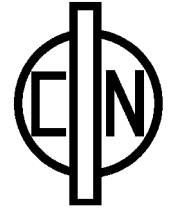


# 3W DC-DC Converter P3F-Series



PHI-CON

- Wide 2:1 input range
- Up to 3500 V<sub>DC</sub> isolation
- Continuous short circuit protection
- 24 Pin Standard Package
- Low cost



## Model selection guide

Typ	Input voltage range [V <sub>DC</sub> ]	Output voltage [V <sub>DC</sub> ]	Input current no load min. [mA]	Input current full load min. [mA]	Output current min. [mA]	Output current max. [mA]	Efficiency typ. [%]	Capacity load max. [μF]
Single output								
P3F0505S	4.5...9	5.0	40	857	150	600	70	2200
P3F0509S	4.5...9	9.0	40	833	83	334	72	470
P3F0512S	4.5...9	12.0	40	810	63	250	74	470
P3F0515S	4.5...9	15.0	40	810	50	200	74	470
P3F0524S	4.5...9	24.0	40	857	31	125	70	220
P3F1205S	9...18	5.0	20	328	150	600	76	2200
P3F1209S	9...18	9.0	20	324	83	334	77	470
P3F1212S	9...18	12.0	20	316	63	250	79	470
P3F1215S	9...18	15.0	20	316	50	200	79	470
P3F1224S	9...18	24.0	20	316	31	125	79	220
P3F2405S	18...36	5.0	12	156	150	600	80	2200
P3F2409S	18...36	9.0	12	156	83	334	80	470
P3F2412S	18...36	12.0	12	152	63	250	82	470
P3F2415S	18...36	15.0	12	152	50	200	82	470
P3F2424S	18...36	24.0	12	156	31	125	80	220
P3F4805S	36...72	5.0	8	81	150	600	77	2200
P3F4809S	36...72	9.0	8	80	83	334	78	470
P3F4812S	36...72	12.0	8	78	63	250	80	470
P3F4815S	36...72	15.0	8	78	50	200	80	470
P3F4824S	36...72	24.0	8	78	31	125	80	220
Dual output								
P3F0505D	4.5...9	±5.0	40	869	±75	±300	69	2 x 1000
P3F0509D	4.5...9	±9.0	40	857	±42	±167	70	2 x 220
P3F0512D	4.5...9	±12.0	40	833	±31	±125	72	2 x 220
P3F0515D	4.5...9	±15.0	40	810	±25	±100	74	2 x 220
P3F0524D	4.5...9	±24.0	40	857	±16	±63	70	2 x 100
P3F1205D	9...18	±5.0	20	324	±75	±300	77	2 x 1000
P3F1209D	9...18	±9.0	20	320	±42	±167	78	2 x 220
P3F1212D	9...18	±12.0	20	320	±31	±125	78	2 x 220
P3F1215D	9...18	±15.0	20	320	±25	±100	78	2 x 220
P3F1224D	9...18	±24.0	20	320	±16	±63	78	2 x 100
P3F2405D	18...36	±5.0	12	160	±75	±300	78	2 x 1000
P3F2409D	18...36	±9.0	12	158	±42	±167	79	2 x 220
P3F2412D	18...36	±12.0	12	156	±31	±125	80	2 x 220
P3F2415D	18...36	±15.0	12	156	±25	±100	80	2 x 220
P3F2424D	18...36	±24.0	12	156	±16	±63	80	2 x 100
P3F4805D	36...72	±5.0	8	80	±75	±300	78	2 x 1000
P3F4809D	36...72	±9.0	8	79	±42	±167	79	2 x 220
P3F4812D	36...72	±12.0	8	78	±31	±125	80	2 x 220
P3F4815D	36...72	±15.0	8	78	±25	±100	80	2 x 220
P3F4824D	36...72	±24.0	8	78	±16	±63	80	2 x 100

Suffix: "H" for 3.5kV isolation voltage, Suffix: "M" for metal case

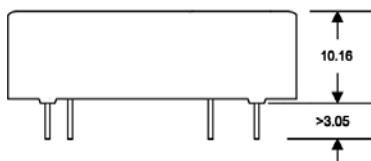
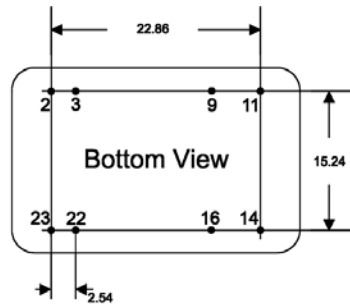
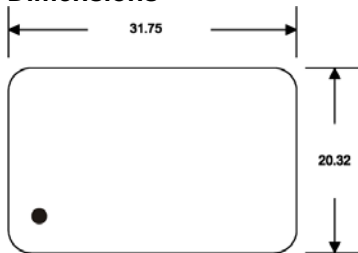
# 3W DC-DC Converter P3F-Series

## Specifications

Input	
Filter	Pi Network
Absolute maximum input ratings for 100 ms	
5 V types	-0.7...15 V <sub>DC</sub>
12V types	-0.7...24 V <sub>DC</sub>
24V types	-0.7...40 V <sub>DC</sub>
48V types	-0.7...80 V <sub>DC</sub>
Isolation:	
Rated voltage	1500 V <sub>DC</sub> , Standard 3500 V <sub>DC</sub> , Suffix "H"
Resistance	10 <sup>9</sup> Ω
Capacitance	60 pF, typ.
Output	
Voltage accuracy	± 1%, max.
Voltage balance (dual outputs)	± 1%
Ripple and noise (at 20 MHz BW)	60 mVp-p, max.
Short circuit protection	Continuous
Short circuit restart	Automatic
Line voltage regulation	± 0.5%, max.
Load voltage regulation	± 0.5%, max.
Temperature coefficient	± 0.02% / °C

General	
Efficiency	76% to 82%
Switching frequency	100 kHz...400 kHz
Humidity	95 % relative
Reliability calculated MTBF	2.2 Mhrs (MIL-HDBK-217F)
Safety standard: in accordance to	IEC 60950-1:2001
Environmental	
Operating temperatur (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	31.75 x 20.32 x 10.16 mm
Weight	15 g metal package, <i>suffix "M"</i> , 12.5 g plastic standard
Plastic case material	Black (UL94V-0 rated)
Metal case material	Nickel coated copper
Potting material	Epoxy ( UL94V-0 rated)
Pin soldering temperature 1.5mm distance from body	260°C for 10sec

## 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

*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: 12.09 f

## Pin connections

Pin	Standard	
	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

## Derating Curve

