

20W DC-DC Converter P20A-Series



PHI-CON

- Output current up to 6A
- 20 W maximum output power
- Adjustable Output Voltage
- 2:1 wide input voltage range
- Six-Sided continuous shield
- High efficiency up to 89%
- Standard 2" x 1" x 0.4" package
- Fixed switching frequency



Model selection guide

Typ	Input nominal voltage [V _{DC}]	Input current full-load [mA]	Output voltage [V _{DC}]	Output current [mA]	Output ripple & noise, BW: 20MHz [mVp-p]	Efficiency typ. [%]	Capacitor load max. [μF]
Single output							
P20A12S1P5	9...18	1014	1.5	6000	60	78	65000
P20A12S1P8	9...18	1200	1.8	6000	60	79	65000
P20A12S2P5	9...18	1582	2.5	6000	60	83	33000
P20A12S3P3	9...18	1698	3.3	5000	60	85	13000
P20A12S05	9...18	2008	5.0	4000	75	87	6800
P20A12S12	9...18	2037	12.0	1670	75	86	2200
P20A12S15	9...18	2027	15.0	1330	75	86	755
P20A24S1P5	18...36	492	1.5	6000	100	80	65000
P20A24S1P8	18...36	585	1.8	6000	100	81	65000
P20A24S2P5	18...36	781	2.5	6000	60	84	33000
P20A24S3P3	18...36	838	3.3	5000	60	86	13000
P20A24S05	18...36	980	5.0	4000	60	89	6800
P20A24S12	18...36	1006	12.0	1670	60	87	2200
P20A24S15	18...36	1001	15.0	1330	75	87	755
P20A48S1P5	36...75	247	1.5	6000	75	80	65000
P20A48S1P8	36...75	288	1.8	6000	75	82	65000
P20A48S2P5	36...75	391	2.5	6000	100	84	33000
P20A48S3P3	36...75	414	3.3	5000	100	87	13000
P20A48S05	36...75	490	5.0	4000	60	89	6800
P20A48S12	36...75	497	12.0	1670	60	88	2200
P20A48S15	36...75	501	15.0	1330	60	87	755
Dual output							
P20A12D12	9...18	2032	±12.0	±833	60	86	2 x 680
P20A12D15	9...18	2034	±15.0	±667	75	86	2 x 450
P20A24D12	18...36	1004	±12.0	±833	75	87	2 x 680
P20A24D15	18...36	993	±15.0	±667	75	88	2 x 450
P20A48D12	36...75	496	±12.0	±833	100	88	2 x 680
P20A48D15	36...75	496	±15.0	±667	100	88	2 x 450

EMC Characteristics		
Conducted emissions	EN55022	Class A
Radiated emissions	EN55022	Class A
ESD	EN61000-4-2	Perf. Criteria B
Radiated immunity	EN61000-4-3	Perf. Criteria A
Fast transient	EN61000-4-4	Perf. Criteria B
Surge	EN61000-4-5	Perf. Criteria B
Conducted immunity	EN61000-4-6	Perf. Criteria A

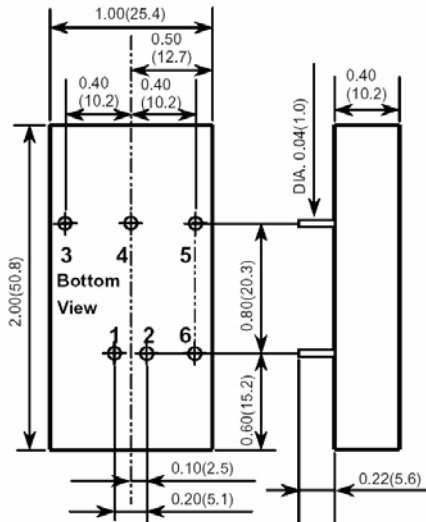
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Specifications

