

PHI-CON

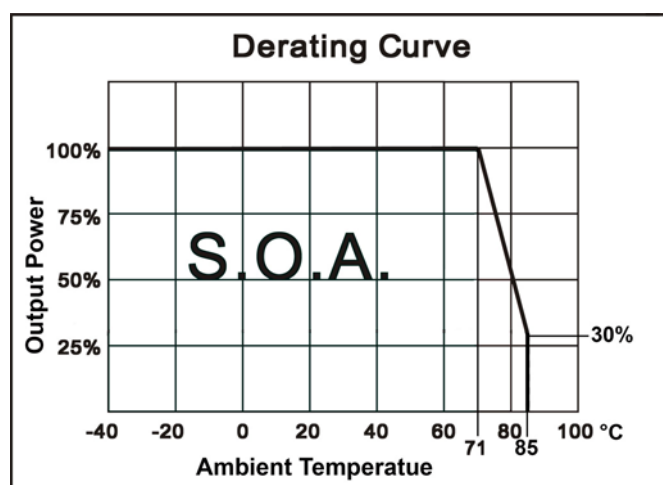
3W DC-DC Converter P3G-Series

- 9 Pin SIL
- Wide 4:1 input range
- Up to 1500 V_{DC} isolation
- MTBF > 1.2 Mio. hours
- Continuous short circuit protection
- Remote control input



Model selection guide

Type	Input voltage range V _{DC}	Input Current no-load mA	Input current full-load mA	Output voltage [V _{DC}]	Output current [mA]	Load regulation		Efficiency typ. @ full load [%]	Filter inductance L1 [μH]	Filter capacitor C2 (type X7R) [μF]	C-Load max. [μF]
						Output Voltage drift [%]	@ load range [%]				
Single Output											
P3G243R3S	9...36	10	125	3.3	0...700	1	10...100	77	6.8	4.7	2200
P3G2405S	9...36	10	153	5.0	0...600	1	10...100	82	6.8	4.7	1000
P3G2412S	9...36	10	149	12.0	0...250	0.5	0...100	84	6.8	4.7	160
P3G2415S	9...36	10	148	15.0	0...200	0.5	0...100	85	6.8	4.7	100
P3G483R3S	18...75	5	65	3.3	0...700	1	10...100	75	68	1	2200
P3G4805S	18...75	5	78	5.0	0...600	1	10...100	81	68	1	1000
P3G4812S	18...75	5	75	12.0	0...250	0.5	0...100	84	68	1	160
P3G4815S	18...75	5	75	15.0	0...200	0.5	0...100	84	68	1	100
Dual Output											
P3G2405D	9...36	10	155	±5.0	±0...300	1	10...100	81	6.8	4.7	2 x 470
P3G2412D	9...36	10	149	±12.0	±0...125	1	10...100	84	6.8	4.7	2 x 100
P3G2415D	9...36	10	149	±15.0	±0...100	1	10...100	84	6.8	4.7	2 x 47
P3G4805D	18...75	5	78	±5.0	±0...300	1	10...100	81	68	1	2 x 470
P3G4812D	18...75	5	75	±12.0	±0...125	1	10...100	84	68	1	2 x 100
P3G4815D	18...75	5	76	±15.0	±0...100	1	10...100	83	68	1	2 x 47



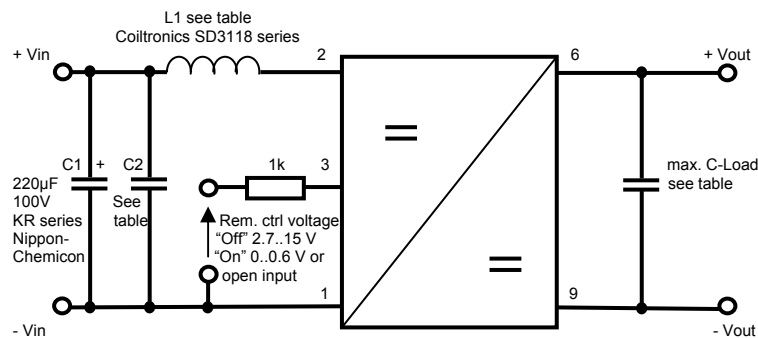
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EFT & Surge (for EN61000-4-4 and EN61000-4-5)

