

3W DC-DC Converter P3H-Series



PHI-CON

- Wide 2:1 input range
- Up to 3500 V_{DC} isolation
- MTBF >1.121 MHours
- Continuous short circuit protection



Model selection guide

Typ	Input voltage [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							
P3H123R3S	9...18	20	340	3.3	0...900	72	470
P3H1205S	9...18	20	330	5.0	0...600	76	470
P3H1209S	9...18	20	320	9.0	0...333	78	68
P3H1212S	9...18	20	310	12.0	0...250	80	47
P3H1215S	9...18	20	310	15.0	0...200	80	47
P3H1224S	9...18	20	315	24.0	0...125	80	22
P3H243R3S	18...36	10	170	3.3	0...900	72	470
P3H2405S	18...36	10	165	5.0	0...600	76	470
P3H2409S	18...36	10	160	9.0	0...333	78	68
P3H2412S	18...36	10	155	12.0	0...250	80	47
P3H2415S	18...36	10	150	15.0	0...200	82	47
P3H2424S	18...36	10	155	24.0	0...125	82	22
P3H483R3S	36...72	8	85	3.3	0...900	72	470
P3H4805S	36...72	8	80	5.0	0...600	76	470
P3H4809S	36...72	8	80	9.0	0...333	78	68
P3H4812S	36...72	8	80	12.0	0...250	80	47
P3H4815S	36...72	8	80	15.0	0...200	80	47
P3H4824S	36...72	8	80	24.0	0...125	80	22
Dual output							
P3H123R3D	9...18	20	345	±3.3	±0...450	72	2 x 220
P3H1205D	9...18	20	330	±5.0	±0...300	76	2 x 220
P3H1209D	9...18	20	310	±9.0	±0...167	80	2 x 33
P3H1212D	9...18	20	310	±12.0	±0...125	80	2 x 22
P3H1215D	9...18	20	310	±15.0	±0...100	80	2 x 22
P3H1224D	9...18	20	315	±24.0	±0...63	80	2 x 10
P3H243R3D	18...36	10	170	±3.3	±0...450	72	2 x 220
P3H2405D	18...36	10	160	±5.0	±0...300	78	2 x 220
P3H2409D	18...36	10	155	±9.0	±0...167	80	2 x 33
P3H2412D	18...36	10	150	±12.0	±0...125	82	2 x 22
P3H2415D	18...36	10	150	±15.0	±0...100	82	2 x 22
P3H2424D	18...36	10	155	±24.0	±0...63	82	2 x 10
P3H483R3D	36...72	8	86	±3.3	±0...450	72	2 x 220
P3H4805D	36...72	8	82	±5.0	±0...300	76	2 x 220
P3H4809D	36...72	8	80	±9.0	±0...167	78	2 x 33
P3H4812D	36...72	8	78	±12.0	±0...125	80	2 x 22
P3H4815D	36...72	8	78	±15.0	±0...100	80	2 x 22
P3H4824D	36...72	8	78	±24.0	±0...63	80	2 x 10

