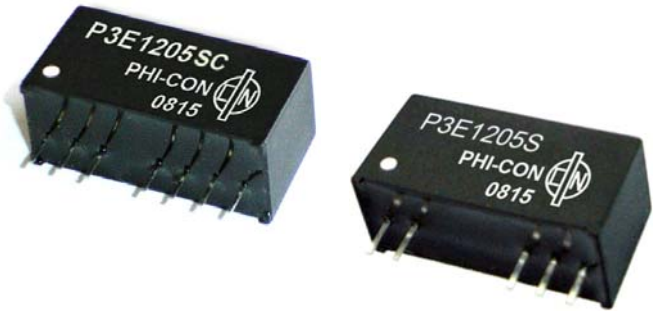
3W DC-DC Converter P3E-Series

PHI-CON

- 8 Pin SIL
- Wide 2:1 input range
- Up to 1600 V_{DC} isolation
- MTBF > 2.4 MHours.
- Continuous short circuit protection
- Metal case optional
- Remote control input

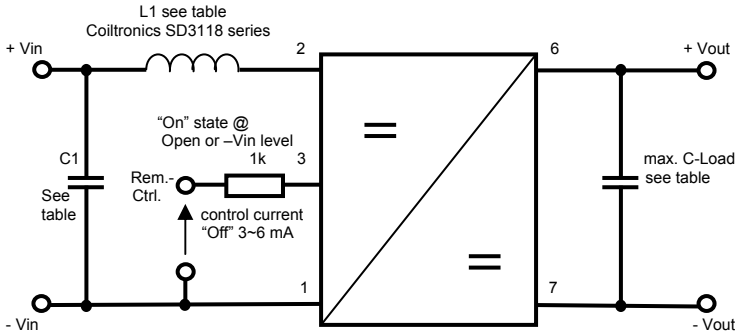


Model selection guide

Typ	Input voltage range V_{DC}]	Input Current no-load mA]	Input current full-load [mA]	Output voltage [V_{DC}]	Output current min. (1) [mA]	Output current max. [mA]	Efficiency typ. @ full load [%]	Filter inductance L1 [µH]	Filter capacity C1 [µF]	C-LOad max. [µF]
Single output										
P3E053R3SC	4.5…9	65	640	3.3	175	700	74	6.8	220	2200
P3E0505SC	4.5…9	70	800	5.0	150	600	76	6.8	220	1000
P3E0512SC	4.5…9	75	750	12.0	62,5	250	82	6.8	220	470
P3E0515SC	4.5…9	75	750	15.0	50	200	82	6.8	220	220
P3E123R3SC	9…18	25	260	3.3	175	700	76	22	100	2200
P3E1205SC	9…18	15	320	5.0	150	600	81	22	100	1000
P3E1212SC	9…18	35	305	12.0	62,5	250	84	22	100	470
P3E1215SC	9…18	35	305	15.0	50	200	84	22	100	220
P3E243R3SC	18…36	15	133	3.3	175	700	74	22	10	2200
P3E2405SC	18…36	15	160	5.0	150	600	79	22	10	1000
P3E2412SC	18…36	20	156	12.0	62,5	250	82	22	10	470
P3E2415SC	18…36	20	152	15.0	50	200	84	22	10	220
P3E483R3SC	36...72	10	66	3.3	175	700	75	47	100	2200
P3E4805SC	36...72	10	82	5.0	150	600	78	6.8	100	1000
P3E4812SC	36...72	15	78	12.0	62,5	250	81	6.8	100	470
P3E4815SC	36...72	15	78	15.0	50	200	81	6.8	100	220
Dual output										
P3E0505DC	4.5…9	90	800	±5.0	±75	±300	77	6.8	220	2 x 470
P3E0512DC	4.5…9	90	760	±12.0	±31	±125	81	6.8	220	2 x 220
P3E0515DC	4.5…9	90	750	±15.0	±25	±100	82	6.8	220	2 x 100
P3E1205DC	9…18	45	320	±5.0	±75	±300	80	22	2.2(1210)	2 x 470
P3E1212DC	9…18	45	308	±12.0	±31	±125	83	22	2.2(1210)	2 x 220
P3E1215DC	9…18	45	312	±15.0	±25	±100	82	22	2.2 (1210)	2 x 100
P3E2405DC	18…36	20	160	±5.0	±75	±300	80	22	10 (1210)	2 x 470
P3E2412DC	18…36	20	154	±12.0	±31	±125	83	22	10 (1210)	2 x 220
P3E2415DC	18…36	20	154	±15.0	±25	±100	83	22	10 (1210)	2 x 100
P3E4805DC	36...72	15	82	±5.0	±75	±300	78	6.8	100	2 x 470
P3E4812DC	36...72	15	80	±12.0	±31	±125	80	6.8	100	2 x 220
P3E4815DC	36...72	15	78	±15.0	±25	±100	81	6.8	100	2 x 100

(1) Operation without load will not damage these devices, but they will not meet all listed parameters.

