

2W DC-DC Converter P2B-Series



- 7 Pin SIL
- Low ripple and noise
- MTBF > 1.12 MHours
- Dual isolated output versions



Model selection guide

Typ	Input voltage range [V _{DC}]	Input current		Output voltage [V _{DC}]	Output current [mA]	Efficiency typ. [%]	Capacitive load max. [μF]
		No load [mA]	Full load [mA]				
Single output							
P2B3R312SS	2.97...3.63	50	815	12	167	72	470
P2B3R324SS	2.97...3.63	50	808	24	83	75	470
P2B053R3SS	4.5...5.5	30	367	3.3	400	72	470
P2B0505SS	4.5...5.5	30	512	5.0	400	78	470
P2B057R2SS	4.5...5.5	30	500	7.2	278	80	470
P2B0509SS	4.5...5.5	30	500	9.0	222	80	470
P2B0512SS	4.5...5.5	30	487	12.0	167	82	470
P2B0515SS	4.5...5.5	30	487	15.0	133	82	470
P2B0524SS	4.5...5.5	30	487	24.0	83	82	470
P2B123R3SS	10.8...13.2	20	169	3.3	400	65	470
P2B1205SS	10.8...13.2	20	216	5.0	400	77	470
P2B127R2SS	10.8...13.2	20	208	7.2	278	80	470
P2B1209SS	10.8...13.2	20	208	9.0	222	80	470
P2B1212SS	10.8...13.2	20	203	12.0	167	82	470
P2B1215SS	10.8...13.2	20	203	15.0	133	82	470
P2B1224SS	10.8...13.2	20	208	24.0	83	80	470
P2B243R3SS	21.6...26.4	10	76	3.3	400	72	470
P2B2405SS	21.6...26.4	10	105	5.0	400	79	470
P2B247R2SS	21.6...26.4	10	104	7.2	278	80	470
P2B2409SS	21.6...26.4	10	104	9.0	222	80	470
P2B2412SS	21.6...26.4	10	102	12.0	167	80	470
P2B2415SS	21.6...26.4	10	101	15.0	133	82	470
P2B2424SS	21.6...26.4	10	104	24.0	83	80	470
P2B483R3SS	43.2...52.8	6	45	3.3	400	60	470
P2B4805SS	43.2...52.8	6	54	5.0	400	77	470
P2B487R2SS	43.2...52.8	6	54	7.2	278	77	470
P2B4809SS	43.2...52.8	6	54	9.0	222	77	470
P2B4812SS	43.2...52.8	6	53	12.0	167	78	470
P2B4815SS	43.2...52.8	6	53	15.0	133	78	470
P2B4824SS	43.2...52.8	6	55	24.0	83	75	470
Dual output							
P2B053R3S	4.5...5.5	30	406	±3.3	±200	65	2 x 220
P2B0505S	4.5...5.5	30	555	±5.0	±200	72	2 x 220
P2B0506S	4.5...5.5	30	555	±6.0	±167	72	2 x 220
P2B057R2S	4.5...5.5	30	555	±7.2	±139	72	2 x 220
P2B0509S	4.5...5.5	30	519	±9.0	±111	77	2 x 220
P2B0512S	4.5...5.5	30	512	±12.0	±84	78	2 x 220
P2B0515S	4.5...5.5	30	500	±15.0	±67	80	2 x 220
P2B0524S	4.5...5.5	30	500	±24.0	±42	80	2 x 220
P2B123R3S	10.8...13.2	20	164	±3.3	±200	67	2 x 220
P2B1205S	10.8...13.2	20	222	±5.0	±200	75	2 x 220
P2B127R2S	10.8...13.2	20	219	±7.2	±139	76	2 x 220
P2B1209S	10.8...13.2	20	216	±9.0	±111	77	2 x 220
P2B1212S	10.8...13.2	20	203	±12.0	±84	82	2 x 220
P2B1215S	10.8...13.2	20	203	±15.0	±67	82	2 x 220
P2B1224S	10.8...13.2	20	203	±24.0	±42	82	2 x 220
P2B1515S	13.5...16.5	15	167	±15.0	±67	80	2 x 220
P2B243R3S	21.6...26.4	10	80	±3.3	±200	68	2 x 220
P2B2405S	21.6...26.4	10	111	±5.0	±200	75	2 x 220
P2B247R2S	21.6...26.4	10	111	±7.2	±139	75	2 x 220
P2B2409S	21.6...26.4	10	104	±9.0	±111	80	2 x 220
P2B2412S	21.6...26.4	10	101	±12.0	±84	82	2 x 220
P2B2415S	21.6...26.4	10	101	±15.0	±67	82	2 x 220
P2B2424S	21.6...26.4	10	101	±24.0	±42	82	2 x 220
P2B483R3S	43.2...52.8	6	45	±3.3	±200	60	2 x 220
P2B4805S	43.2...52.8	6	57	±5.0	±200	73	2 x 220
P2B487R2S	43.2...52.8	6	54	±7.2	±139	77	2 x 220
P2B4809S	43.2...52.8	6	54	±9.0	±111	77	2 x 220
P2B4812S	43.2...52.8	6	52	±12.0	±84	80	2 x 220
P2B4815S	43.2...52.8	6	52	±15.0	±67	80	2 x 220
P2B4824S	43.2...52.8	6	52	±24.0	±42	80	2 x 220

