



## ECLB60 SERIES 60 WATT 2:1 INPUT DC-DC CONVERTERS



### FEATURES

- \* 60W Isolated Output
- \* Efficiency to 93.5%
- \* 2.05"X1.2"X0.4" Six-Sided Shield Metal Case
- \* 2:1 Input Range
- \* Regulated Outputs
- \* Fixed Switching Frequency
- \* Input Under Voltage Protection
- \* Over Current Protection
- \* Remote On/Off
- \* Low No Load Power Consumption
- \* Continuous Short Circuit Protection
- \* No Tantalum Capacitor Inside
- \* Safety Meets UL60950-1, EN60950-1, and IEC60950-1
- \* Full Load Operation Up to 60°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		
ECLB60-12S33	9-18 VDC	3.3 VDC	0 mA	15 A	10 mA	4.59 A	90.5	15000μF
ECLB60-12S05	9-18 VDC	5 VDC	0 mA	12 A	10 mA	5.50 A	91.5	12000μF
ECLB60-12S12	9-18 VDC	12 VDC	0 mA	5 A	10 mA	5.45 A	92.5	5000μF
ECLB60-12S15	9-18 VDC	15 VDC	0 mA	4 A	10 mA	5.45 A	92.5	4000μF
ECLB60-24S33	18-36 VDC	3.3 VDC	0 mA	15 A	8 mA	2.28 A	91	15000μF
ECLB60-24S05	18-36 VDC	5 VDC	0 mA	12 A	8 mA	2.72 A	92.5	12000μF
ECLB60-24S12	18-36 VDC	12 VDC	0 mA	5 A	8 mA	2.69 A	93.5	5000μF
ECLB60-24S15	18-36 VDC	15 VDC	0 mA	4 A	8 mA	2.69 A	93.5	4000μF
ECLB60-48S33	36-75 VDC	3.3 VDC	0 mA	15 A	5 mA	1.14 A	91	15000μF
ECLB60-48S05	36-75 VDC	5 VDC	0 mA	12 A	5 mA	1.36 A	92	12000μF
ECLB60-48S12	36-75 VDC	12 VDC	0 mA	5 A	5 mA	1.35 A	93	5000μF
ECLB60-48S15	36-75 VDC	15 VDC	0 mA	4 A	5 mA	1.35 A	93	4000μF

#### NOTE:

1. Nominal Input Voltage 12, 24, 48 VDC
2. Measured at Nominal Input Voltage

# SPECIFICATIONS

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

## INPUT SPECIFICATIONS:

Input Voltage Range .....	12VDC .....	9 – 18VDC
	24VDC .....	18 – 36VDC
	48VDC .....	36 – 75VDC
Input Surge Voltage (100ms max.) .....	12VDC .....	25VDC max.
	24VDC .....	50VDC max.
	48VDC .....	100VDC max.
Under Voltage Lockout .....	12Vin Power Up .....	8.5VDC typ.
	12Vin Power Down .....	8VDC typ.
	24Vin Power Up .....	17VDC typ.
	24Vin Power Down .....	16VDC typ.
	48Vin Power Up .....	34VDC typ.
	48Vin Power Down .....	32VDC typ.

Positive Logic Remote ON/OFF Control (note3&4).

Input Filter ..... Pi Type

## OUTPUT SPECIFICATIONS:

Voltage Accuracy .....	±1.5% max.
Transient Response: 75% ~ 100% Step Load Change	
Error Band .....	±5% Vout nominal, Recovery Time < 250µs
Ripple & Noise, 20MHz BW (Measured with 1uF MLCC)	
Vo=3.3 & 5V .....	100mV pk-pk max.
Vo=12V & 15V .....	150mV pk-pk max.
Temperature Coefficient .....	±0.02%/°C max.
Line Regulation (note1) .....	Single..... ±0.2% max.
Load Regulation (note2) .....	Single..... ±0.5% max.
Over Voltage Protection .....	Zener or TVS Clamp
Current Limit .....	110% - 150% 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:

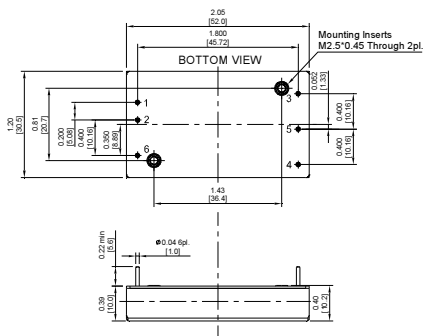
Efficiency .....	See Table
Isolation Voltage .....	Input/Output..... 1500VDC min.
..... Input/Case, Output/Case.....	1000VDC min.
Isolation Resistance .....	10 <sup>9</sup> ohm min.
Isolation Capacitance .....	Input/Output..... 1500pF typ.
..... Input/Case, Output/Case.....	1000pF typ.
Switching Frequency .....	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 (note5) .....	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-HDBK-217F, GB, 25°C, Full Load ...XXS05, XXS12 ...	900Khrs typ.
..... Others .....	1100Khrs typ.
Dimensions .....	2.05 x 1.20 x 0.40 inches (52.0 x 30.5 x 10.2 mm)
Case Material .....	Aluminum with Non-Conductive Base
Weight .....	39g

## NOTE :

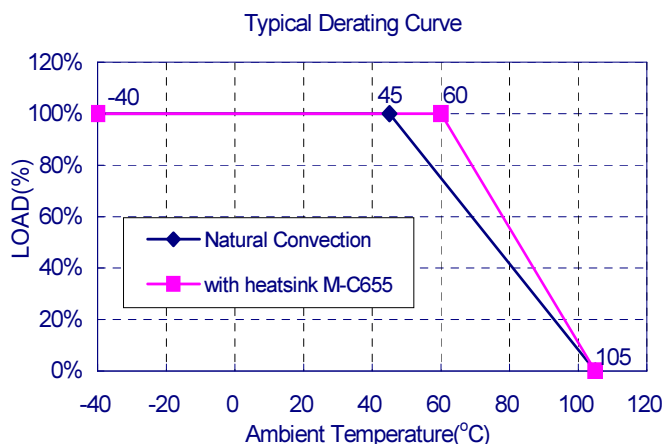
1. Measured from high line to low line.
2. Measured from full load to min. load.
3. Logic Compatibility ... CMOS or open collector TTL, Referenced to -Vin.  
Module on ..... >3.5VDC to 75VDC or open circuit  
Module off ..... 0 to < 1.2VDC
4. Suffix "N" to the model number with negative logic remote on/off  
Module on ..... 0 to < 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.

## 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.xxx±0.02, x.xxx±0.010  
Millimeters:x.x±0.5, x.xx±0.25



## Derating Curve



## External Output Trimming