EMI Filter (for EN55022 class A)
Input filter components (C1, L1) are used to help meet conducted emissions requirement for the module.
These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



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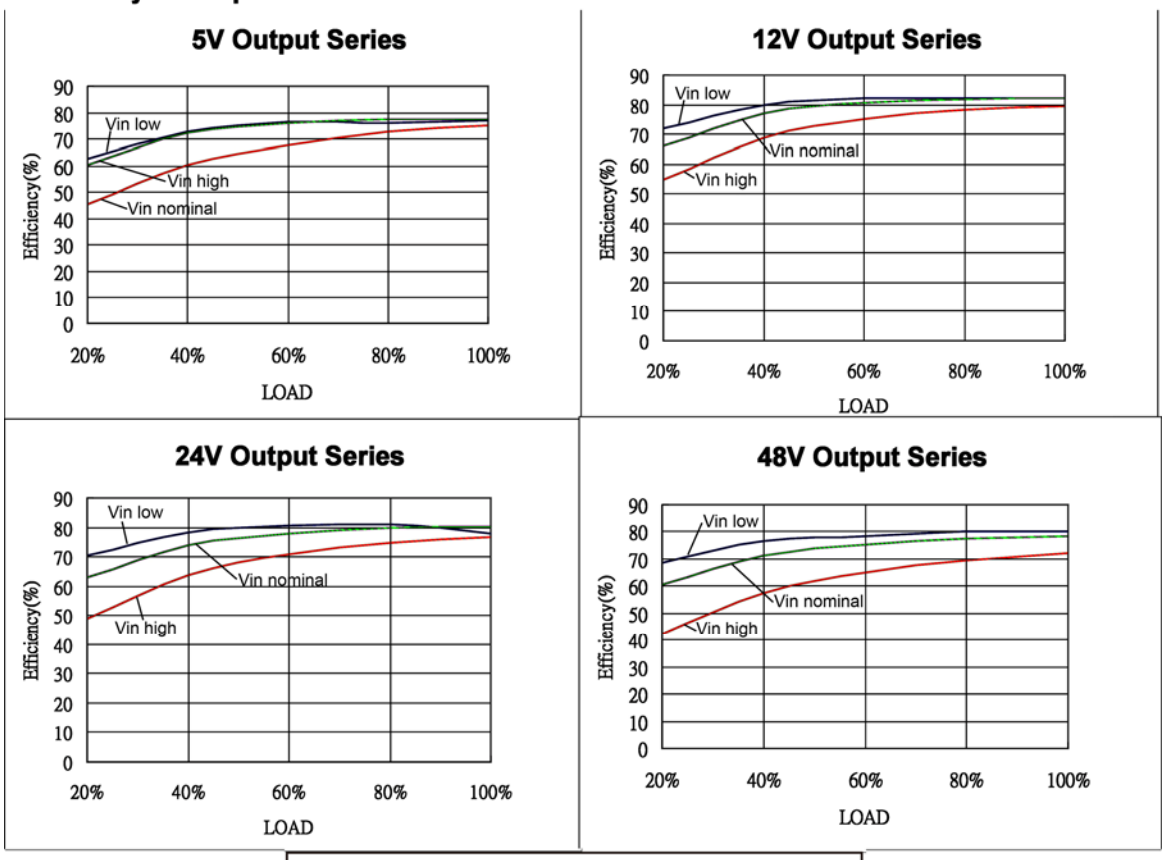
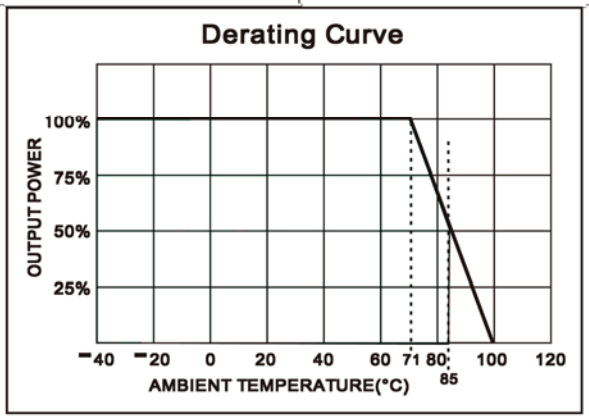
Part number structure											
Output power	Series	Input voltage		Output voltage		Outputs		Case		Remote control	
P3	E	05		3R3		S		M		C	
3 Watt		05	4.5..9 V	3R3	3.3 V	S	single	blanc	plastic	C	control Input
		12	9..18 V	05	5 V	D	dual	M	metal		
		24	18..36 V	7R2	7.2 V					Blank	without remote control function
		48	36..72 V	09	9 V						
				12	12 V						
				15	15 V						
				18	18 V						
				24	24 V						

