

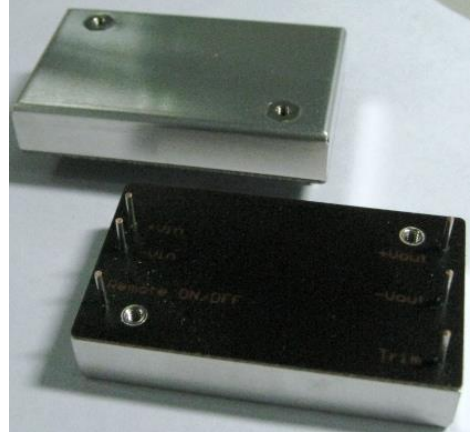


## ECLB60W SERIES 60 WATT 4:1 INPUT DC-DC CONVERTERS



### FEATURES

- \* 60W Isolated Output
- \* Efficiency to 92%
- \* 2.05"x1.2x0.4" 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
- \* No Tantalum Capacitor Inside
- \* CE Mark Meets 2004/108/EC
- \* Safety Meets UL60950-1, EN60950-1, and IEC60950-1
- \* Full Load Operation Up to 55°C with Heat-Sink M-C655 Natural Convection



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.		CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD	(3)	(2)	
ECLB60W-24S33	9-36 VDC	3.3 VDC	0 mA	15000 mA	10 mA	2279 mA	89.5	90.5	15000 $\mu$ F
ECLB60W-24S05	9-36 VDC	5 VDC	0 mA	12000 mA	10 mA	2717 mA	91	92	12000 $\mu$ F
ECLB60W-24S12	9-36 VDC	12 VDC	0 mA	5000 mA	10 mA	2717 mA	92	92	5000 $\mu$ F
ECLB60W-24S15	9-36 VDC	15 VDC	0 mA	4000 mA	10 mA	2717 mA	92	92	4000 $\mu$ F
ECLB60W-24D12	9-36 VDC	$\pm$ 12 VDC	0 mA	$\pm$ 2500 mA	10 mA	2747 mA	91	91	2500 $\mu$ F
ECLB60W-24D15	9-36 VDC	$\pm$ 15 VDC	0 Ma	$\pm$ 2000 mA	10 mA	2747 mA	91	91	2000 $\mu$ F
ECLB60W-48S33	18-75 VDC	3.3 VDC	0 mA	15000 mA	8 mA	1140 mA	90	90.5	15000 $\mu$ F
ECLB60W-48S05	18-75 VDC	5 VDC	0 mA	12000 mA	8 mA	1359 mA	92	92	12000 $\mu$ F
ECLB60W-48S12	18-75 VDC	12 VDC	0 mA	5000 mA	8 mA	1359 mA	92	92	5000 $\mu$ F
ECLB60W-48S15	18-75 VDC	15 VDC	0 mA	4000 mA	8 mA	1359 mA	92	92	4000 $\mu$ F
ECLB60W-48D12	18-75 VDC	$\pm$ 12 VDC	0 mA	$\pm$ 2500 mA	8 mA	1374 mA	91	91	2500 $\mu$ F
ECLB60W-48D15	18-75 VDC	$\pm$ 15 VDC	0 mA	$\pm$ 2000 mA	8 mA	1374 mA	91	91	2000 $\mu$ F

#### NOTE:

1. Nominal Input Voltage 24 or 48 VDC
2. Measured at Nominal Input Voltage
3. Measured at 12VDC for 24Vin, 24VDC for 48Vin

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range	24VDC	9 – 36VDC
	48VDC	18 – 75VDC
Input Surge Voltage (100ms max.)	24VDC	50VDC max.
	48VDC	100VDC max.
Under Voltage Lockout	24Vin Power Up	8.5VDC typ.
	24Vin Power Down	8.0VDC typ.
	48Vin Power Up	17VDC typ.
	48Vin Power Down	16VDC typ.
Input Filter		PI Type
Remote On/Off Control (note3)		

## OUTPUT SPECIFICATIONS:

Voltage Accuracy	±1.5% 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 1uF MLCC)	
Vo=3.3 & 5V	100mV pk-pk max.
Vo=12V&15V&±12V&±15V	150mV pk-pk max.
Temperature Coefficient	±0.02%/°C max.
Line Regulation (note1)	Single/Dual ±0.2% max.
Load Regulation (note2)	Single/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	30ms typ.

## GENERAL SPECIFICATIONS:

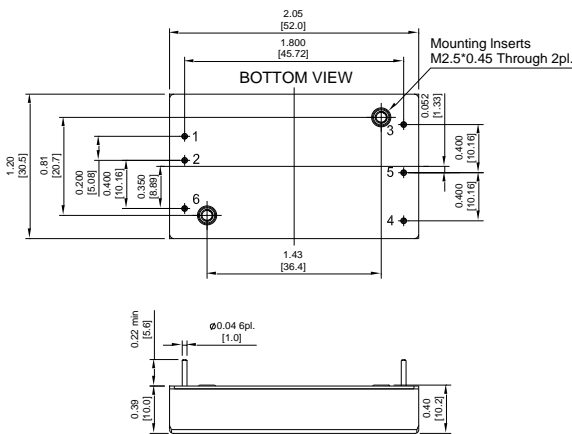
Efficiency	See Table
Isolation Voltage	Input/Output 1500VDC min.
	Input/Case, Output/Case 1000VDC min.
Isolation Resistance	10 <sup>9</sup> ohm min.
Isolation Capacitance	Input/Output 1500pF typ.
	Input/Case 1000pF typ.
	Output/Case 1000pF typ.
Switching Frequency	260KHz typ.
EMI/RFI	Six-Sided Continuous Shield
Operating Ambient Temperature Range	-40°C to +85°C
De-rating, Above 45°C	Linearly to Zero Power at +105°C
Case Temperature (note4)	105°C max.
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	Single TBDhrs typ.
	Dual TBDhrs typ.
Dimensions	2.05 x 1.20 x 0.40 inches (52 x 30.5 x 10.2 mm)
Case Material	Aluminum with Non-Conductive Base
Weight	39g

## 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, refer to -Vin.  
 Module on >3.5VDC to 75VDC or open circuit  
 Module off <1.2VDC
4. Maximum case temperature under any operating condition should not be exceeded 105°C.

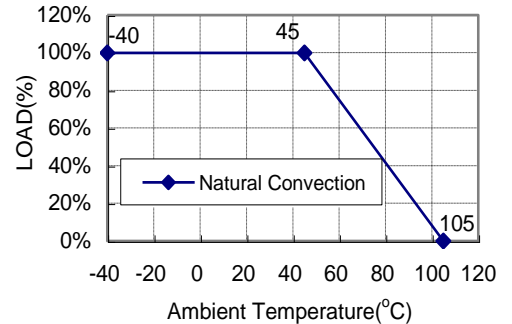
## SIZE LB Dimensions:

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA  
 All Dimensions in Inches[mm]  
 Tolerance Inches:x.xx=±0.02 ,x.xxx=±0.010  
 Millimeters:x.x=±0.5 , x.xx=±0.25

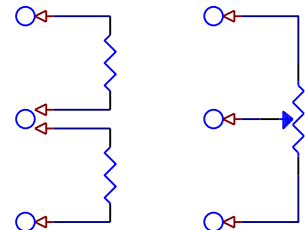


PIN CONNECTION		
PIN	Single Output	Dual Output
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	Trim	-V Output
5	-V Output	Common
6	Remote ON/OFF	

Typical Derating Curve



## External Output Trimming



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