Suffix: "H" for 3kV

2W DC-DC Converter P2B-Series



Model selection guide

Typ	Input voltage range [V _{DC}]	Input current		Output 1		Output 2		Efficiency typ. [%]	Capacitive load max. [μF]
		No load [mA]	Full load [mA]	Voltage [V _{DC}]	Current [mA]	Voltage [V _{DC}]	Current [mA]		
Dual isolated output with different voltages									
P2B053R3S01	4.5...5.5	35	520	5.0	200	3.3	200	77	2 x 220
P2B057R2S01	4.5...5.5	35	520	5.0	200	7.2	139	77	2 x 220
P2B0509S01	4.5...5.5	35	520	5.0	200	9.0	111	77	2 x 220
P2B0512S01	4.5...5.5	35	500	5.0	200	12.0	84	80	2 x 220
P2B0515S01	4.5...5.5	35	500	5.0	200	15.0	67	80	2 x 220
P2B123R3S01	10.8...13.2	25	215	5.0	200	3.3	200	77	2 x 220
P2B127R2S01	10.8...13.2	25	215	5.0	200	7.2	139	77	2 x 220
P2B1209S01	10.8...13.2	25	215	5.0	200	9.0	111	77	2 x 220
P2B1212S01	10.8...13.2	25	210	5.0	200	12.0	84	80	2 x 220
P2B1215S01	10.8...13.2	25	210	5.0	200	15.0	67	80	2 x 220
P2B243R3S01	21.6...26.4	12	110	5.0	200	3.3	200	77	2 x 220
P2B247R2S01	21.6...26.4	12	110	5.0	200	7.2	139	77	2 x 220
P2B2409S01	21.6...26.4	12	110	5.0	200	9.0	111	77	2 x 220
P2B2412S01	21.6...26.4	12	105	5.0	200	12.0	84	80	2 x 220
P2B2415S01	21.6...26.4	12	105	5.0	200	15.0	67	80	2 x 220
Dual isolated output									
P2B0505S02	4.5...5.5	35	500	5.0	200	5.0	200	80	2 x 220
P2B057R2S02	4.5...5.5	35	500	7.2	139	7.2	139	80	2 x 220
P2B0509S02	4.5...5.5	35	500	9.0	111	9.0	111	80	2 x 220
P2B0512S02	4.5...5.5	35	490	12.0	84	12.0	84	82	2 x 220
P2B0515S02	4.5...5.5	35	490	15.0	67	15.0	67	82	2 x 220
P2B1205S02	10.8...13.2	25	210	5.0	200	5.0	200	80	2 x 220
P2B127R2S02	10.8...13.2	25	210	7.2	139	7.2	139	80	2 x 220
P2B1209S02	10.8...13.2	25	210	9.0	111	9.0	111	80	2 x 220
P2B1212S02	10.8...13.2	25	205	12.0	84	12.0	84	82	2 x 220
P2B1215S02	10.8...13.2	25	200	15.0	67	15.0	67	84	2 x 220
P2B2405S02	21.6...26.4	12	105	5.0	200	5.0	200	80	2 x 220
P2B247R2S02	21.6...26.4	12	105	7.2	139	7.2	139	80	2 x 220
P2B2409S02	21.6...26.4	12	105	9.0	111	9.0	111	80	2 x 220
P2B2412S02	21.6...26.4	12	100	12.0	84	12.0	84	82	2 x 220
P2B2415S02	21.6...26.4	12	100	15.0	67	15.0	67	85	2 x 220

