

PHI-CON

500mA DC-DC Step Down Converter P78A-Series

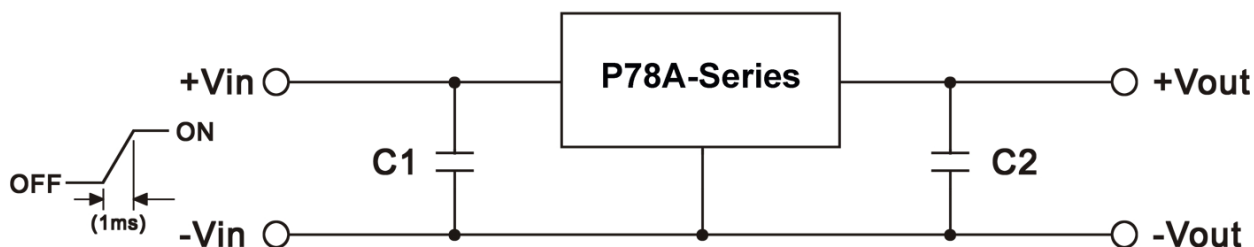
- Non Isolated
- 3 Pin SIL
- Pin compatible with 78Mxx linear regulator
- Efficiency up to 97%
- Operating temperature range -40...+85°C
- Wide Input Range
- Continuous sort circuit protected



Model selection guide

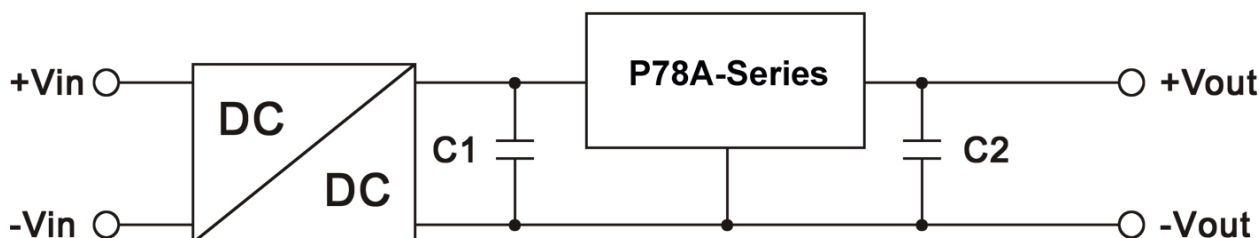
Typ	Input nominal voltage [V _{DC}]	Input current			Output			Efficiency	
		No-load [mA]	Full load		Voltage [V _{DC}]	Current [mA]	Capacitive load max. [μF]	@ V _{in} min. [%]	@ V _{in} max. [%]
			@ V _{in} min. [mA]	@ V _{in} max. [mA]					
P78A1R5	4.75...30	7	200	37	1.5	500	220	78	65
P78A1R8	4.75...34	7	230	38	1.8	500	220	82	70
P78A2R5	4.75...34	7	300	48	2.5	500	220	87	76
P78A3R3	4.75...34	7	380	60	3.3	500	220	91	81
P78A05	6.5...34	7	410	86	5.0	500	220	94	85
P78A6R5	8...34	7	425	108	6.5	500	220	95	88
P78A7R2	9...34	7	420	118	7.2	500	220	95	89
P78A09	11...34	7	425	144	9.0	500	220	96	92
P78A12	15...34	7	412	188	12.0	500	220	97	94
P78A15	18...34	7	430	232	15.0	500	220	97	95

Application



- For converter protection during the power up, use soft start Vin and C1 with 47μF
- C2: 100μF optional

Isolated wide input range regulated output



- Isolation voltage up to 6kV
- Wide input voltage range
- Improved loading / line regulation
- Point-of-load Architecture
- C1: Required if further decoupling filtering may be necessary between the two converters
- C2: Optional

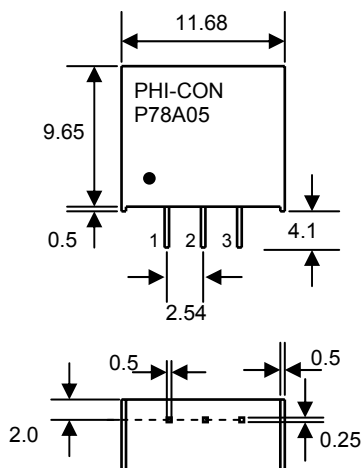
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Specifications

Input	
Absolute max. input voltage range	-0.3...34V _{DC}
Input reflected ripple current @ source Inductance 12μH	35mA _{pp}
Filter	Capacitors
Output	
Voltage accuracy	± 2%, max.
Input voltage regulation	± 0.5%
Load regulation	± 0.6% @ load 10..100%
Short circuit protection	not limited, automatic recovery
Ripple and noise (at 20 MHz BW)	60 mVp-p, max.
Temperature coefficient	± 0.02% / °C
General	
Switching frequency	330 kHz, typ.
Reliability calculated MTBF	>1,121Mhrs

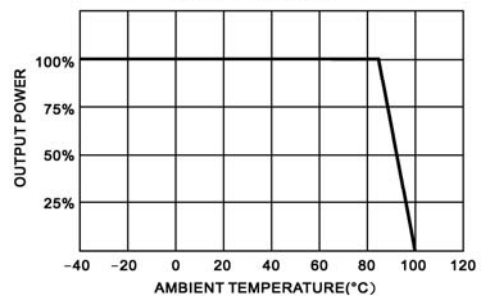
Environmental	
Operating ambient temperature	-40 °C ... +85 °C
Case temperature	100 °C, max.
Storage temperature	-40 °C ... +125 °C
Derating	see diagram
Humidity	Up to 95%, non-condensing
Cooling	nature convection
Physical	
Dimensions	SIP3 11.68 x 7.5 x 10.16 mm
Weight	1.8 g
Case material	non-conductive black plastic, UL94V-0
Potting material	Epoxy UL94V-0
Soldering temperature	260°C for 10s 1,5mm distance from case

Dimensions



All dimensions in mm
Pitch tolerance ±0.35 mm
Pin tolerance ±0.05 mm
Package tolerance ±0.5mm

Derating Curve



Pin connections

Pin	Connections
1	+V Input
2	GND
3	+V 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. Rev: 4.08 f