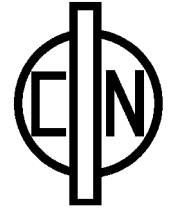


12W DC-DC Converter P12D-Series



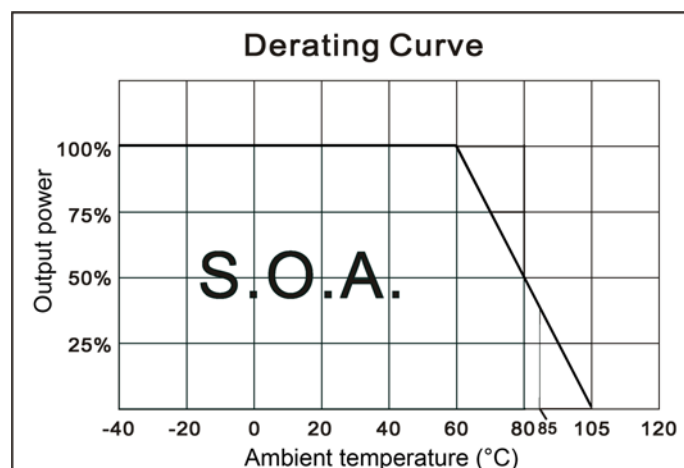
PHI-CON

- Wide 4:1 Input Range
- 1600 V_{DC} Isolation
- MTBF >1 MHours
- Continuous Short Circuit Protection
- Over Load Protection
- Over Voltage Protection
- Efficiency up to 90%
- 15 mA no load Input Current
- Wide Operation Temperature Range -40...85°C
- On / Off Remote Control Input
- Soft Start



Model selection guide

Typ	Input voltage range [V _{DC}]	Input current		Output voltage [V _{DC}]	Output current [mA]	Efficiency typ. [%]	Capacitor Load [μF]
		no load [mA]	full load [mA]				
Single output							
P12D243R3S	9...36	15	575	3.3	3500	87	2000
P12D245R1S	9...36	15	580	5.1	2400	89	2000
P12D2412S	9...36	15	575	12.0	1000	90	430
P12D2415S	9...36	15	575	15.0	800	90	300
P12D483R3S	18...75	15	285	3.3	3500	88	2000
P12D485R1S	18...75	15	290	5.1	2400	89	2000
P12D4812S	18...75	15	285	12.0	1000	88	430
P12D4815S	18...75	15	290	15.0	800	89	300
Dual output							
P12D2405D	9...36	15	562	±5.0	±1200	87	2 x 1200
P12D2412D	9...36	15	575	±12.0	±500	90	2 x 200
P12D2415D	9...36	15	562	±15.0	±400	90	2 x 120
P12D4805D	18...75	15	300	±5.0	±1200	87	2 x 1200
P12D4812D	18...75	15	295	±12.0	±500	90	2 x 200
P12D4815D	18...75	15	290	±15.0	±400	90	2 x 120

