



PHI-CON

4W DC-DC Converter P4A-Series

- Wide 2:1 input range
- Up to 3500 V_{DC} isolation
- MTBF >1.12 MHours
- Continuous short circuit protection



Model selection guide

Typ	Input voltage range [V _{DC}]	Input current		Output voltage [V _{DC}]	Output current min/max [mA]	Efficiency typ. [%]	Capacitor load max. [mA]
		No load [mA]	Full load [mA]				
Single output							
P4A123R3S	9...18	30	465	3.3	0...1200	72	3300
P4A1205S	9...18	30	430	5.0	0...800	78	1000
P4A1209S	9...18	30	430	9.0	0...444	78	470
P4A1212S	9...18	30	420	12.0	0...333	80	220
P4A1215S	9...18	30	420	15.0	0...266	80	100
P4A1224S	9...18	30	420	24.0	0...166	80	47
P4A243R3S	18...36	20	225	3.3	0...1200	75	3300
P4A2405S	18...36	20	210	5.0	0...800	80	1000
P4A2409S	18...36	20	210	9.0	0...444	80	470
P4A2412S	18...36	20	200	12.0	0...333	83	220
P4A2415S	18...36	20	210	15.0	0...266	80	100
P4A2424S	18...36	20	200	24.0	0...166	85	47
P4A483R3S	36...72	15	112	3.3	0...1200	75	3300
P4A4805S	36...72	15	105	5.0	0...800	80	1000
P4A4809S	36...72	15	100	9.0	0...444	82	470
P4A4812S	36...72	15	105	12.0	0...333	80	220
P4A4815S	36...72	15	105	15.0	0...266	81	100
P4A4824S	36...72	15	100	24.0	0...166	82	47
Dual output							
P4A123R3D	9...18	30	450	±3.3	±0...600	73	2 x 680
P4A1205D	9...18	30	430	±5.0	±0...400	78	2 x 470
P4A1209D	9...18	30	420	±9.0	±0...220	80	2 x 220
P4A1212D	9...18	30	420	±12.0	±0...166	80	2 x 100
P4A1215D	9...18	30	420	±15.0	±0...133	80	2 x 47
P4A1224D	9...18	30	420	±24.0	±0...83	79	2 x 22
P4A243R3D	18...36	20	225	±3.3	±0...600	73	2 x 680
P4A2405D	18...36	20	210	±5.0	±0...400	79	2 x 470
P4A2409D	18...36	20	210	±9.0	±0...220	80	2 x 220
P4A2412D	18...36	20	205	±12.0	±0...166	82	2 x 100
P4A2415D	18...36	20	209	±15.0	±0...133	80	2 x 47
P4A2424D	18...36	20	214	±24.0	±0...83	78	2 x 22
P4A483R3D	36...72	15	115	±3.3	±0...600	72	2 x 680
P4A4805D	36...72	15	110	±5.0	±0...400	78	2 x 470
P4A4809D	36...72	15	110	±9.0	±0...220	78	2 x 220
P4A4812D	36...72	15	105	±12.0	±0...166	80	2 x 100
P4A4815D	36...72	15	105	±15.0	±0...133	80	2 x 47
P4A4824D	36...72	15	105	±24.0	±0...83	80	2 x 22

