



PHI-CON

# 2W DC-DC Converter P2X-Series

- 16 Pin DIL
- Wide 2:1 input range
- Up to 3000 V<sub>DC</sub> isolation
- MTBF > 2.7 MHours.
- Continuous short circuit protection
- Metal case optional



## Model selection guide

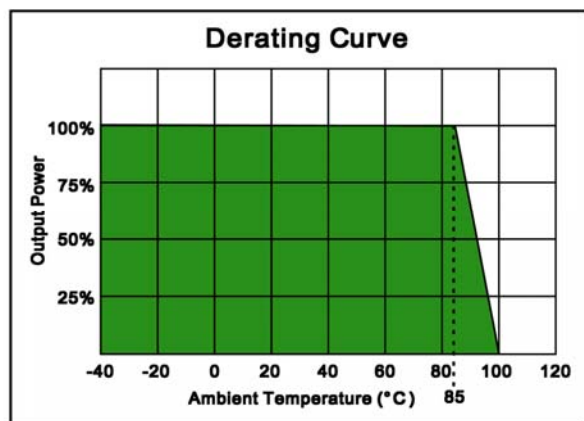
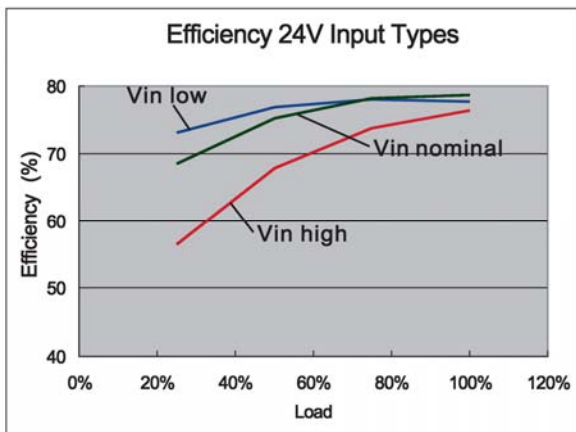
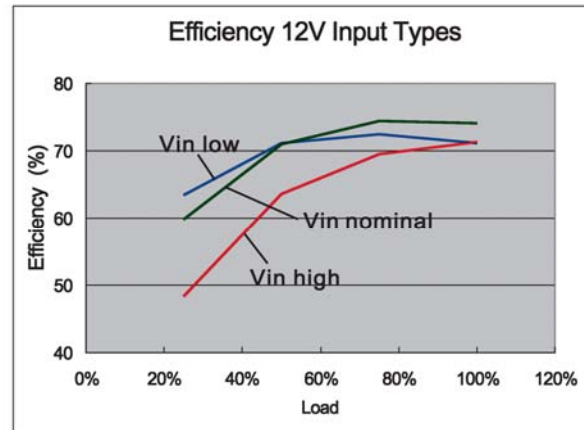
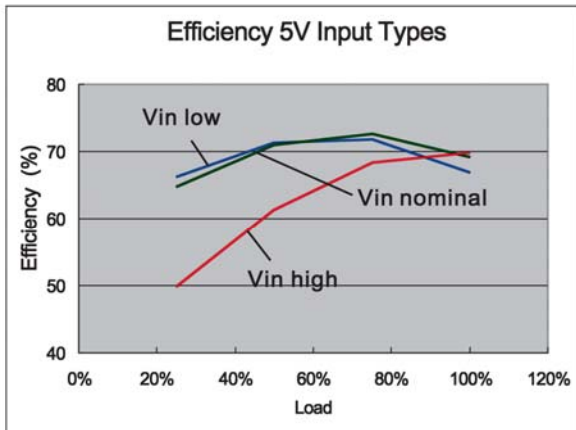
Typ	Input voltage range [V <sub>DC</sub> ]	Input current no-load [mA]	Input current full-load [mA]	Output voltage [V <sub>DC</sub> ]	Output current min. (1) [mA]	Output current max. [mA]	Efficiency typ. @ full load [%]	Capacitive output load [μF]
<b>Single output</b>								
P2X053R3S	4.5...9	37	492	3.3	125	500	67	3300
P2X0505S	4.5...9	37	571	5.0	100	400	70	3300
P2X0509S	4.5...9	35	555	9.0	56	222	72	470
P2X0512S	4.5...9	35	555	12.0	42	167	72	470
P2X0515S	4.5...9	35	547	15.0	33	133	73	470
P2X0524S	4.5...9	60	533	24.0	21	83	75	220
P2X123R3S	9...18	20	205	3.3	125	500	67	3300
P2X1205S	9...18	20	216	5.0	100	400	77	3300
P2X1209S	9...18	20	213	9.0	56	222	78	470
P2X1212S	9...18	20	208	12.0	42	167	80	470
P2X1215S	9...18	20	213	15.0	33	133	78	470
P2X1224S	9...18	23	208	24.0	21	83	80	220
P2X243R3S	18...36	10	98	3.3	125	500	70	3300
P2X2405S	18...36	10	108	5.0	100	400	77	3300
P2X2409S	18...36	10	104	9.0	56	222	80	470
P2X2412S	18...36	10	104	12.0	42	167	80	470
P2X2415S	18...36	10	104	15.0	33	133	80	470
P2X2424S	18...36	12	104	24.0	21	83	80	220
