

PHI-CON

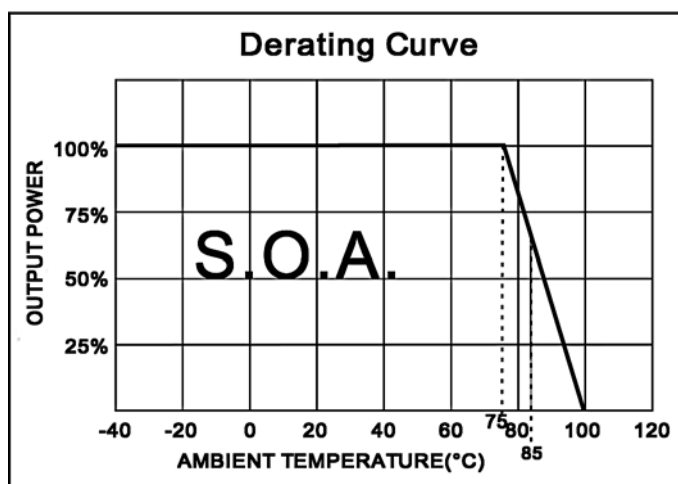
# 2W DC-DC Converter P2E-Series

- 9 Pin SIL
- Wide 4:1 input range
- Up to 1500 V<sub>DC</sub> isolation
- MTBF > 1.2 MHours.
- Continuous short circuit protection
- Remote control input



## 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 [mA]	Load regulation		Efficiency typ. @ full load [%]	Filter inductance L1 [μH]	Filter capacity C2	C-Load max. [μF]
							@ load range				
<b>Single Output</b>											
P2E243R3S	9...36	10	92	3.3	0...500	1%	10...100%	75	6.8	4.7μF X7R	2200
P2E2405S	9...36	10	103	5.0	0...400	1%	10...100%	81	6.8	4.7μF X7R	1000
P2E2412S	9...36	10	100	12.0	0...165	0.5%	0...100%	84	6.8	4.7μF X7R	160
P2E2415S	9...36	10	98	15.0	0...135	0.5%	0...100%	85	6.8	4.7μF X7R	100
P2E483R3S	18...75	5	46	3.3	0...500	1%	10...100%	75	68	1μF X7R	2200
P2E4805S	18...75	5	53	5.0	0...400	1%	10...100%	80	68	1μF X7R	1000
P2E4812S	18...75	5	50	12.0	0...165	0.5%	0...100%	84	68	1μF X7R	160
P2E4815S	18...75	5	50	15.0	0...135	0.5%	0...100%	84	68	1μF X7R	100
<b>Dual Output</b>											
P2E2405D	9...36	10	103	±5.0	±0...200	1%	10...100%	81	6.8	4.7μF X7R	2 x 470
P2E2412D	9...36	10	101	±12.0	±0...85	1%	10...100%	83	6.8	4.7μF X7R	2 x 100
P2E2415D	9...36	10	102	±15.0	±0...65	1%	10...100%	82	6.8	4.7μF X7R	2 x 47
P2E4805D	18...75	5	53	±5.0	±0...200	1%	10...100%	80	68	1μF X7R	2 x 470
P2E4812D	18...75	5	52	±12.0	±0...85	1%	10...100%	81	68	1μF X7R	2 x 100
P2E4815D	18...75	5	50	±15.0	±0...65	1%	10...100%	84	68	1μF X7R	2 x 47



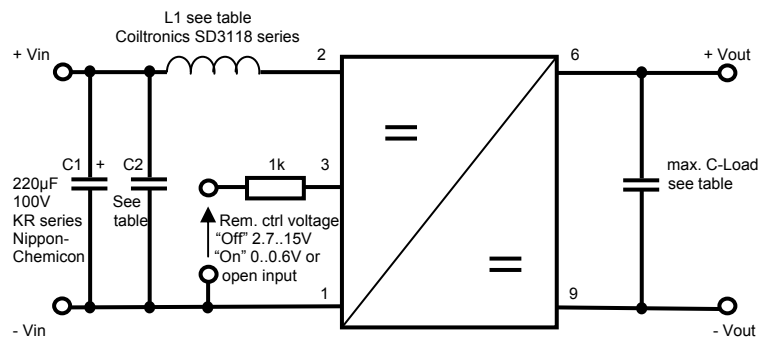
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## EFT & Surge (for EN61000-4-4 and EN61000-4-5)

