



**30 Watts  
Wide Input  
DC-DC Converters**

**FEATURES**

- ◆ 30W Isolated Output
- ◆ Efficiency to 91%
- ◆ 2" X 1" Six-Sided Shield Metal Case
- ◆ **4:1 Input Range**
- ◆ Input under-voltage Protection
- ◆ Over Current 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

**SPECIFICATIONS**

DC/DC Converter

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: 8V typ. 48Vin power up: 17V typ. / 48Vin power down: 16V typ.
Input Filter .....	PI Type
Positive Logic Remote on/off Control .....	(note 3&4)
Voltage Accuracy .....	± 1% max.
Voltage Balance(Dual) .....	1% max.
Transient Response.....	75% ~ 100% Step Load Change
Error Band .....	5% Vout nominal / Recovery Time < 250us
Ripple & Noise.....	20MHz BW (Measured with 0.1uF MLCC)
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(Note 1).....	single: ± 0.2% max. / Dual: 0.2% max.
Load Regulation(Note 2).....	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.
Efficiency .....	See Table
Isolation Voltage .....	1500VDC 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 (Note 6)
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, GB, 25°C, Full Load .....	T.B.D. hrs
Dimensions.....	2.0 x 1.0 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 ..... >3.5VDC to 75VDC or Open Circuit  
     Module OFF ..... <1.2VDC  
 4. Suffix "N" to the Model Number with Negative Logic Remote ON/OFF  
     Module ON ..... <1.2VDC  
     Module OFF ..... >3.5VDC to 75VDC or Open Circuit  
 5. Maximum case temperature under any operating condition should not be exceeded 105°C  
 6. Meef EN55022 Class A with external capacitor.(see application note )

Model Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)		Input Current (mA)		EFF. TYP. %	Capacitor Load Max.
			Min.	Max.	NoLoad	FullLoad		
EC9BW-24S33	9-36	3.3	0	7500	100	1200	88.5	7500µF
EC9BW-24S05	9-36	5	0	6000	110	1421	89.5	6000µF
EC9BW-24S12	9-36	12	0	2500	35	1405	90.5	2500µF
EC9BW-24S15	9-36	15	0	2000	35	1405	91	2000µF
EC9BW-24D12	9-36	±12	0	±1250	35	1437	90	±1250µF
EC9BW-24D15	9-36	±15	0	±1000	35	1437	90	±1000µF
EC9BW-48S33	18-75	3.3	0	7500	55	600	88	7500µF
EC9BW-48S05	18-75	5	0	6000	55	711	90	6000µF
EC9BW-48S12	18-75	12	0	2500	25	695	90	2500µF
EC9BW-48S15	18-75	15	0	2000	20	688	90.5	2000µF
EC9BW-48D12	18-75	±12	0	±1250	25	711	90.5	±1250µF
EC9BW-48D15	18-75	±15	0	±1000	20	711	90	±1000µF

NOTE: 1. Nominal Input Voltage 24 or 48 VDC

### Derating Curve

Typical Derating curve for Natural Convection

### External Output Trim

## MECHANICAL DRAWING (Unit: inch[mm])

PINCONNECTION		
Pin	Single	Dual
1.	+Vin	+Vin
2.	-Vin	-Vin
3.	+Vout	+Vout
4.	Trim	Common
5.	-Vout	-Vout
6.	RemoteON/OFF	