Input	
Voltage range	9...18, 18...36, 36...75 V _{DC}
Filter	L-C type
Input surge voltage for 100ms max.	12V type : 36 V _{DC} max. 24V type : 50 V _{DC} max. 48V type : 100 V _{DC} max.
Remote CTRL	
Remote CTRL input current	On: open or 3...12 V _{DC} Off: 0...1.2 V _{DC}
Remote CTRL input reference	-Input
Output	
Power	20W max
Voltage accuracy	± 1%
Voltage adjustability	± 10%
Cross regulation dual output	5% @ 25% & 100% of full load
Over voltage protection zener diode clamp	1.5V outp.: 3.9V 5V outp.: 6.2V 1.8V outp.: 3.9V 12V outp.: 15V 2.5V outp.: 3.9V 15V outp.: 18V 3.3V outp.: 3.9V
Over load protection	150%
Short circuit protection	Hiccup, automatics recovery
Line regulation	± 0.2%
Load voltage regulation	± 0.5%
Temperature coefficient	± 0.02% / °C
Transient response recovery time	250 µs / 25% load step change
Minimum load	Single: 0%, Dual: 10%

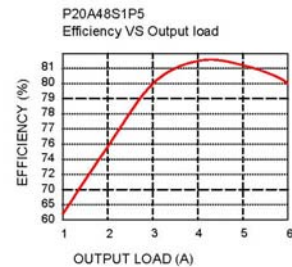
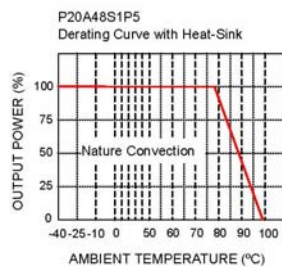
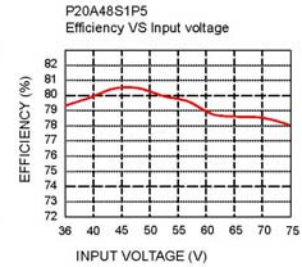
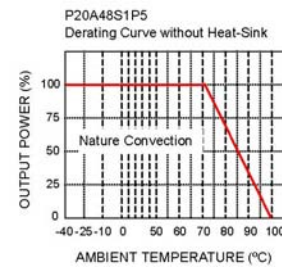
General	
Start up time@power- /remote on	10ms typ.
Switching frequency	500 kHz, typ.
Isolation voltage	1600 V _{DC}
Isolation Resistance	10 ⁹ Ω
Isolation Capacitance	1000 pF, max.
Start up time @ nominal Vin and constant resistor load	10ms typ.
MTBF	@Ta 40°C, 50% stress: 1.791x10 ⁶ hrs
Belcore TR-NWT-000332	
Safety standards in accordance to	EN60950-1, IEC60950-1, UL60950-1
Environmental	
Operating temperature	-40 °C to +85 °C (with derating)
Storage temperature	-55 °C to +105 °C
Maximum case temperature	100°C
Thermal impedance	Nature convection 12°/Watt
Thermal shock	MIL-STD-810D
Vibration	10..55Hz, 10G, 30min, X,Y, Z axis
Relative humidity	5% to 95% RH
Physical	
Dimensions	1 x 2 inches 50.8 x 10.2 x 25.4 mm
Weight	27 g
Base material	Non-conductive black plastic
Case material	Nickel-coated copper
Potting material	Epoxy (UL94-V0)

Dimensions



All dimensions in inches (mm)
Pin Pitch tolerance ±0.014 (0.35)

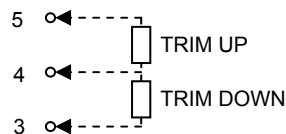
Derating



Pin connections

Pin	Single	Dual
1	+ Input	+ Input
2	- Input	- Input
3	+ Output	+ Output
4	Trim	Common
5	- Output	- Output
6	CTRL	CTRL

Output can be externally trimmed by using the method shown below. () for dual output



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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