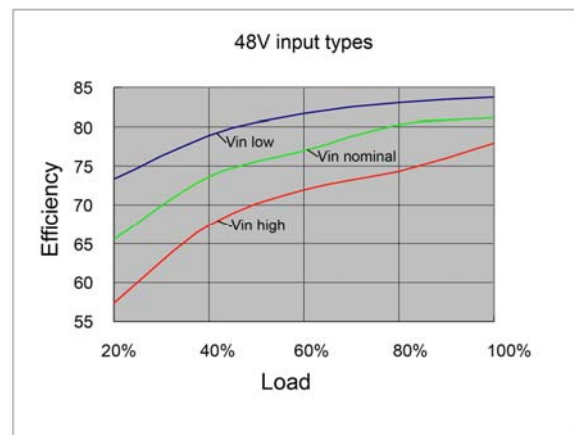
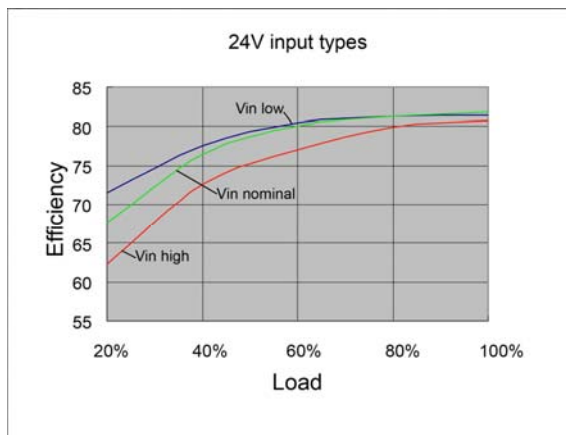
The external filter capacitor C1 is required if the module has to meet EN61000-4-4 class B and EN61000-4-5 class B.

## EMI Filter (for EN55022 class A)

Input filter components (C2, L1) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



## Efficiency versus output current



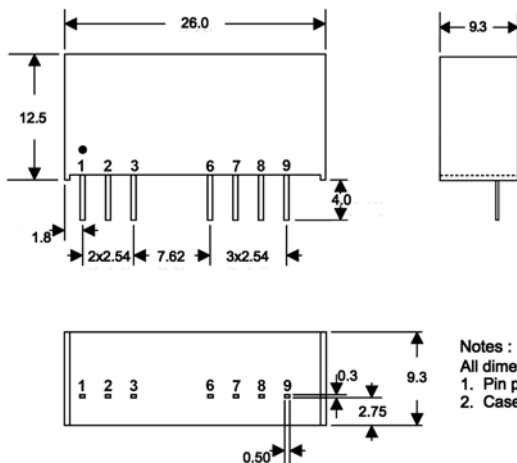
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## Specifications

<b>Input</b>	
Absolute max. voltage for 100 ms	24 V type $-0.7..50 V_{DC}$ 48 V type $-0.7..100 V_{DC}$
Input current at standby mode	5 mA max.
Star up time (with resistive load)	10ms, typ.
Filter	Capacitors
Remote on/off controll	on: open or 0...0.6V off: 2.7...15 $V_{DC}$
<b>Isolation:</b>	
Rated voltage for 60 s, input / output (Tested for 3 s)	1500 $V_{DC}$
Resistance	$10^9 \Omega$
Capacitance	500 pF, typ.
<b>Output</b>	
Voltage accuracy	$\pm 1 \%$
Ripple and noise (at 20 MHz BW)	50 mVp-p, max.
Short circuit protection	Continuous
Short circuit restart	Automatic
Line voltage regulation	$\pm 0.5 \%$
Dual output cross regulation	$\pm 5\%$
Temperature coefficient	$\pm 0.02 \%$ / °C
Transient recovery time	300µs, typ.
Transient response deviation	$\pm 3 \%$ , typ.
<b>General</b>	
Switching frequency	250 kHz
Safety standard in accordance with	IEC60950

<b>EMI</b> (see circuit diagram page 1)	
Conducted emissions	EN55022 class A
Radiated emissions	EN55022 class A
ESD	IEC61000-4-2 perf. criteria B
RS	IEC61000-4-3 perf. criteria A
EFT	IEC61000-4-4 perf. criteria B
Surge	IEC61000-4-5 perf. criteria B
CS	IEC61000-4-6 perf. criteria A
PFMF	IEC61000-4-8 perf. criteria A
<b>Environmental</b>	
Operating temperatur (ambient)	-40 °C to +85°C (see derating curve)
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 SIP8	26 x 9.3 x 12,5 mm
Weight	6.5 g
Case material standard version	non-conductive black plastic, UL94-V0
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
3	Remote on/off	Remote on/off
6	+V Output	+V Output
7	N.C.	Common
8	N.C.	N.C.
9	-V Output	-V Output

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