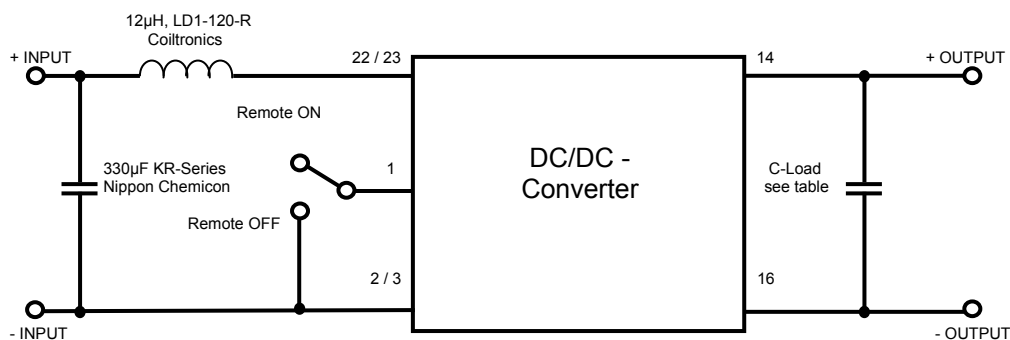


12W DC-DC Converter P12D-Series

Specifications

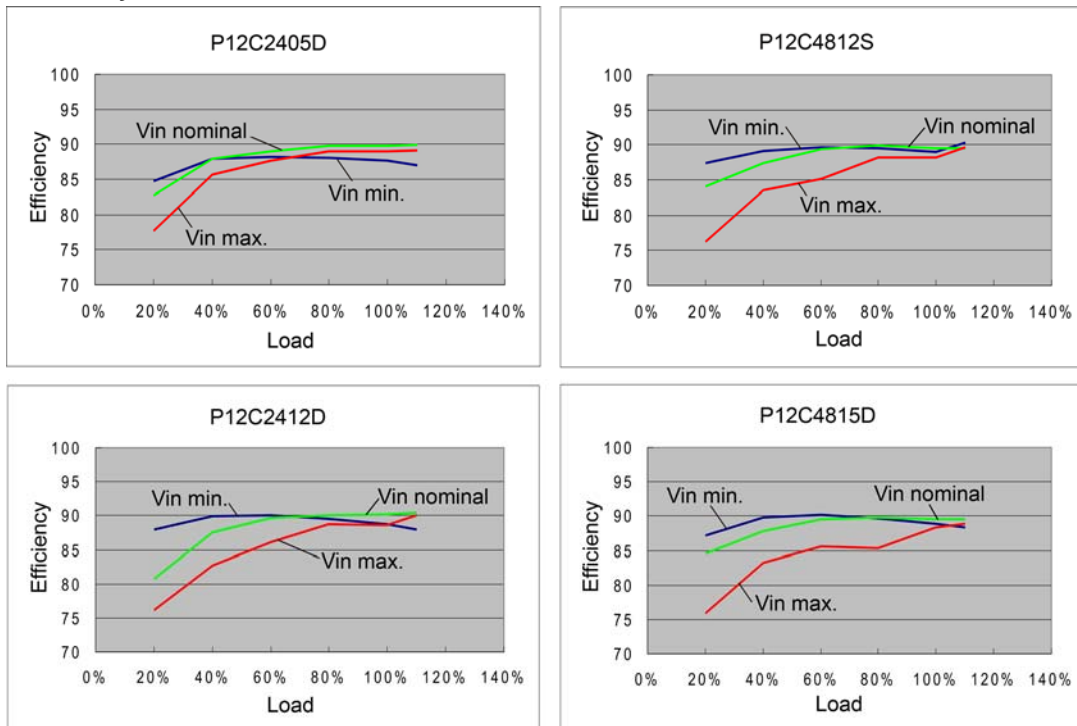
Input	
Filter	Pi Network
Start up time with R-load	20 ms typ.
Remote CTRL on/off, Pin1	On: 3...12 V or open input Off: 0...1.2 V Standby current 5mA typ
Isolation:	
Rated voltage (for 60 s)	1600 V _{DC} (flash tested 3s)
Resistance	10 ⁹ Ω
Capacitance	1500 pF, typ.
Output	
Voltage accuracy	± 1.2%, max.
Voltage balance (dual outputs)	± 1%
Temperature coefficient	± 0.02% / °C
Ripple and noise (at 20 MHz BW)	85 mVp-p, max.
Short circuit protection	Indefinite (hiccup), Automatic restart
Over load protection	170 % of I _{OUT} max.
Over voltage protection	
2.5 V, 3.3 V out type	3.9 V Z-diode clamping
(±) 5.1 V out type	6.2 V Z-diode clamping
(±) 12 V out type	(±)15 V Z-diode clamping
(±) 15 V out type	(±)18 V Z-diode clamping
Line voltage regulation	± 0.2 %, max.
Load regulation 0...100% load	single ± 0.5%, max. dual ± 1%, max.
Cross regulation @ dual output	± 5 %
Transient recovery time	250 μs typ.
Transient response drift @ 75%...50%...25% load	3 %

General	
Switching frequency	270 kHz
Safety Standard	IEC 60950-1:2001
Reliability calculated MTBF (MIL-HDBK-217F)	>1 Mhours @ 25°C
EMC Characteristics	
Radiated Emissions	EN55022 class A
Conducted Emissions	EN55022 class A
ESD	EN61000-4-2 Crit. B
RS	EN61000-4-3 Crit. A
EFT	EN61000-4-4 Crit. B
Surge	EN61000-4-5 Crit. B
CS	EN61000-4-6 Crit. A
PFMF	EN61000-4-8 Crit. A
Environmental	
Operating temperatur (ambient)	-40 °C to +85 °C See derating curve
Case temperature	105 °C max.
Storage temperature	-40 °C to +125 °C
Humidity	Up to 95 %, non-condensing
Cooling	Free-air convection
Physical	
Dimensions	31.75 x 20.32 x 10.16 mm
Weight	18 g
Case material	Nickel-coated copper metal
Potting material	Epoxy (UL94V-0 rated)
Absolute maximum ratings	
Pin soldering temperature 1.5mm distance from body	260°C for 10sec
Input peak voltage for 0.1s	-0.7 V _{DC} ...50 V _{DC} @ 24 V type -0.7 V _{DC} ...100 V _{DC} @ 48 V type

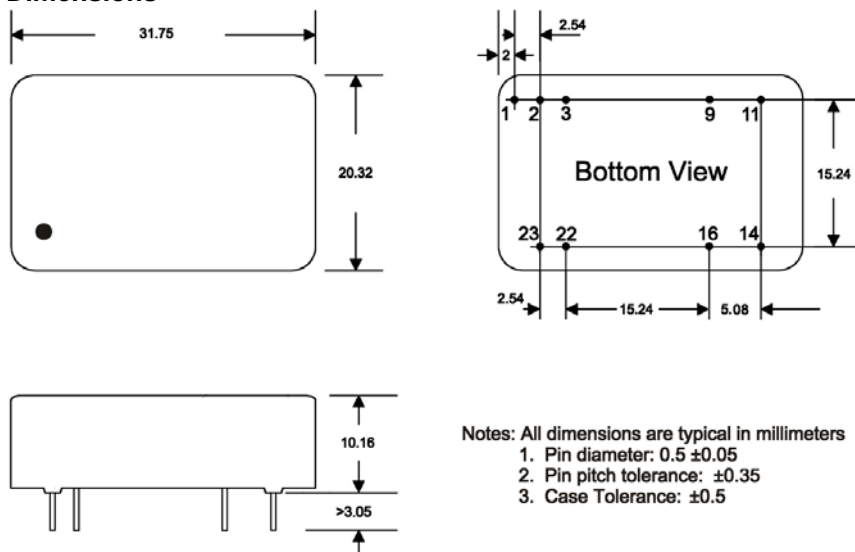


12W DC-DC Converter P12D-Series

Efficiency vs Load



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	Single	Dual
1	Remote contr.	Remote contr.
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