



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°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	8.8VDC 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	100pF typ.
Switching Frequency	400KHz, typ.
EMI/RFI	Six-Sided Continuous Shield
Operating Ambient Temperature	-40°C to +85°C
De-rating, Above 65°C	Linearly to Zero Power at 105°C
Case Temperature (Note 5)	105°C max.
Cooling	Natural Convection
Storage Temperature	-55°C to +125°C
Thermal Shutdown, Case Temp.	110°C
Humidity	95% RH max. Non-Condensing
MTBF ... MIL-STD-217F, GB, 25°C, Full Load ... Single	900Khrs typ.
Dual	700Khrs typ.

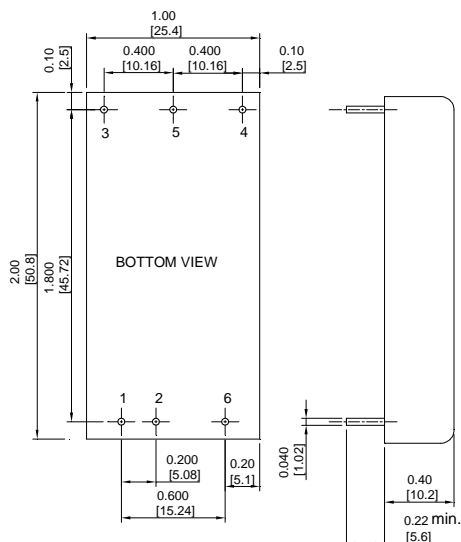
Dimensions	2 x 1 x 0.4 inches (50.8 x 25.4 x 10.2 mm)
Case Material	Black Coated Copper with Non-Conductive Base
Weight	35g

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°C.

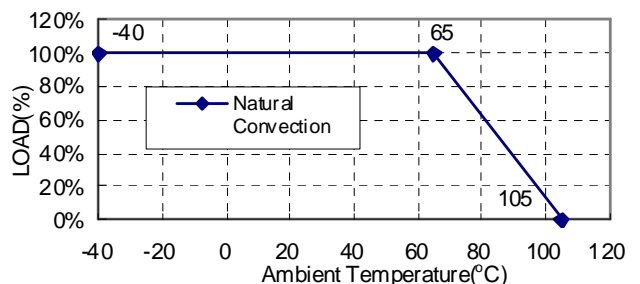
Case B Dimensions:

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

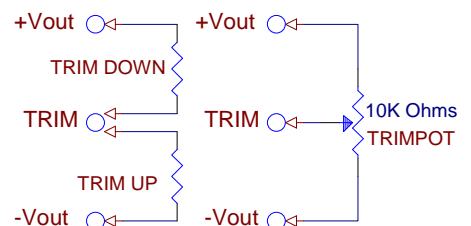


PIN CONNECTION		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	-Vout
5	-Vout	Common
6	Remote ON/OFF	

Typical Derating curve for Natural Convection



EXTERNAL OUTPUT TRIM



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