

Features

- ◇ 1 Watt Output Power
- ◇ Output Current up to 303mA
- ◇ Un-Regulated Output
- ◇ ±10% Input Voltage Range
- ◇ Efficiency up to 81%
- ◇ 3000 VDC Isolation Voltage
- ◇ Single-In-Line Package (SIP)
- ◇ Industrial Standard Pin-out
- ◇ UL94V-0 Package Material
- ◇ Operating Temperature Range -40~85 °C
(Non-Derating)
- ◇ 3 Years Warranty



Description

B31NH series are isolated 1 Watt DC/DC converters in miniature SIP-7pin packages, and allow a ±10% range input voltage of 5V, 12V and 24V to convert to a standard output voltage of 3.3V, 5V, 12V, 15V, ±5V, ±12V and ±15V.

Applications

- △ Automatic Control System
- △ Industry Computer
- △ Communication System
- △ Distribute Power System
- △ Movable/Portable Test Equipment
- △ Local Power System
- △ Other Applications meet Specifications

General Specifications

Parameter	Condition	Min.	Typ.	Max.
Storage Temperature	Ambient	-40	---	+125 °C
Operating Temperature	Ambient	-40	---	+85 °C
	Case	-40	---	+90 °C
Relative Humidity		---	---	95 %
Isolation Voltage	Input to Output, 60 sec.	3 KVDC	---	---
Isolation Resistance	Input to Output	10 G ohm	---	---
Isolation Capacitance	Input to Output	---	---	120 pF
Switching Frequency	Max. Load	---	80 KHz	---
MTBF	Vin-N, Max. Load, 25°C	---	2 Mhrs	---
Weight	Epoxy	---	2.8 g	---
Dimensions	See Package Dimensions			
Case Material	Non-Conductive Black Plastic (Meets UL94V-0)			

Selection Guide

Part Number	Input			Output			Efficiency	Load Regulation	Cap. Load ⁽⁷⁾
	Voltage	Current		Voltage	Current				
	Nominal (Low ~ High)	No Load	Max. Load	Typ.	Min.	Max.	Max. Load	Max.	Max.
		Typ.	Typ.				Typ.		
VDC	mA	mA	VDC	mA	mA	%	%	μF	
B31NH-0503S	5 (4.5~5.5)	40	271	3.3	6.1	303	74	10	220
B31NH-0505S			257	5	4	200	78	10	220
B31NH-0512S			256	12	1.7	84	79	7	220
B31NH-0515S			255	15	1.3	67	79	7	220
B31NH-0505D			274	± 5	± 1	± 100	73	10	100
B31NH-0509D			258	± 9	± 0.8	± 56	78	8	100
B31NH-0512D			252	± 12	± 0.8	± 42	80	7	100
B31NH-0515D			248	± 15	± 0.7	± 33	80	7	100
B31NH-1203S	12 (10.8~13.2)	20	110	3.3	6.1	303	76	8	220
B31NH-1205S			106	5	4	200	79	8	220
B31NH-1212S			105	12	1.7	84	80	6	220
B31NH-1215S			105	15	1.3	67	80	6	220
B31NH-1205D			112	± 5	± 1	± 100	75	8	100
B31NH-1209D			106	± 9	± 0.8	± 56	79	7	100
B31NH-1212D			104	± 12	± 0.8	± 42	81	6	100
B31NH-1215D			102	± 15	± 0.7	± 33	81	6	100
B31NH-2403S	24 (21.6~26.4)	10	58	3.3	6.1	303	73	7	220
B31NH-2405S			55	5	4	200	77	7	220
B31NH-2412S			55	12	1.7	84	77	5	220
B31NH-2415S			54	15	1.3	67	78	5	220
B31NH-2405D			58	± 5	± 1	± 100	73	7	100
B31NH-2409D			55	± 9	± 0.8	± 56	77	6	100
B31NH-2412D			54	± 12	± 0.8	± 42	79	5	100
B31NH-2415D			53	± 15	± 0.7	± 33	79	5	100

Note:

- 1) All specifications are measured at nominal input voltage, constant resistive load between Min. and Max. output current, and probe bandwidth should be under 20MHz, Ta = +25°C.
- 2) When the Load is at No-Load or lower than Min. output current, the DC/DC converters will not be damaged; however, all the parameters may be not reaching all specifications listed.
- 3) Output Ripple & Noise Test please refer to E-Chin Technology Co., Ltd. proposed test-method.
- 4) Load Regulation and Line Regulation calculation please refer to E-Chin Technology Co., Ltd. proposed formula.
- 5) An external fuse is needed at the front end of DC/DC converters for a protection as a recommended settlement in order to avoid a surge current or a maximum input current.
- 6) "Vin-H" means "Vin-High", "Vin-N" means "Vin-Nominal", and "Vin-L" means "Vin-Low".
- 7) The total Capacitive Loads of output should be lower than the value written above.
- 8) Other Input Voltages, Output Voltages and Specifications would be available, please contact us.

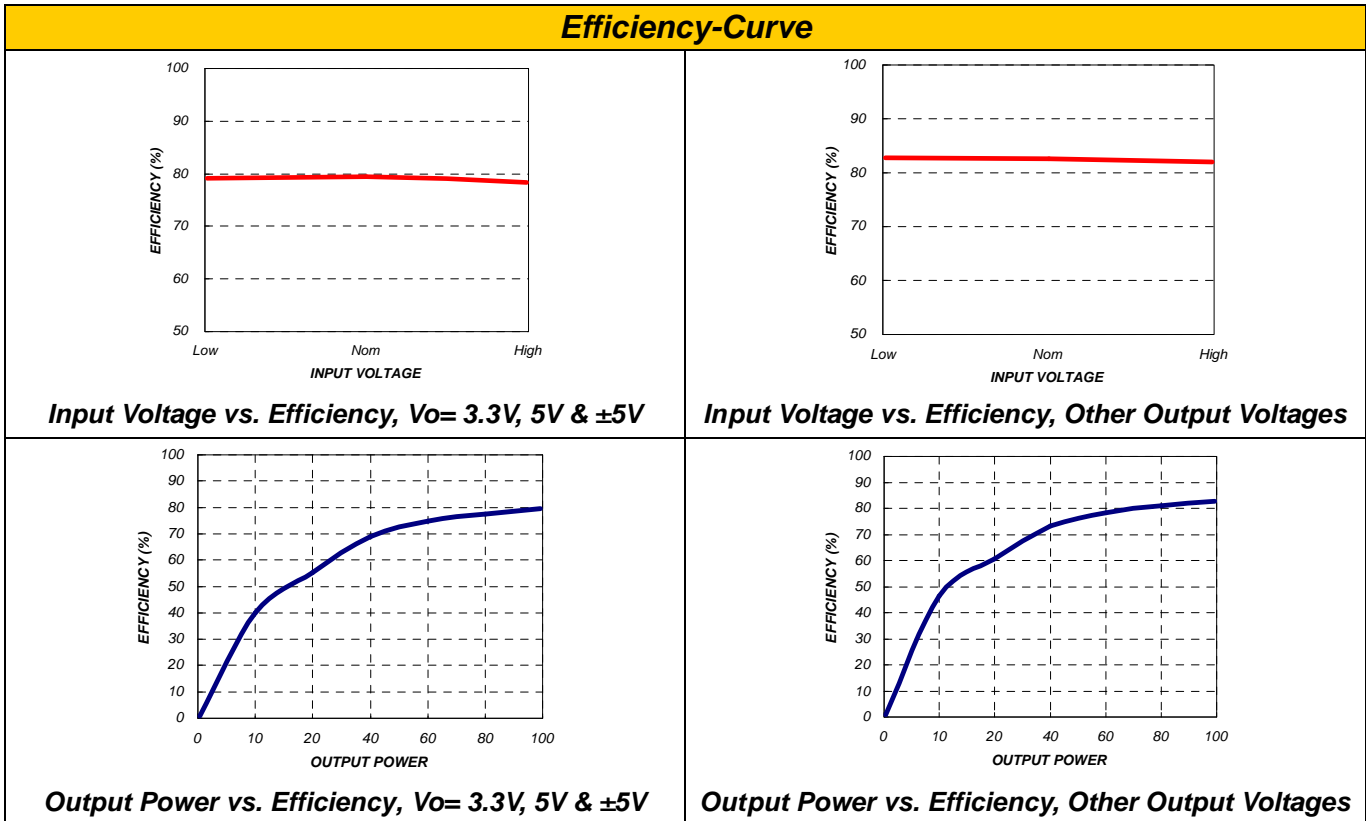
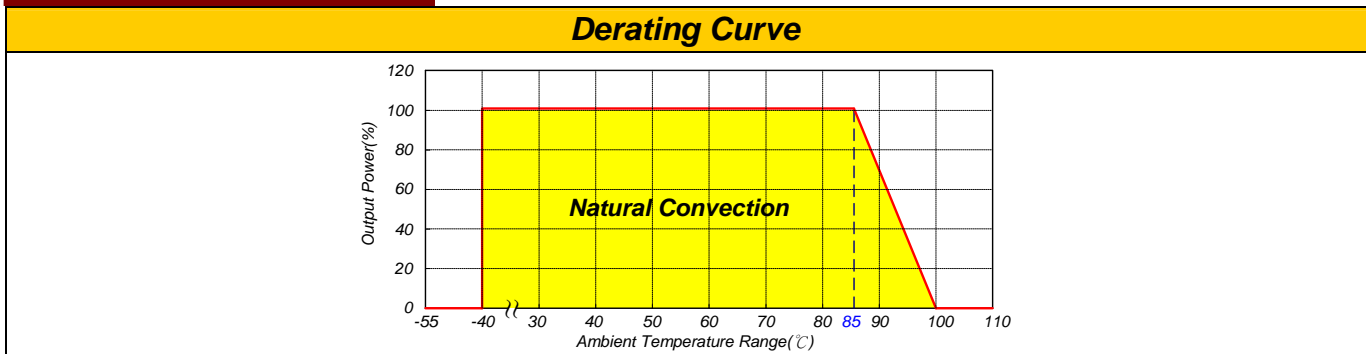
Input Specifications