Suffix: "H" for 3kV

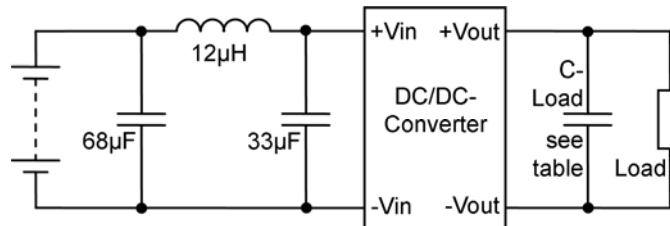
Specifications

Input	
Voltage range	± 10%
Filter	Capacitors
Isolation:	
Rated voltage	1000 V _{DC} Standard see suffix note on table
Resistance	10 ⁹ Ω
Capacitance	60 pF, typ.
Output	
Voltage accuracy	± 3%, max.
Voltage balance (dual outputs)	± 1%
Ripple and noise (at 20 MHz BW)	75 mVp-p, max.
Short circuit protection	Momentary
Line voltage regulation	± 1.2% / ΔV _{in} 1.0%
Load voltage regulation	± 8%, Load@20...100% V _{out} 3.3 types ± 20%, @load 20...100%
Temperature coefficient	± 0.02% / °C

General	
Safety in accordance to	IEC 60950-1
Switching frequency	80 kHz, typ.
Environmental	
Operating temperature (ambient)	-40 °C to +85 °C
Case temperature	100 °C, max.
Storage temperature	-40 °C to +125 °C
Derating	None required
Humidity	Up to 90%, non-condensing
Cooling	Free-air convection
Physical	
Dimensions	19.50 x 6.00 x 10 mm
Dimensions Vin 48V types	19.50 x 7.20 x 10 mm
Weight	2.5 g
Case material	non-conductive black plastic
Absolute maximum ratings	
Input voltage (<100ms)	
Vin 5 V types	0...7 V
Vin 12 V types	0...15 V
Vin 24 V types	0...28 V
Vin 48 V types	0...54 V
Pin soldering temperature 1.5 mm distance from body	260°C for 10sec

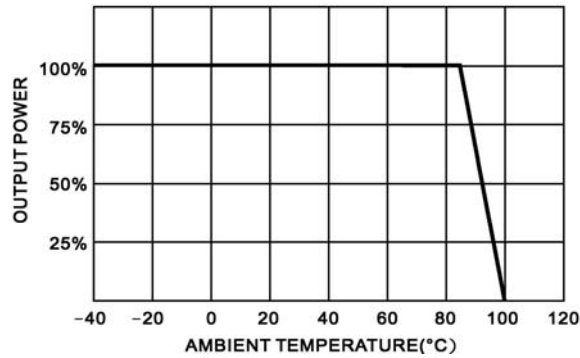
For V_{IN} 48V series add 4μ7...47μF capacitor on the input!

- Ripple and Noise measured with 20 MHz bandwidth
- Tested by minimal Vin and constant resistive load.
- Measured Input reflected ripple current with a simulated source inductance of 12 μH.
- Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
- Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
- For reduce converter's ripple and noise, it is recommended to add a 4.7...220 μF(2 x 4.7...100 μF for dual output) capacitor on output. For EMI performance improvement, it is recommended to add a 12 μH inductor and a 10...100 μF capacitor in input end.

