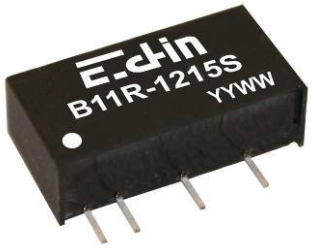
ECHIN Technology Co., Ltd

B11R Series

Features

- 1 Watt Output Power
- Output Current up to 260mA
- Regulated Single/Dual Output
- ±10% Input Voltage Range
- Efficiency up to 70%
- Low Ripple and Noise
- 1000VDC Isolation Voltage
- Single-In-Line Package (SIP)
- Industrial Standard Pin-out
- UL94V-0 Package Material
- Operating Temperature Range -40~85℃ (Non-Derating)
- 3 Years Warranty



Description

B11R 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 and regulated output voltage of 3.3V, 5V, 9V, 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 ℃**
Operating Temperature	Ambient	**-40**	**---**	**+85 ℃**
	Case	**-40**	**---**	**+90 ℃**
Relative Humidity		**---**	**---**	**95 %**
Isolation Voltage	Input to Output, 60 sec.	**1 KV**	**---**	**---**
Isolation Resistance	Input to Output	**1 G ohm**	**---**	**---**
Isolation Capacitance	Input to Output	**---**	**---**	**150 pF**
Switching Frequency	Max. Load	**---**	**60 KHz**	**---**
MTBF	Vin-N, Max. Load, 25℃	**---**	**2 MHrs**	**---**
Weight	Epoxy	**---**	**3 / 5 g**	**---**
Dimensions	See Package Dimensions			
Case Material	Non-Conductive Black Plastic (Meets UL94V-0)			

Selection Guide

Part Number	Input			Output			Efficiency	Cap Load(7)
	Voltage	Current		Voltage	Current			
	Nominal (Low ~ High)	No Load	Max. Load	Typ.	Min.	Max.	Max. Load	Max.
		Typ.	Typ.				Typ.	
	VDC	mA	mA	VDC	mA	mA	%	μF
B11R-0503S	5 (4.5~5.5)	30	278	3.3	5	260	62	220
B11R-0505S			290	5	4	200	69	220
B11R-0509S			305	9	2	110	65	220
B11R-0512S			301	12	1.5	84	67	220
B11R-0515S			296	15	1	67	68	220
B11R-0505D			303	± 5	± 2	± 100	66	100
B11R-0512D			306	± 12	± 0.8	± 42	66	100
B11R-0515D			300	± 15	± 0.7	± 33	66	100
B11R-1203S	12 (10.8~13.2)	15	112	3.3	5	260	64	220
B11R-1205S			121	5	4	200	69	220
B11R-1209S			129	9	2	110	64	220
B11R-1212S			122	12	1.5	84	69	220
B11R-1215S			120	15	1	67	70	220
B11R-1205D			124	± 5	± 2	± 100	67	100
B11R-1212D			120	± 12	± 0.8	± 42	67	100
B11R-1215D			123	± 15	± 0.7	± 33	67	100
B11R-2403S	24 (21.6~26.4)	10	58	3.3	5	260	62	220
B11R-2405S			63	5	4	200	67	220
B11R-2409S			65	9	2	110	64	220
B11R-2412S			66	12	1.5	84	64	220
B11R-2415S			63	15	1	67	67	220
B11R-2405D			64	± 5	± 2	± 100	65	100
B11R-2412D			65	± 12	± 0.8	± 42	65	100
B11R-2415D			64	± 15	± 0.7	± 33	65	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℃.*
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

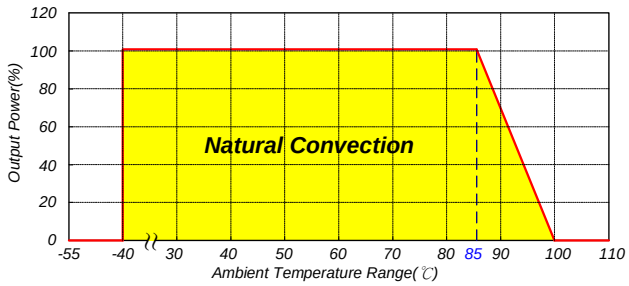
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range	5VDC models	4.5	5	5.5 V
	12VDC models	10.8	12	13.2 V
	24VDC models	21.6	24	26.4 V
Input Filter	All models	Internal Capacitor		