Efficiency vs output current





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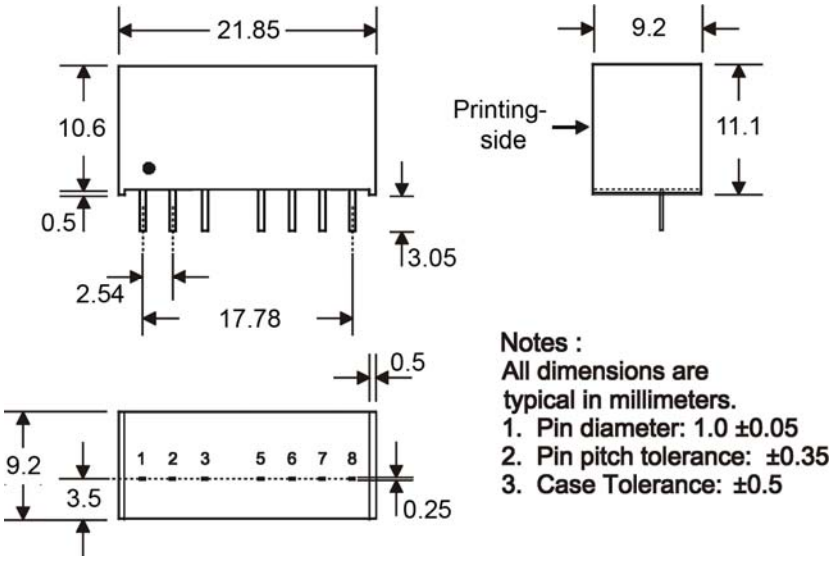
Specifications

Input	
Absolute max. voltage for 100 ms	5 V type –0.7..15 V_{DC} 12 V type –0.7..36 V_{DC} 24 V type –0.7..50 V_{DC} 48 V type –0.7..100 V_{DC}
Input current at standby mode	3 mA max.
Filter	Capacitors
Remote on/off controll	on: open or -Vin potential
	off: 6..3 mA input current (via resistor 1k)
Isolation:	
Rated voltage for 60 s, input / output (Tested for 3 s)	1600 V_{DC}
Metal case / input & output	1000 V_{DC}
Resistance	10^9 Ω
Capacitance	680 pF, typ.
Output	
Voltage accuracy	± 1 %
Ripple and noise (at 20 MHz BW)	75 mVp-p, max.
Short circuit protection	Continuous
Short circuit restart	Automatic
Line voltage regulation	± 0.5 %
Output voltage regulation at 25…100% loading	± 1 %
Dual output cross regulation	±5%
Temperature coefficient	± 0.02 % / °C
General	
Switching frequency	100...650 kHz
Safety standard in accordance with	IEC60950

EMI (see circuit diagram page 1)	
Conducted emissions	EN55022 class A
Radiated emissions	EN55022 class A
ESD	IEC61000-4-2 perf. criteria B
RS	IEC61000-4-3 perf. criteria A
EFT	IEC61000-4-4 perf. criteria B
Surge	IEC61000-4-5 perf. criteria B
CS	IEC61000-4-6 perf. criteria A
PFMF	IEC61000-4-8 perf. criteria A
General	
Switching frequency	100...650 kHz
Safety standard in accordance with	IEC60950
Environmental	
Operating temperatur (ambient)	-40 °C to +71 °C
Case temperature	100 °C, max.
Storage temperature	-40 °C ... +125 °C
Derating	See curve
Humidity	Up to 95 %, non-condensing
Cooling	Free-air convection
Physical	
Dimensions SIP8	21.85 x 9.2 x 11,1 mm
Weight	4.8 g (Metal version 6.8 g)
Case material standard version	non-conductive black plastic, UL94-V0
Case material metal version	Copper, nickel plated
Potting material	Epoxy UL94-V0
Pin soldering temperature	260 C° for 10 s, 1.5 mm distance from body

Dimensions



Notes :
All dimensions are typical in millimeters.
1. **Pin diameter: 1.0 ±0.05**
2. **Pin pitch tolerance: ±0.35**
3. **Case Tolerance: ±0.5**

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: 1.11 f

Pin connections

Pin	Single	Single with RC	Dual	Dual with RC
1	-V Input	-V Input	-V Input	-V Input
2	+V Input	+V Input	+V Input	+V Input
3	Omitted	Remote contr. on/off	N.C.	Remote contr. on/off
5	Omitted	N.C.	N.C.	N.C.
6	+V Output	+V Output	+V Output	+V Output
7	-V Output	-V Output	Common	Common
8	N.C.	N.C.	-V Output	-V Output

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