

PHI-CON

20W DC-DC Converter P20Z-Series

- 20 W Output Power
- 2:1 Wide Input Voltage Range
- Adjustable Output Voltage
- Remote Control Input
- International Safety Standard
- Six-Sided Continuous Shield
- High Efficiency up to 86%
- Standard 2" X 1.6" X 0.4" Package
- Fixed Switching Frequency



Model selection guide

Typ	Input		Single Output			Dual output			Efficiency typ. [%]	Output ripple @ bandwidth 20MHz [mV _{p-p}]
	nominal voltage [V _{DC}]	current full load [mA]	voltage [V _{DC}]	current [mA]	capacitor load max. [µF]	voltage [V _{DC}]	current [mA]	capacitor load max. [µF]		
Single output										
P20Z12S33	9-18	1507	3.3	4000	13000				77	75
P20Z12S05	9-18	2193	5	4000	6800				80	75
P20Z12S12	9-18	2136	12	1670	2200				82	75
P20Z12S15	9-18	2136	15	1330	755				82	75
P20Z24S33	18-36	743	3.3	4000	13000				78	75
P20Z24S05	18-36	1082	5	4000	6800				81	75
P20Z24S12	18-36	1054	12	1670	2200				83	75
P20Z24S15	18-36	1054	15	1330	755				83	75
P20Z48S33	36-75	367	3.3	4000	13000				79	75
P20Z48S05	36-75	543	5	4000	6800				82	75
P20Z48S12	36-75	527	12	1670	2200				83	75
P20Z48S15	36-75	527	15	1330	755				83	75
Dual output										
P20Z12D05	9-18	2193				±5	±2000	2 x 3400	80	100
P20Z12D12	9-18	2136				±12	±833	2 x 680	82	100
P20Z12D15	9-18	2136				±15	±666	2 x 450	82	100
P20Z24D05	18-36	1082				±5	±2000	2 x 3400	81	100
P20Z24D12	18-36	1054				±12	±833	2 x 680	83	100
P20Z24D15	18-36	1041				±15	±666	2 x 450	84	100
P20Z48D05	36-75	541				±5	±2000	2 x 3400	81	100
P20Z48D12	36-75	514				±12	±833	2 x 680	85	100
P20Z48D15	36-75	508				±15	±666	2 x 450	86	100
Triple output										
P20Z12T3312	9-18	1926	3.3	3000	4700	±12	±300	2 x 220	78	50
P20Z12T3315	9-18	1959	3.3	3000	4700	±15	±250	2 x 220	78	50
P20Z12T0512	9-18	1885	5.0	2000	4700	±12	±300	2 x 220	80	50
P20Z12T0515	9-18	1919	5.0	2000	4700	±15	±250	2 x 220	80	50
P20Z24T3312	18-36	950	3.3	3000	4700	±12	±300	2 x 220	79	50
P20Z24T3315	18-36	967	3.3	3000	4700	±15	±250	2 x 220	79	50
P20Z24T0512	18-36	931	5.0	2000	4700	±12	±300	2 x 220	81	50
P20Z24T0515	18-36	947	5.0	2000	4700	±15	±250	2 x 220	81	50
P20Z48T3312	36-75	468	3.3	3000	4700	±12	±300	2 x 220	80	50
P20Z48T3315	36-75	477	3.3	3000	4700	±15	±250	2 x 220	80	50
P20Z48T0512	36-75	459	5.0	2000	4700	±12	±300	2 x 220	82	50
P20Z48T0515	36-75	467	5.0	2000	4700	±15	±250	2 x 220	82	50

