mA	88	7500µF
EC9BW-48S05	18-75 VDC	5 VDC	0 mA	6000 mA	55 mA	711 mA	90	6000µF
EC9BW-48S12	18-75 VDC	12 VDC	0 mA	2500 mA	25 mA	695 mA	90	2500µF
EC9BW-48S15	18-75 VDC	15 VDC	0 mA	2000 mA	20 mA	688 mA	90.5	2000µF
EC9BW-48D12	18-75 VDC	±12 VDC	0 mA	±1250mA	25 mA	711 mA	90.5	1250µF
EC9BW-48D15	18-75 VDC	±15 VDC	0 mA	±1000mA	20 mA	711 mA	90	1000µF

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 .....		PI Type

Positive Logic Remote on/off Control: ( see note 3 & 4 )

## OUTPUT SPECIFICATIONS:

Voltage Accuracy .....	±1% max.
Voltage Balance(Dual) .....	±1% max.
Transient Response: 75% ~ 100% Step Load Change.	
Error Band .....	±5% Vout nominal, Recovery Time .....
Ripple & Noise, 20MHz BW (Measured with 0.1uF MLCC)	< 250us
Vo=3.3 & 5V .....	75mV p-p max.
Vo=12V & 15V & ±12V & ±15V .....	100mV p-p max
Temperature Coefficient .....	±0.02%/C max.
Line Regulation(Note1), ... single .....	±0.2% max.
Dual.....	±0.2% max
Load Regulation(Note2), ... single .....	±0.2% max.
Dual.....	±0.5% max
Cross Regulation(Dual output) Load cross variation 10%/100%.....	±5% max
Over Voltage Protection .....	Zener or TVS Clamp
Current Limit .....	110% - 160% Nominal Output
Output Short Circuit Protection .....	Continuous (Hiccup Mode)
External Trim Adj. Range ( single output models only ) .....	±10%
Start up time.....	10ms typ

## GENERAL SPECIFICATIONS:

Efficiency .....	See Table
Isolation Voltage .....	1500 VDC min.
Isolation Resistance .....	10 <sup>9</sup> Ohms min.
Isolation Capacitance.....	1000pF Typ
Switching Frequency .....	430KHz typ.
EMI/RFI.....	Conductive EMI Mee EN55022 Class A (Note6)
Operating Ambient Temperature Range.....	-40°C to +75°C
Derating, Above 65°C .....	Linearly to Zero Power at +105°C
Case Temperature (note 5) .....	105°C
Cooling .....	Natural Convection
Storage Temperature Range .....	-55°C to +125°C
Thermal Shutdown, Case Temp. ....	110°C Typ.
Humidity.....	95% RH max. Non condensing
MTBF.....	MIL-STD-217F.....T.B.D. hrs
Dimensions.....	2 x 1 x 0.4 inches (50.8 x 25.4 x 10.2 mm)
Case Material .....	Black Coated Copper with Non-Conductive Base
Weight .....	35g

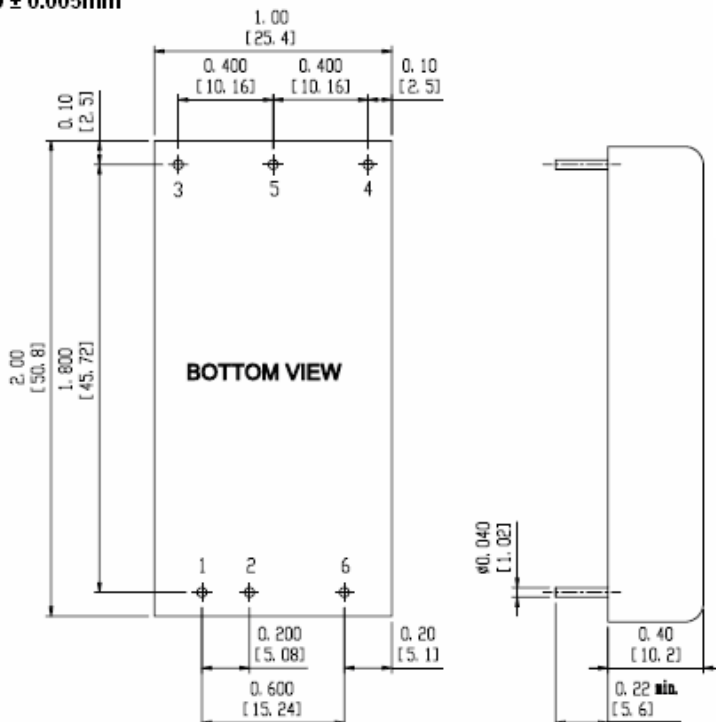
## NOTE :

1. Measured From High Line to Low Line
2. Measured From Full Load to min. Load
3. Logic Compatibility .... CMOS or Open Collector TTL, ref. to -Vin
  - Module ON .....
  - Module OFF .....
4. Suffix "N" to the Model Number with Negative Logic Remote ON/OFF
  - Module ON .....
  - Module OFF .....
5. Maximum case temperature under any operating condition should Not be exceeded 105°C.
6. Meet EN55022 Class A with external capacitor.(see application note )

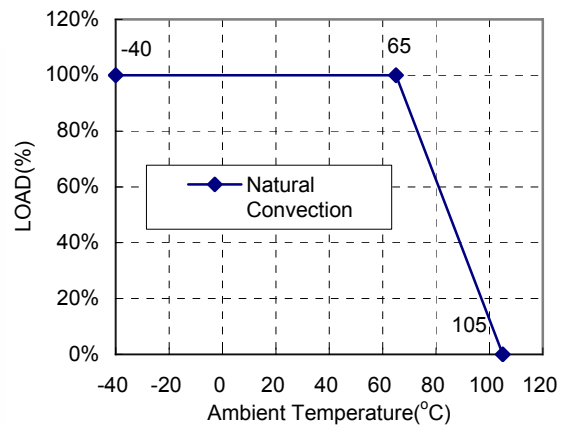
## SIZE B Dimensions:

### CASE B

All Dimensions in Inches (mm)  
 Tolerance Inches X.XX= ±0.02 , X.XXX= ±0.010  
 Millimeters X.X= ±0.5 , X.XX= ±0.25  
 Pin Diameter: 1.0 ± 0.005mm



Typical Derating curve for Natural Convection



PIN CONNECTION		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	-Vout
5	-Vout	Common
6	Remote ON/OFF	