EC9B SERIES
30 WATT 2:1 INPUT DC-DC CONVERTERS

FEATURES

* 30W Isolated Output
* Efficiency to 92%
* 2'' X1'' Six-Sided Shield Metal Case
* Fixed Switching Frequency
* 2: 1 Input Range
* Regulated Outputs
* 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

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
EC9B-12S33	9-18 VDC	3.3 VDC	0mA	7500mA	170mA	2371mA	87	7500μF
EC9B-12S05	9-18 VDC	5 VDC	0mA	6000mA	150mA	2841mA	88	6000μF
EC9B-12S12	9-18 VDC	12 VDC	0mA	2500mA	55mA	2732mA	91.5	2500μF
EC9B-12S15	9-18 VDC	15 VDC	0mA	2000mA	80mA	2762mA	90.5	2000μF
EC9B-12D12	9-18 VDC	±12 VDC	0mA	±1250mA	55mA	2793mA	89.5	1250μF
EC9B-12D15	9-18 VDC	±15 VDC	0mA	±1000mA	60mA	2778mA	90	1000μF
EC9B-24S33	18-36 VDC	3.3 VDC	0mA	7500mA	110mA	1172mA	88	7500μF
EC9B-24S05	18-36 VDC	5 VDC	0mA	6000mA	90mA	1389mA	90	6000μF
EC9B-24S12	18-36 VDC	12 VDC	0mA	2500mA	50mA	1359mA	92	2500μF
EC9B-24S15	18-36 VDC	15 VDC	0mA	2000mA	80mA	1374mA	91	2000μF
EC9B-24D12	18-36 VDC	±12 VDC	0mA	±1250mA	40mA	1366mA	91.5	1250μF
EC9B-24D15	18-36 VDC	±15 VDC	0mA	±1000mA	40mA	1366mA	91.5	1000μF
EC9B-48S33	36-75 VDC	3.3 VDC	0mA	7500mA	70mA	586mA	88	7500μF
EC9B-48S05	36-75 VDC	5 VDC	0mA	6000mA	50mA	698mA	89.5	6000μF
EC9B-48S12	36-75 VDC	12 VDC	0mA	2500mA	30mA	687mA	91	2500μF
EC9B-48S15	36-75 VDC	15 VDC	0mA	2000mA	50mA	691mA	90.5	2000μF
EC9B-48D12	36-75 VDC	±12 VDC	0mA	±1250mA	40mA	691mA	90.5	1250μF
EC9B-48D15	36-75 VDC	±15 VDC	0mA	±1000mA	45mA	691mA	90.5	1000μF

NOTE: 1. Nominal Input Voltage 12, 24 or 48VDC

SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25℃ 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 ..... 8.8VDC typ.
12Vin Power Down ..... 8.0VDC 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 (Note 3 & 4)
Input Filter ..... PI Type

OUTPUT SPECIFICATIONS:

Voltage Accuracy ..... ±1.0% max.
Voltage Balance (Dual) ..... ±1.0% 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)
3.3V & 5V ..... 75mV pk-pk max.
12V & 15V & ±12V & ±15V ..... 100mV pk-pk max.
Temperature Coefficient ..... ±0.03%/°C
Line Regulation (Note 1) ..... Single/Dual ..... ±0.2% max.
Load Regulation (Note 2) ..... Single ..... ±0.5% max.
Dual ..... ±1.0% max.
Cross Regulation (Dual Output) Load Cross Variation 10%/100% ... ±5% max.
Over Voltage Protection ..... Zener or TVS Clamp
Output Short Circuit Protection ..... Continuous
Output Current Limit, % Nominal Output ..... 110% ~150%
External Trim Adj. Range (Single Output Models Only) ..... ±10%
Start Up Time ..... 5ms typ.

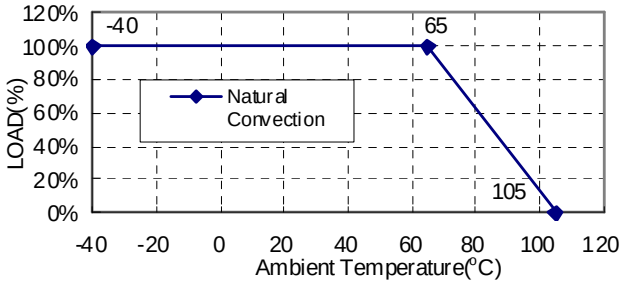
GENERAL SPECIFICATIONS:

Efficiency ..... See Table
Isolation Voltage ..... Input/Output ..... 1500VDC max.
Isolation Resistance ..... 10^9 ohm min.
Isolation Capacitance ..... 1000pF typ.
Switching Frequency ..... 400KHz, typ.
EMI/RFI ..... Six-Sided Continuous Shield
Operating Ambient Temperature ..... -40℃ to +85℃
De-rating, Above 65℃ ..... Linearly to Zero Power at 105℃
Case Temperature (Note 5) ..... 105℃ max.
Cooling ..... Natural Convection
Storage Temperature ..... -55℃ to +125℃
Thermal Shutdown, Case Temp. ..... 110℃
Humidity ..... 95% RH max. Non-Condensing
MTBF ... MIL-STD-217F, GB, 25℃, Full Load ... Single ..... 900Khrs typ.
Dual ..... 700Khrs typ.
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 :

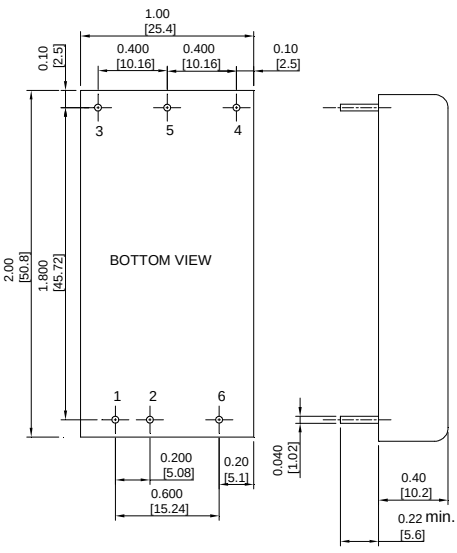
1. Measured From High Line to Low Line.
2. Measured From Full Load to 0% Load.
3. Logic Compatibility ... CMOS or Open Collector TTL, Referenced to –Vin.
   Module On ..... >3.5VDC to 75VDC or Open Circuit
   Module Off ..... <1.2Vdc.
4. Suffix "N" to the Model Number with Negative Logic Remote ON/OFF
   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℃.

Typical Derating curve for Natural Convection



Case B Dimensions:

All Dimensions In Inches (mm)
Tolerances Inches X.XX= ±0.02 , X.XXX= ±0.010
Millimeters X.XX= ±0.5 , X.XXX= ±0.25



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

EXTERNAL OUTPUT TRIM