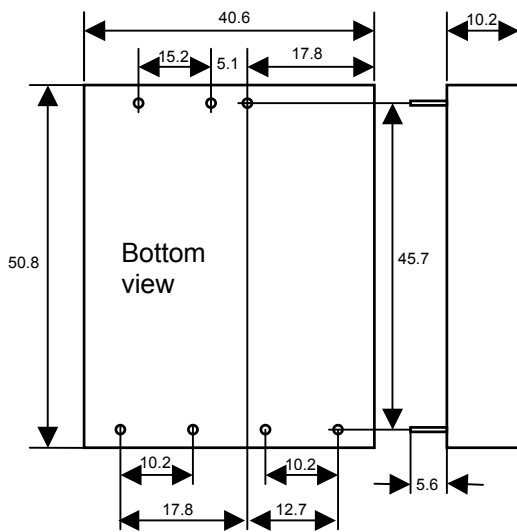
20W DC-DC Converter P20Z-Series

Specifications

Input	
Voltage range	P20Z: 9..18, 18..36, 36..75V _{DC}
Filter	π Pi 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.
Start up time	20mS typ
Remote CTRL	On: open or 3.5..12 V _{DC} Off : 0...1.2 V _{DC}
Remote CTRL input current	-20mA
Remote CTRL input reference	-Input
Output	
Power	20W max
Voltage accuracy	Single & Dual ±2% Triple 3.3V/5V ±2% Auxiliary ±5%
Voltage adjustability	±10%
Short circuit protection	Hiccup, automatics recovery
Over voltage protection zener diode clamp	3.3V output: 3.9V, 5V output: 6.2V, 12V output: 15V, 15V output: 18V
Line voltage regulation	Triple 3.3V/5V ± 1% Auxiliary ±5%
Load voltage regulation 25%...100%	single: ± 0.5%, dual: ±3%, tiple3.3V/5V: ±2%, Auxiliary: 5%
Temperature coefficient	± 0.02% / °C max.
Minimum load	10% to maintain the specified regulation

General	
Efficiency	See table
Switching frequency	300 kHz, typ.
Transient response recovery time	@25% load change 500µs
Isolation voltage	1600 V _{DC}
Isolation Leakage current	1 mA
Isolation Resistance	10 ⁹ Ω
Isolation Capacitance	300 pF, typ.
Case material	Nickel-coated copper
Base material	Non conductive black plastic
Potting material	Epoxy (UL94-V0)
MTBF	@Ta 40°C, 50% stress: 1.928x10 ⁶ hrs
Bellcore TR-NWT-000332	
Environmental	
Operating temperature	-25 °C to +85 °C (standard, derating)
Storage temperature	-55 °C to +105 °C
Maximum case temp.	+100 °C
Thermal impedance	Nature convection 10°C/W with heatsink 8.3°C/W
Vibration	10..55Hz, 2G, 30min, X,Y, Z axis
Humidity	5% to 95% RH
Physical	
Dimensions	2 x 1.6x 0.4 inches 50.8x40.6x10.2 mm
Weight	48 g

Dimensions

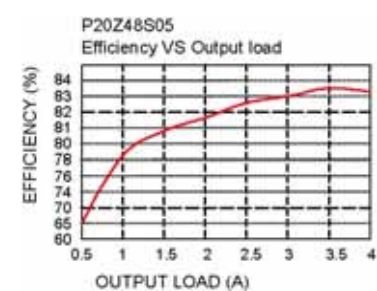
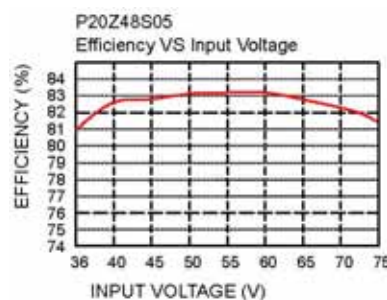
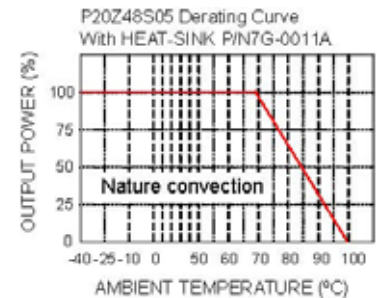
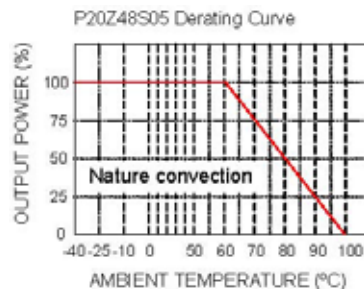


All dimensions in inches (mm)
Pin Pitch tolerance (0.35)

Pin connections

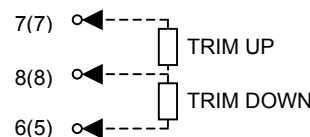
PIN	Single	Dual	Triple
1	+ Input	+ Input	+ Input
2	- Input	- Input	- Input
4	Remote CTRL	Remote CTRL	Remote CTRL
5	No Pin	+ Output	+AUXILIARY
6	+ Output	Common	+3.3V or +5V
7	- Output	- Output	Common
8	TRIM Input	TRIM Input	-AUXILIARY

Derating



Output adjustment

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



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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