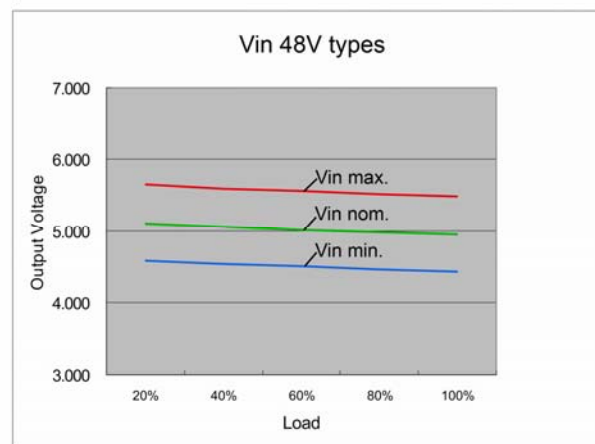
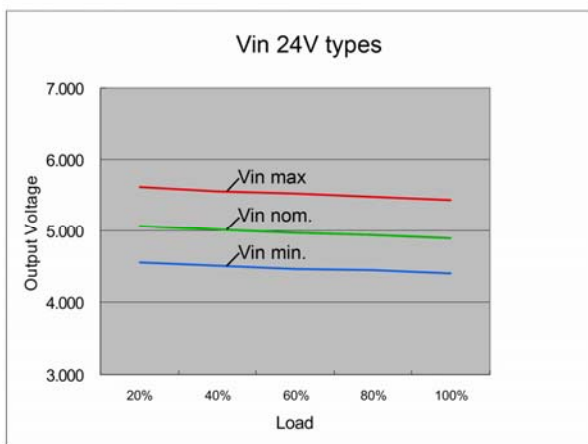
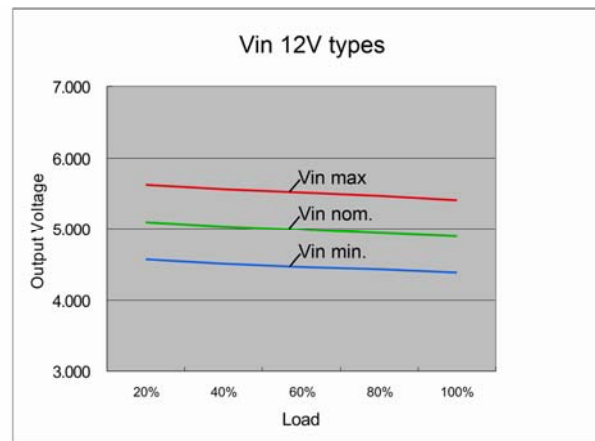
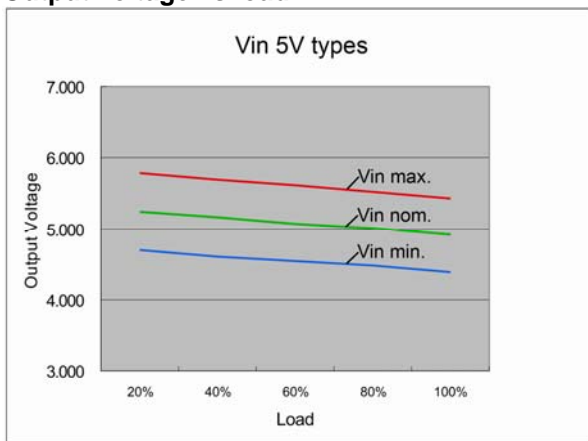


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Derating Curve

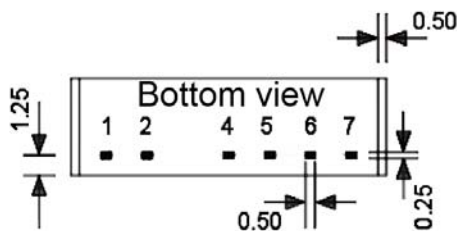
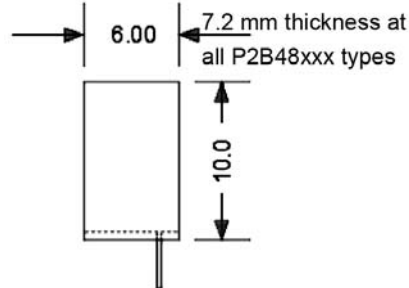
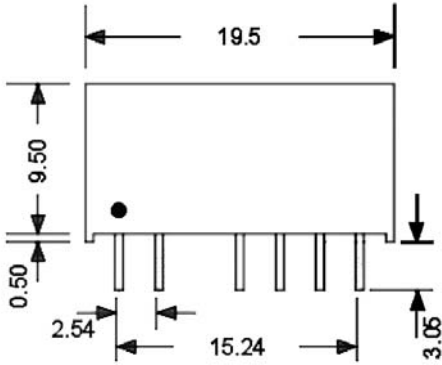


Output voltage vs load



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Dimensions



Notes :

All dimensions are typical in millimeters.

1. Pin diameter: 0.5 ± 0.05
2. Pin pitch tolerance: ± 0.35
3. Case Tolerance: ± 0.5

Pin connections

Pin	Standard		3kV _{DC}		Dual isolated
	Single	Dual	Single	Dual	
1	+V Input	+V Input	+V Input	+V Input	+V Input
2	-V Input	-V Input	-V Input	-V Input	-V Input
4	-V Output	-V Output	Omitted	Omitted	+V1 Output
5	Omitted	Common	-V Output	-V Output	-V1 Output
6	+V Output	+V Output	Omitted	Common	+V2 Output
7	Omitted	Omitted	+V Output	+V Output	-V2 Output

Life Support Policy: HY-LINE does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

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