15 W DC-DC Converter P15H-Series

PHI-CON

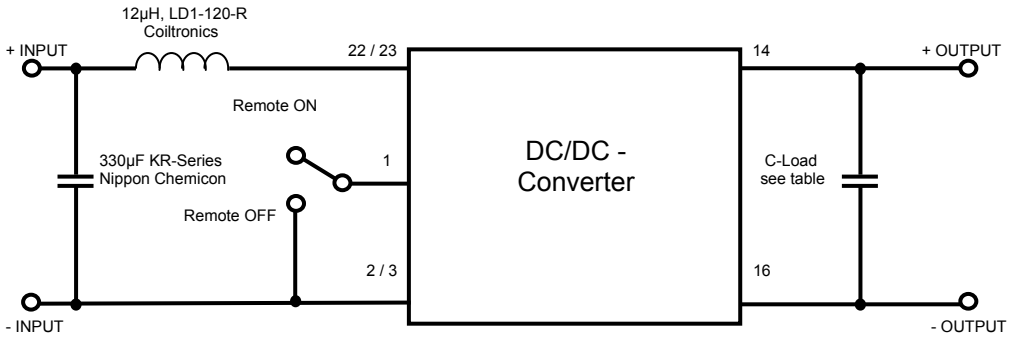
- Wide 2:1 Input Range
- 1600 V_{DC} Isolation
- MTBF >1 Mio Hours
- Continuous Short Circuit Protection
- Efficiency up to 91 %
- 15 mA no load Input Current
- Soft Start
- Wide Operation Temperature Range -40...85 °C
- Remote Control on / off Function



Model guide

Type	Input nominal voltage [V_{DC}]	Input current no load [mA]	Input current full load [mA]	Output voltage [V_{DC}]	Output current [mA]	Efficiency typ. [%]	Capacitor Load [µF]
Single output							
P15H123R3S	9...18	15	1310	3.3	0…4000	86	4700
P15H125R1S	9...18	15	1465	5.1	0…3000	89	3300
P15H1212S	9...18	15	1435	12.0	0…1250	89	600
P15H1215S	9...18	15	1420	15.0	0…1000	90	400
P15H243R3S	18...36	10	645	3.3	0…4000	87	4700
P15H245R1S	18...36	10	730	5.1	0…3000	89	3300
P15H2412S	18...36	10	710	12.0	0…1250	90	600
P15H2415S	18...36	10	700	15.0	0…1000	91	400
P15H483R3S	36...75	5	330	3.3	0…4000	86	4700
P15H485R1S	36...75	5	370	5.1	0…3000	88	3300
P15H4812S	36...75	5	360	12.0	0…1250	89	600
P15H4815S	36...75	5	360	15.0	0…1000	89	400
Dual output							
P15H1205D	9...18	15	1490	±5.0	±0…1500	86	2 x 1500
P15H1212D	9...18	15	1420	±12.0	±0…625	90	2 x 290
P15H1215D	9...18	15	1420	±15.0	±0…500	90	2 x 200
P15H2405D	18...36	10	745	±5.0	±0…1500	86	2 x 1500
P15H2412D	18...36	10	710	±12.0	±0…625	90	2 x 290
P15H2415D	18...36	10	710	±15.0	±0…500	90	2 x 200
P15H4805D	36...75	5	370	±5.0	±0…1500	86	2 x 1500
P15H4812D	36...75	5	360	±12.0	±0…625	89	2 x 290
P15H4815D	36...75	5	355	±15.0	±0…500	90	2 x 200

