ECLB40W-110 SERIES 40 WATT 4:1 INPUT DC-DC CONVERTERS

E176177

Railway System

FEATURES



* 40W Isolated Output
* Efficiency to 91%
* 2.05'' X1.2" X0.4'' Six-Sided Shield Metal Case
* 4:1 Input Range
* Regulated Outputs
* Fixed Switching Frequency
* Input Under Voltage Protection
* Over Current Protection
* Remote On/Off
* Low No Load Power Consumption
* Continuous Short Circuit Protection
* No Tantalum Capacitor Inside
* UL60950-1 2nd (Basic Insulation) Approval
* Meets EN50155 with External Circuits
* Fire & Smoke Meets EN45545-2
* 3000m Operating Altitude
* Full Load Operation Up to 69℃ 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		
ECLB40W-110S33	43-160 VDC	3.3 VDC	0 mA	10000 mA	6 mA	340 mA	88%	10000μF
ECLB40W-110S05	43-160 VDC	5 VDC	0 mA	8000 mA	6 mA	409 mA	88.5%	8000μF
ECLB40W-110S12	43-160 VDC	12 VDC	0 mA	3333 mA	6 mA	404 mA	90%	3300μF
ECLB40W-110S15	43-160 VDC	15 VDC	0 mA	2666 mA	6 mA	399 mA	91%	2700μF
ECLB40W-110D12	43-160 VDC	±12 VDC	0 mA	±1667 mA	6 mA	408 mA	88%	1650μF
ECLB40W-110D15	43-160 VDC	±15 VDC	0 mA	±1333 mA	6 mA	408 mA	88.5%	1350μF
ECLB40W-110D24	43-160 VDC	±24 VDC	0 mA	±833 mA	6 mA	408 mA	89%	850μF

NOTE:

1. Nominal Input Voltage 110 VDC

SPECIFICATIONS

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

INPUT SPECIFICATIONS:

Input Voltage Range ..... 110V 43-160V
Input Surge Voltage (100ms max.) ..... 200Vdc max.
Under Voltage Lockout ..... Power up 40V
Power down 38V
Positive Logic Remote On/Off (note4&5)
Input Filter ..... Pi Type

OUTPUT SPECIFICATIONS:

Voltage Accuracy ..... ±1.5% max.
Voltage Balance (Dual Output) ..... ±1.0% max.
Transient Response: 25% Step Load Change
Error Band ..... ±5% Vout Nominal Recovery Time ..... <250μs
External Trim Adj. Range (Single Output Models Only) ..... ±10%
Ripple & Noise, 20MHz BW (Measured with 1uF MLCC)
Vo= 3.3V&5V ..... 100mV pk-pk max
Vo=12V, 15V, ±12V& ±15V ..... 150mV pk-pk max.
Vo=±24V ..... 200mV pk-pk max.
Temperature Coefficient ..... ±0.02%/°C max.
Short Circuit Protection ..... Continuous
Line Regulation (note1) ..... ±0.2% max.
Load Regulation (note2) ..... Single ..... ±0.5% max.
Dual..... ±1.0% max.
Cross Regulation (Dual output) Load cross variation 10%/100% ..... ±5.0% max.
Over Voltage Protection ..... Zener or TVS Clamp
Current Limit ..... 110%-165% Nominal Output
Start up time ..... 15ms typ.

GENERAL SPECIFICATIONS:

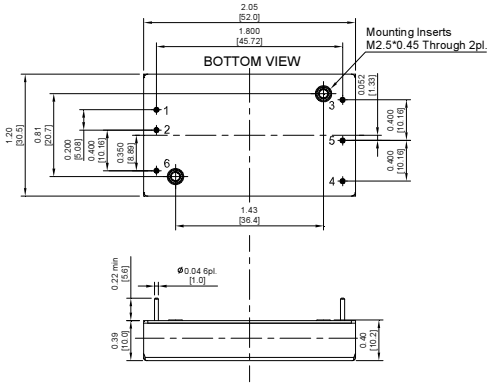
Efficiency ..... See Table
Isolation Voltage ..... Input/Output ..... 3000VDC min.
Input/Case, Output/Case .... 1600VDC min.
Isolation Resistance ..... 10^9 Ohms min.
Isolation Capacitance ..... 1500pF typ.
Case grounding ..... Output/case .....1000pF typ.
Switching Frequency ..... 250KHz typ.
EMI/RFI ..... Six-Sided Continuous Shield
Operating Ambient Temperature Range ..... -40℃ to +85℃
De-rating, Above 45℃ ..... Linearly to Zero Power at +105℃
Case Temperature (note5) ..... 105℃ max.
Cooling ..... Natural Convection
Storage Temperature Range ..... -55℃ to +125℃
Thermal Shutdown, Case Temp. ..... 110℃ typ.
Humidity ..... 95% RH max. Non-Condensing
MTBF ..... MIL-HDBK-217F, GB, 25℃, Full Load ..... 905Khrs typ.
Safety .....meet UL60950-1 2nd (Basic insulation)
EMC(note6) ..... meet EN50155(EN50121-3-2) with external filter
Shock/Vibration ..... meet EN50155(EN61373)
Dimensions 2.05x1.20x0.40inches (52x30.5x10.2mm)
Case Material ..... Aluminum with Non-Conductive Base
Weight 36g

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 < 1.2 VDC
   Module off ..... >3.5VDC to 75VDC or open circuit
5. Maximum case temperature under any operating condition should not be Exceeded 105℃.
6. For information about EN50155 and RIA12, refer to application note.

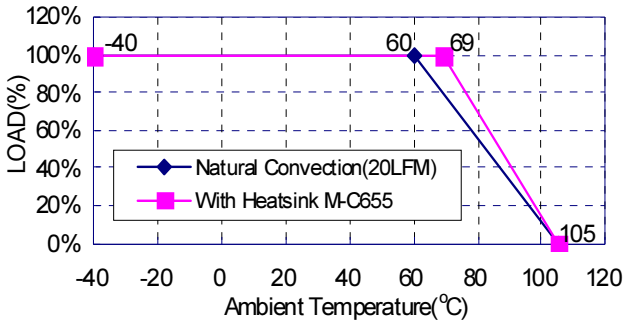
SIZE LB Dimensions:

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	

ECLB40W-110S15 Typical Derating Curve



External Output Trimming