P2X483R3S	36...72	8	48	3.3	125	500	71	3300
P2X4805S	36...72	8	56	5.0	100	400	74	3300
P2X4809S	36...72	7	53	9.0	56	222	78	470
P2X4812S	36...72	7	53	12.0	42	167	78	470
P2X4815S	36...72	7	53	15.0	33	133	78	470
P2X4824S	36...72	9	52	24.0	21	83	80	220
<b>Dual output</b>								
P2X053R3D	4.5...9	40	471	±3.3	±63	±250	70	2 x 1000
P2X0505D	4.5...9	40	571	±5.0	±50	±200	70	2 x 1000
P2X0509D	4.5...9	35	540	±9.0	±28	±111	74	2 x 220
P2X0512D	4.5...9	35	533	±12.0	±21	±83	75	2 x 220
P2X0515D	4.5...9	35	533	±15.0	±17	±67	75	2 x 220
P2X0524D	4.5...9	60	563	±24.0	±10	±42	71	2 x 100
P2X123R3D	9...18	20	188	±3.3	±63	±250	73	2 x 1000
P2X1205D	9...18	20	222	±5.0	±50	±200	75	2 x 1000
P2X1209D	9...18	20	210	±9.0	±28	±111	79	2 x 220
P2X1212D	9...18	20	208	±12.0	±21	±83	80	2 x 220
P2X1215D	9...18	20	210	±15.0	±17	±67	79	2 x 220
P2X1224D	9...18	30	219	±24.0	±10	±42	76	2 x 100
P2X243R3D	18...36	10	94	±3.3	±63	±250	73	2 x 1000
P2X2405D	18...36	10	106	±5.0	±50	±200	78	2 x 1000
P2X2409D	18...36	10	105	±9.0	±28	±111	79	2 x 220
P2X2412D	18...36	10	104	±12.0	±21	±83	80	2 x 220
P2X2415D	18...36	10	104	±15.0	±17	±67	80	2 x 220
P2X2424D	18...36	20	106	±24.0	±10	±42	78	2 x 100
P2X483R3D	36...72	8	47	±3.3	±63	±250	73	2 x 1000
P2X4805D	36...72	8	56	±5.0	±50	±200	74	2 x 1000
P2X4809D	36...72	7	53	±9.0	±28	±111	79	2 x 220
P2X4812D	36...72	7	53	±12.0	±21	±83	79	2 x 220
P2X4815D	36...72	7	52	±15.0	±17	±67	80	2 x 220
P2X4824D	36...72	12	55	±24.0	±10	±42	75	2 x 100