Typical application circuit



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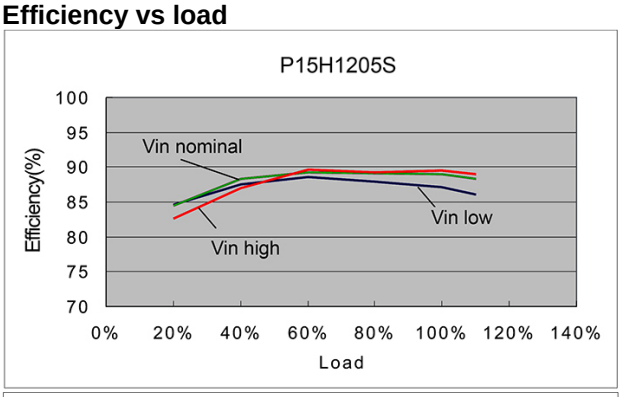
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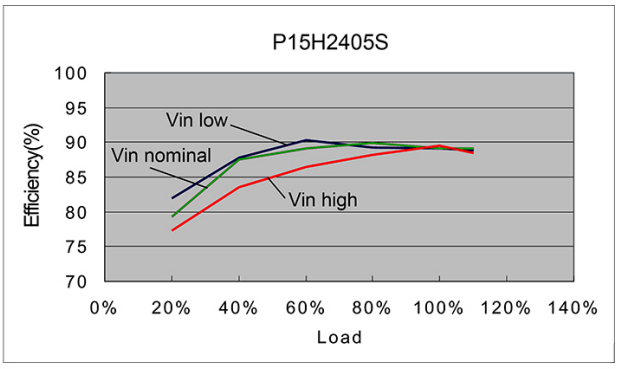
Specifications

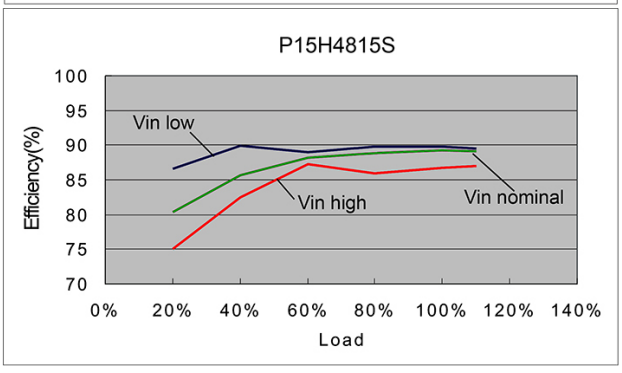
Input	
Filter	Pi Network
Start up time with R-load	20 ms typ.
Remote CTRL on/off, Pin1	On: 3...12 V or open input Off: 0...1.2 V Standby current 5 mA typ
Isolation:	
Rated voltage (for 60 s)	1600 V_{DC} (flash tested 1s)
Resistance	10^9 Ω
Capacitance	1200 pF, typ.
Output	
Voltage accuracy	± 1 %, max.
Voltage balance (dual outputs)	± 1 %
Cross regulation @ dual outp.	± 5 %
Temperature coefficient	± 0.02 % / °C
Ripple and noise (at 20 MHz BW)	85 mVp-p, max.
Short circuit protection	Indefinite (hiccup), Automatic restart
Over current limiting	150 % of I_{out} max.
Over voltage protection	
P15Hxx3R3x	3.9 V Z-diode clamping
P15Hxx5R1x	6.2 V Z-diode clamping
P15Hxx12x	(±)15V Z-diode clamping
P15Hxx15x	(±)18V Z-diode clamping
Line voltage regulation	± 0.5 %, max.
Load regulation 0...100% load	single ± 0.5 %, max. dual ± 1 %, max.
Transient recovery time	250 µs typ.
Transient response drift @ 75%...50%...25% load	3 %