Suffix: "H" for 3.5kV isolation voltage

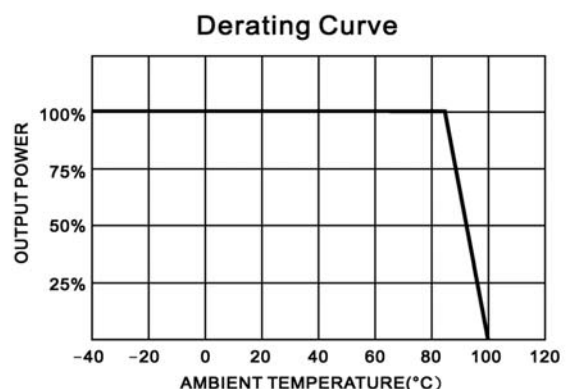
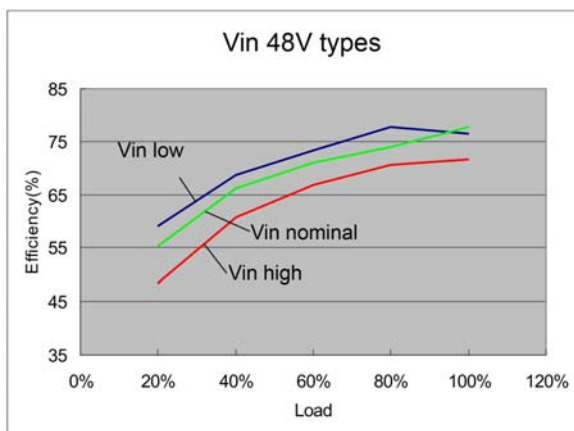
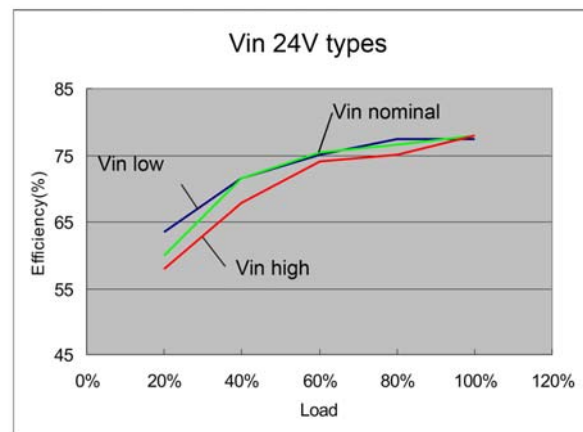
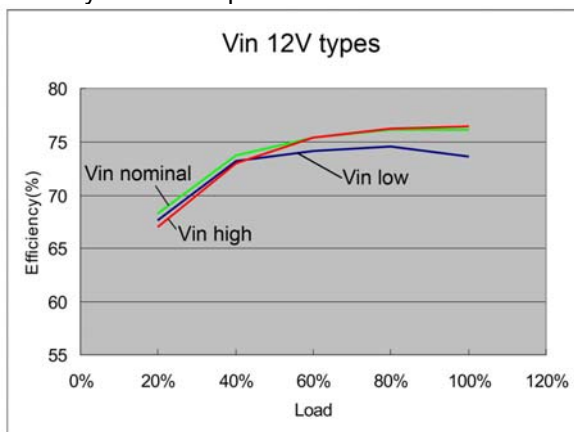
4W DC-DC Converter P4A-Series

Specifications

Input	
Filter	Pi-network
Isolation:	
Rated voltage (1 minute, input to output)	1500 V _{DC} , Standard 3500 V _{DC} , Suffix "H"
Resistance	10 ⁹ Ω
Capacitance	470 pF, typ.
Output	
Voltage accuracy	± 1%
Voltage balance (dual outputs)	± 1%
Ripple and noise (at 20 MHz BW)	60 mVp-p, max.
Short circuit protection	Continuous (automatic restart)
Current limiting	~120% of full load
Line voltage regulation	± 0.5%, max.
Load voltage regulation	± 0.5%, max. ± 1.5%, max. @3.3V Types
Temperature coefficient	± 0.02% / °C

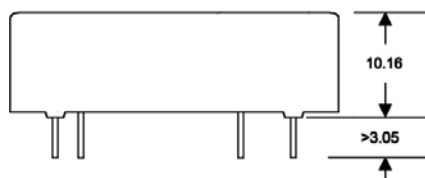
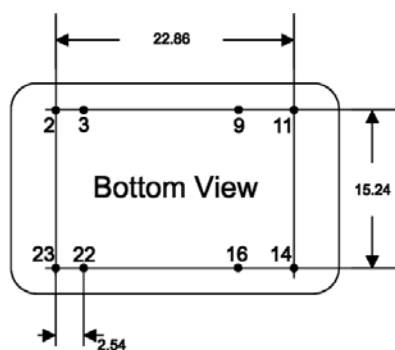
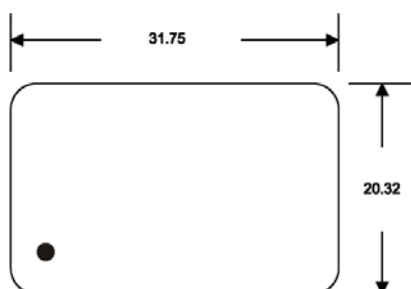
General	
Switching frequency	270 kHz, typ.
Safety in accordance with	IEC60950-1:2001
Environmental	
Operating temperature (ambient)	-40 °C to +85 °C
Case temperature	100 °C max.
Storage temperature	-40 °C to +125 °C
Derating	None required
Humidity	Up to 95%, non-condensing
Cooling	Free-air convection
Physical	
Dimensions	31.75x20.32x10.16 mm
Weight	17 g metal, standard
Potting material	Epoxy (UL94-V-0 rated)
Case material	Nickel-coated copper
Lead soldering Temperature	260°C for 10 s, distance from package 1.5 mm

Efficiency versus output current



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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	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	Omitted	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

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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