Output Specifications

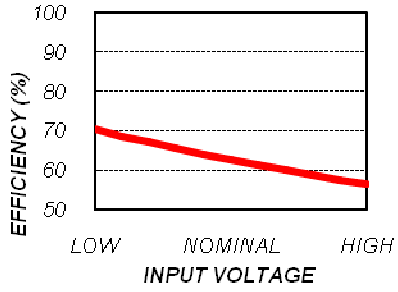
Parameter	Condition	Min.	Typ.	Max.
Output Voltage Accuracy	3.3V, 5V Output Models @Vin-N, Max. Load	---	± 1.0	± 2.0 %
	Other Output Models@ Vin-N, Max. Load	---	± 2.0	± 3.0 %
Line Regulation	Vin-L to Vin-H @ Max. Load	---	± 0.2	± 0.5%
Load Regulation	Io = 10% to 100% Load @ Vin-N	---	± 0.5	± 1 %
Balance Regulation	Vin-N, Max. Load, Dual Output	---	± 1.0	± 3.0 %
Temperature Drift	Lowest to Highest Temp.	---	± 0.01	± 0.02 %/℃
Ripple & Noise	Peak to Peak, Each Output, 20MHz	---	50	75 mV
Short Circuit Protection	Limited 0.5 sec. Max.			

Characteristic Curve

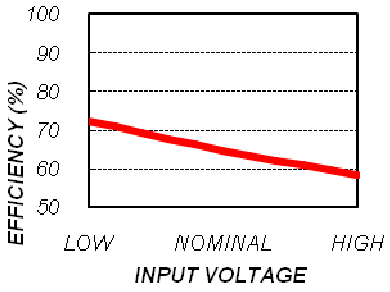
Derating Curve



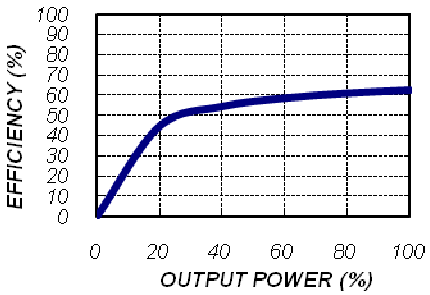
Efficiency-Curve



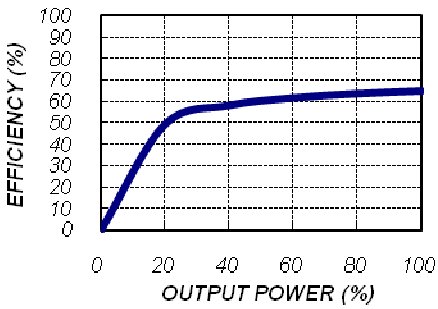
Input Voltage vs. Efficiency, Vo= 3.3V, 5V and ±5V



Input Voltage vs. Efficiency, Other Output Voltages



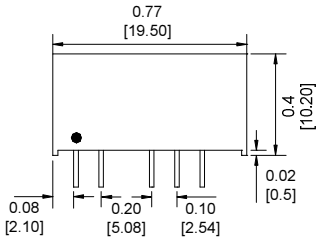
Output Power vs. Efficiency, Vo= 3.3V, 5V and ±5V



Output Power vs. Efficiency, Other Output Voltages

Package Dimension

Front View



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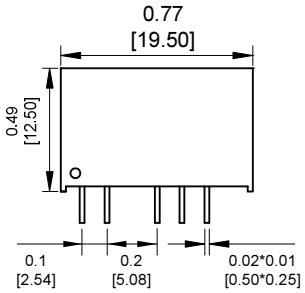

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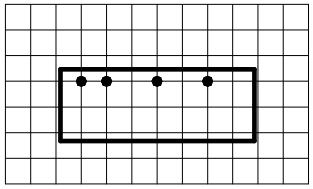
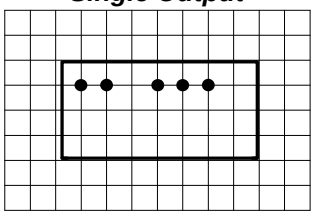
Recommend Footprint Details (Top View)



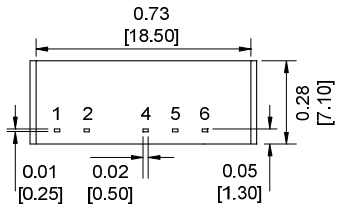
Single Output



Dual Output

Grid: 0.1 inch / 2.54 mm
Dot(Drill Hole):Φ 0.8 +0.2 / -0 mm

Bottom View



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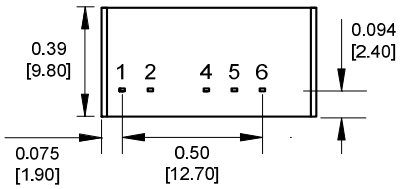

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Pin Functions

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

Note:

All dimensions in inch [mm]

Tolerance: XX.X± 0.01 [XX.X±0.25]

XX.XX± 0.01 [XX.XX±0.25]

Pin pitch tolerance ±0.01 [±0.25]

Pin diameter tolerance ±0.004 [±0.1]