Suffix: "H" for 3.5kV isolation voltage

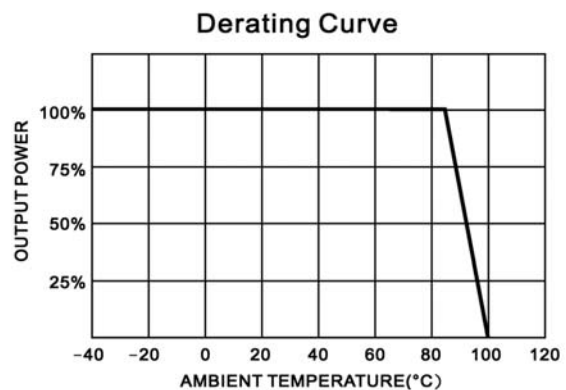
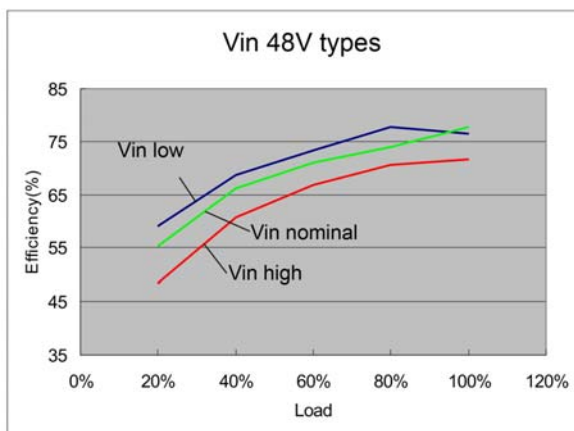
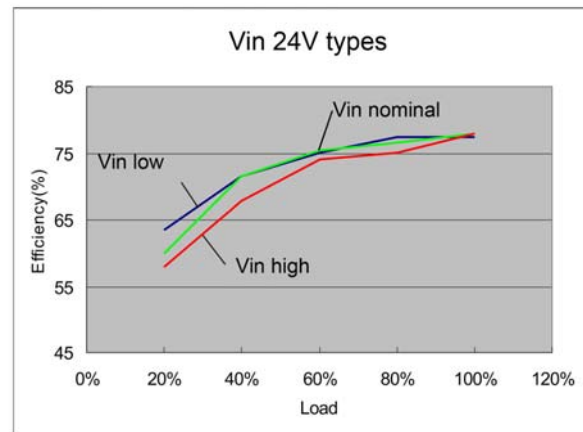
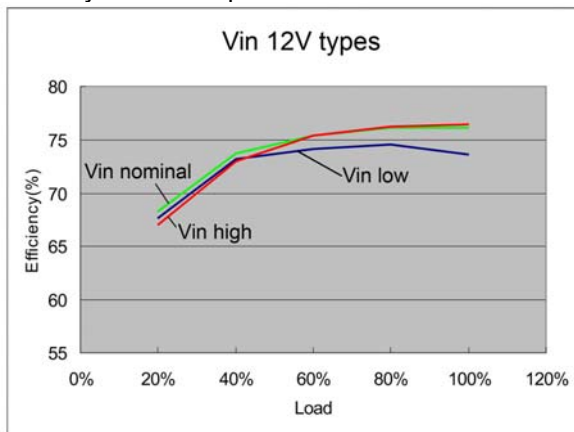
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Specifications

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

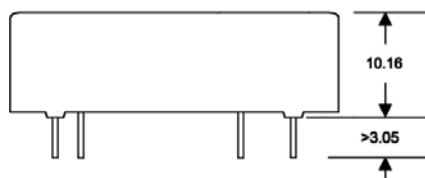
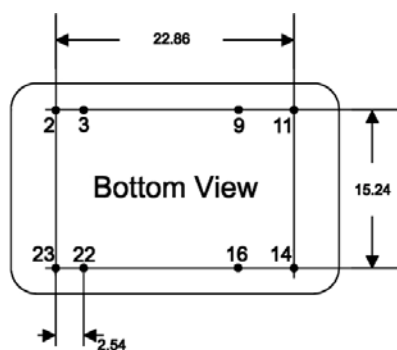
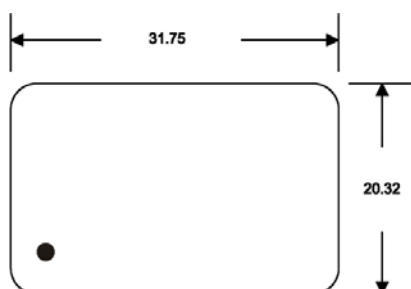
General	
Switching frequency	270 kHz, typ.
Safety in accordance with	IEC60950-1:2001
Environmental	
Operating temperature (ambient)	-40 °C to +85 °C
Case temperature	100 °C max.
Storage temperature	-40 °C to +125 °C
Derating	None required
Humidity	Up to 95%, non-condensing
Cooling	Free-air convection
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	Standard & 3.5kV	
	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.
Rev: 02.10 f