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range	5VDC models	4.5	5	5.5 V
	12VDC models	10.8	12	13.2 V
	24VDC models	21.6	24	26.4 V
Input Filter	All models	Internal Capacitor		

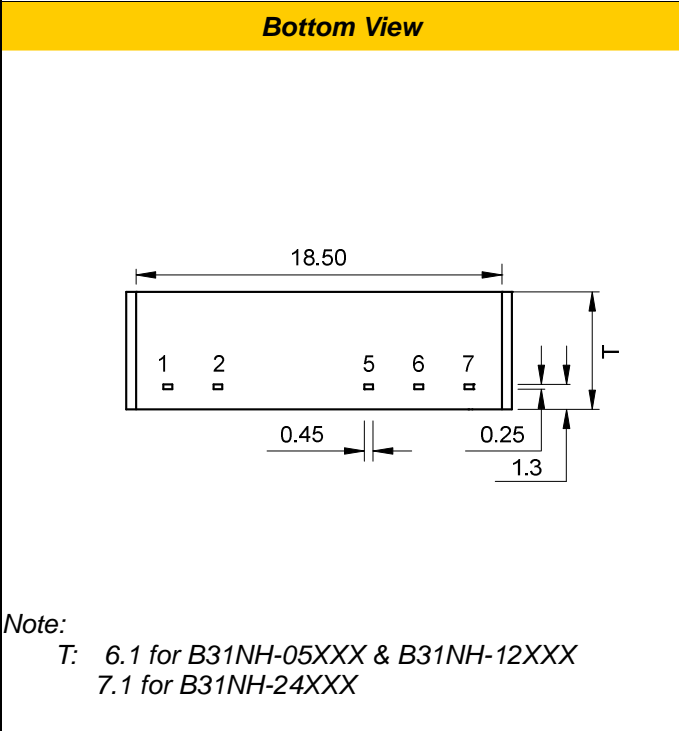
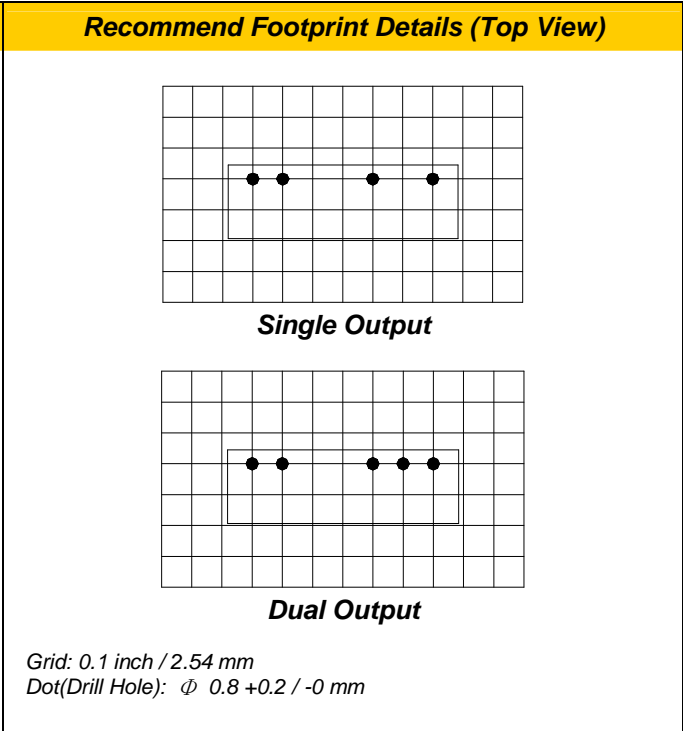
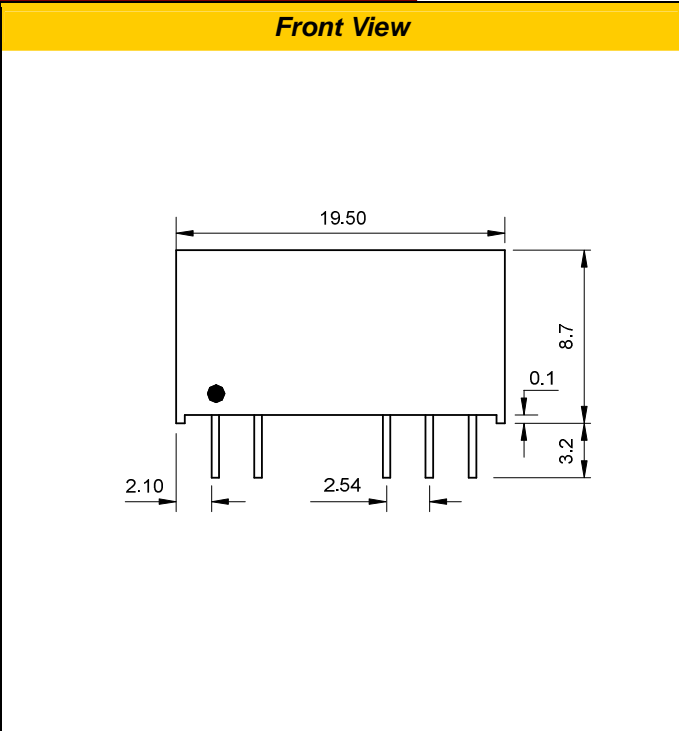
Output Specifications

Parameter	Condition	Min.	Typ.	Max.
Output Voltage Accuracy	Vin-N, Max. Load	---	± 1.0	± 3.0 %
Balance Regulation	Vin-N, Max. Load, Dual Output	---	± 0.5	± 1.0 %
Line Regulation	Vin-L to Vin-H @ Max. Load	---	± 1.2	± 1.5 %
Load Regulation	Io = 20% to 100% Load @ Vin-N	See Model Selection Guide		
Temperature Drift	Lowest to Highest Temp.	---	± 0.01	± 0.02 %/°C
Ripple & Noise	Peak to Peak, Each Output, 20MHz	---	75	100 mV
Short Circuit Protection	Limited 0.5 sec. Max.			

Characteristic Curve



Package Dimension



Pin Functions

Pin No.	Single Output	Dual Output
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

Note:
All dimensions in mm
Tolerance: XX.X \pm 0.25
XX.XX \pm 0.25
Pin pitch tolerance \pm 0.25
Pin diameter tolerance \pm 0.1