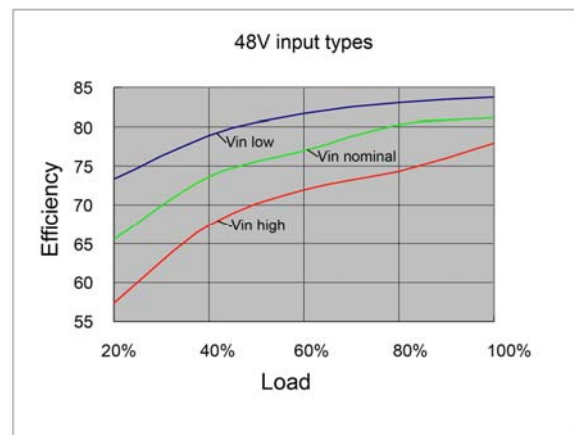
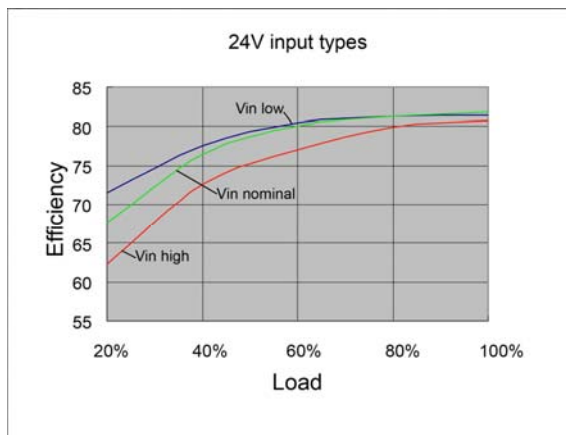
The external filter capacitor C1 is required if the module has to meet EN61000-4-4 class B and EN61000-4-5 class B.

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



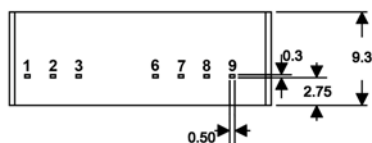
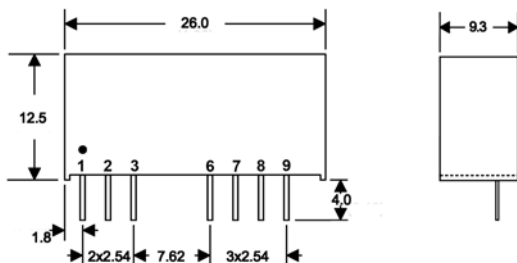
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Specifications

Input	
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.
Start up time (with resistive load)	10 ms, typ.
Filter	Capacitors
Remote on/off controll	on: open or $0..0.6 V$ off: $2.7..15 V_{DC}$
Isolation:	
Rated voltage for 60 s, input / output (Tested for 3 s)	$1500 V_{DC}$
Resistance	$10^9 \Omega$
Capacitance	500 pF, typ.
Output	
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	300 μs , typ.
Transient response deviation	$\pm 3 \%$, typ.
General	
Switching frequency	250 kHz
Safety standard in accordance with	IEC60950

EMI (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
Environmental	
Operating temperatur (ambient)	$-40 \text{ }^\circ\text{C}$ to $+85 \text{ }^\circ\text{C}$ (see SOA diagramm)
Case temperature	$100 \text{ }^\circ\text{C}$, max.
Storage temperature	$-40 \text{ }^\circ\text{C}$... $+125 \text{ }^\circ\text{C}$
Derating	See curve
Humidity	Up to 95 %, non-condensing
Cooling	Free-air convection
Physical	
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	$260 \text{ }^\circ\text{C}$ for 10 s, 1.5 mm distance from body

Dimensions



Notes:
All dimensions are typical in millimeters
1. Pin pitch tolerance: ± 0.35
2. Case Tolerance: ± 0.5

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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