Suffix: "H" for 3kV isolation voltage (only for plastic case version)

(1) Operation without load will not damage these devices, but they will not meet all listed parameters.

# 2W DC-DC Converter P2X-Series

Part number structure													
Output power	Series	Input voltage		Output voltage		Outputs		Isolation		Case		Remote control	
P2	T	05		3R3		S		H		M		C	
2 Watt		05	4.5..9 V	3R3	3.3 V	S	single	blanc	1 kV	blanc	plastic	C	control
		12	9..18 V	05	5 V	D	dual	H	3 kV	M	metal		Input
		24	18..36 V	7R2	7.2 V					M only for 1kV			
		48	36..72 V	09	9 V								
				12	12 V								
				15	15 V								
				18	18 V								
				24	24 V								



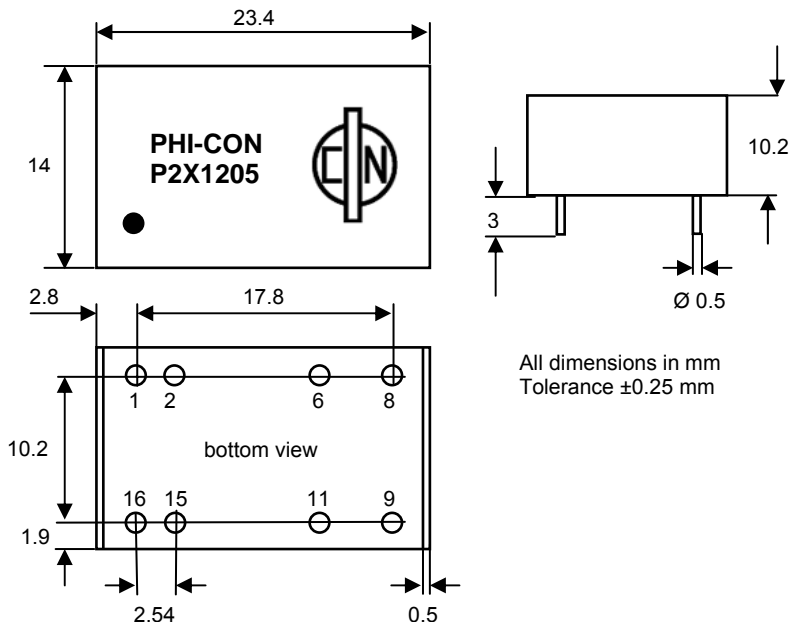
# 2W DC-DC Converter P2X-Series

## Specifications

<b>Input</b>	
Absolute max. voltage for 100 ms	5 V type $-0.7..12 V_{DC}$ 12 V type $-0.7..24 V_{DC}$ 24 V type $-0.7..40 V_{DC}$ 48 V type $-0.7..80 V_{DC}$
Filter	Capacitors
<b>Isolation:</b>	
Rated voltage for 60 s, input / output Tested for 3 s	1000 $V_{DC}$ , standard 3000 $V_{DC}$ , option "H"
Metal case / input & output	1000 $V_{DC}$
Resistance	$10^9 \Omega$
Capacitance	60 pF, typ.
<b>Output</b>	
Voltage accuracy	$\pm 2 \%$
Ripple and noise (at 20 MHz BW)	80 mVp-p, max.
Short circuit protection	Continuous
Short circuit restart	Automatic
Current limiting	110 %
Line voltage regulation	$\pm 0.5 \%$
Output voltage regulation at 25...100% loading	$\pm 1 \%$
Temperature coefficient	$\pm 0.02 \%$ / °C

<b>General</b>	
Switching frequency	100...650 kHz
Safety standard in accordance with	IEC60950-1:2001
<b>Environmental</b>	
Operating temperatur (ambient)	-40 °C to +85 °C
Case temperature	100 °C, max.
Storage temperature	-40 °C ... +125 °C
Derating	See curve
Humidity	Up to 95 %, non-condensing
Cooling	Free-air convection
<b>Physical</b>	
Dimensions DIP16	23.4 x 14 x 10.16 mm
Weight	6 g (Metal version 8 g)
Case material standard version	non-conductive black plastic, UL94-V0
Case material metal version	Copper, nickel plated
Potting material	Epoxy UL94-V0
Pin soldering temperature	260 C° for 10 s, 1.5 mm distance from body

## Dimensions



## Pin connections

Pin	Single	Dual
1	-V Input	-V Input
2	-V Input	-V Input
6	N.C.	Common
8	N.C.	-V Output
9	+V Output	+V Output
11	-V Output	Common
15	+V Input	+V Input
16	+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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