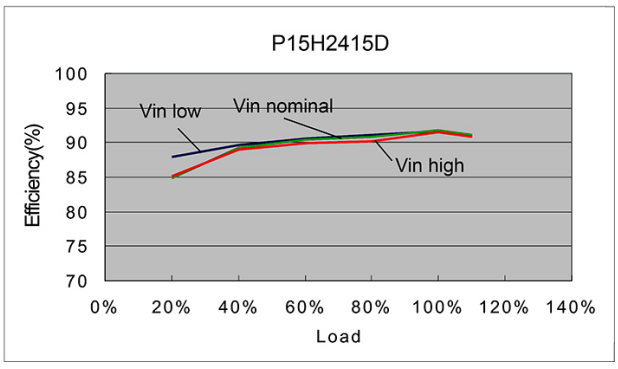
General	
Switching frequency	330 kHz
Safety Standard	IEC 60950-1:2001
EMC Characteristics	
Radiated Emissions	EN55022 class A
Conducted Emissions	EN55022 class A
ESD	EN61000-4-2 Crit. B
RS	EN61000-4-3 Crit. A
EFT	EN61000-4-4 Crit. B
Surge	EN61000-4-5 Crit. B
CS	EN61000-4-6 Crit. A
PFMF	EN61000-4-8 Crit. A
Environmental	
Operating temperatur (ambient)	-40 °C to +85 °C
Case temperature	100 °C max.
Storage temperature	-40 °C to +125 °C
Derating	see diagram
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	Standard, nickel-coated copper metal
Potting material	Epoxy (UL94V-0 rated)
Pin soldering temperature 1.5mm distance from body	260°C for 10sec

Efficiency vs load









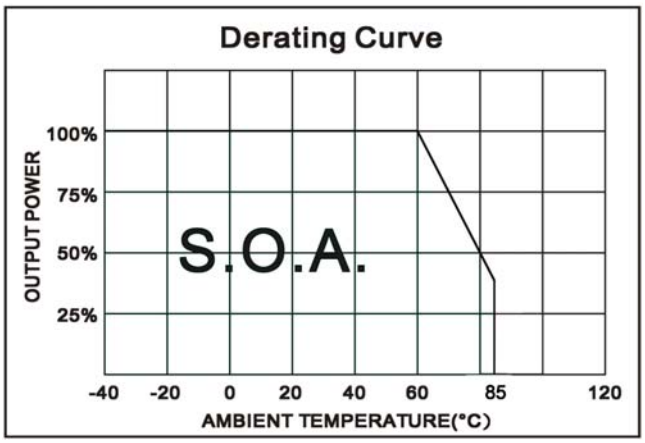
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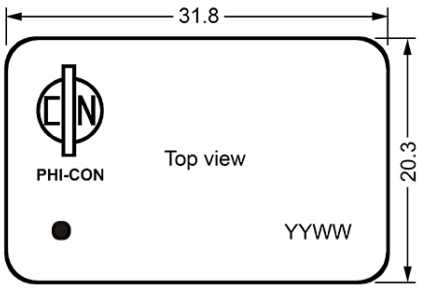
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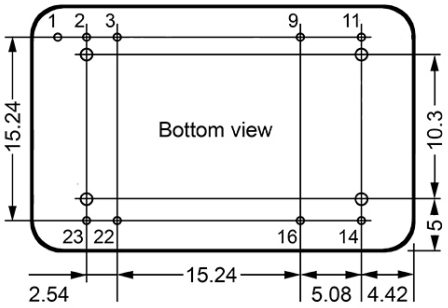
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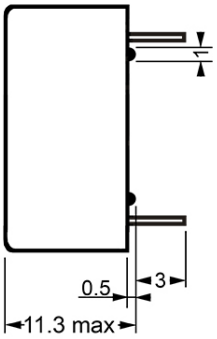
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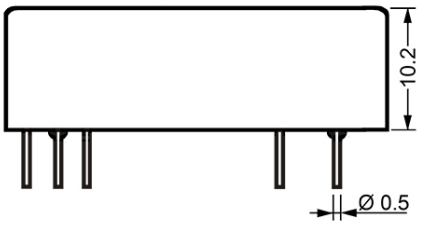


Dimensions









Pin assignment		
	Single	Dual
1	Rem. contr.	Rem. 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

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