

PDL03W SERIES

DC/DC Converter Single & Dual Output: 3 Watts



Features

- ◆ 4:1 Input voltage range
- ◆ Input voltage options: 5~18V, 9~36V & 18~75V
- ◆ Single & Dual outputs
- ◆ Fixed switching frequency 100KHz
- ◆ Industry Standard SIP package
- ◆ High efficiency up to 81%
- ◆ Regulated output & Short circuit protection
- ◆ 1600V isolation, optional 3000VDC, Suffix "H"
- ◆ Low ripple & Noise
- ◆ External ON/OFF control

Specifications:

Input Voltage	12VDC (4.5~18) 24VDC (9~36) 48VDC (18~75)	Efficiency	Model dependant 74~80%
Input Filter	Capacitor type	Isolation	1600VDC (1min) 3000VDC Suffix "H"
Input Surge Voltage. (100mS)	12V: 36VDC, 24V: 50VDC. 48V: 100VDC	Isolation Cap.	200pF (4 0-pF Suffix H models)
Input Reflected Ripple Current (Note 6)	12V input 25mA p-p 24V input 10mA p-p 48V input 8mA p-p	Switching Freq.	100KHz
Start Up time	30mS typical constant resistive load	Safety	EN60950-1, UL60950-1
Remote ON/OFF (Positive logic)	DC-DC ON Open or high impedance DC-DC OFF Control pin applied current 2~4mA max via 1Kohm (See appl circuit)	Case Material	Non-conductive black plastic
Output power	3 watts	Base Material	None
Voltage Accuracy	±1.0%	Potting	Epoxy UL94-V0
Minim Load	zero	Dimensions	21.8 x 9.2 x 11.1mm
Line Regulation	±0.2%	Weight	4.8g
Load Regulation	Typically ±1%, 5% to 100% load	MTBF	1.707 x 10 ⁶ Hrs
Cross Regulation	±5% Asymmetrical load: 25-100% load)	Operating Temp	-40°C to +71°C (without derating) +71°C to 100°C with derating
Ripple & noise	See table. 20MHZ bandwidth	Thermal shock	MIL-STD-810F
Temp. Coefficient	±0.02% / °C	Vibration	10-55Hz, 10G, 30min along X, Y, Z
Transient Response	250uS (25% load step change)	Humidity	5-95% RH
Overload Protection	Typically 150% of load	EMC	EN55022 Class A (Note 6) Consult office for Class B design
Short Circuit protection	Continuous hiccup mode	ESD	EN61000-4-2
		Radiated Immunity	EN61000-4-3
		Fast Transients	EN61000-4-4
		Surge	EN61000-4-5
		Conducted Immunity	EN61000-4-6

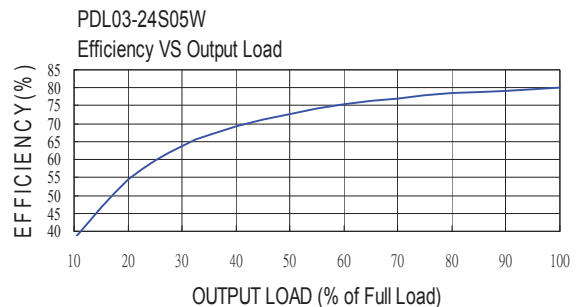
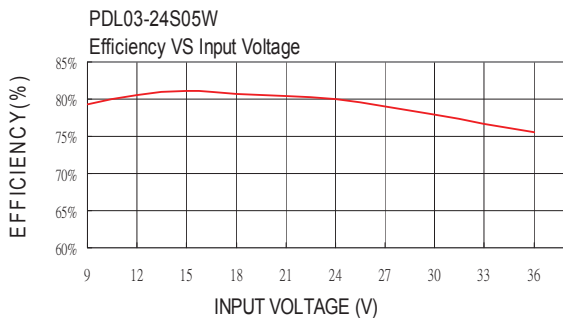
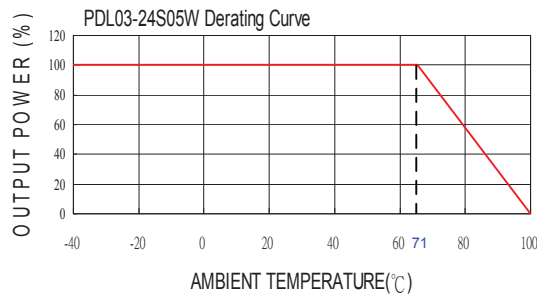
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Model Number	Input Range	Output Voltage	Output Current		Output ⁽⁴⁾ Ripple & Noise	Input Current		Eff ⁽⁴⁾ (%)	Capacitor ⁽⁵⁾ Load max
			Min. load	Full load		No load ⁽³⁾	Full load ⁽²⁾		
PDL03-12S3P3W	4.5 ~ 18 V	3.3 V	0mA	700mA	30 mVp-p	35 mA	285 mA	74	3300uF
PDL03-12S05W	4.5 ~ 18 V	5 V	0mA	600mA	30 mVp-p	40 mA	338 mA	78	1680uF
PDL03-12S09W	4.5 ~ 18 V	9 V	0mA	333mA	30 mVp-p	40 mA	333 mA	79	1000uF
PDL03-12S12W	4.5 ~ 18 V	12 V	0mA	250mA	30 mVp-p	40 mA	329 mA	80	820uF
PDL03-12S15W	4.5 ~ 18 V	15 V	0mA	200mA	30 mVp-p	40 mA	329 mA	80	680uF
PDL03-12D05W	4.5 ~ 18 V	±5 V	0mA	±300mA	30 mVp-p	40 mA	329 mA	80	±1000uF
PDL03-12D12W	4.5 ~ 18 V	±12 V	0mA	±125mA	30 mVp-p	40 mA	329 mA	80	±470uF
PDL03-12D15W	4.5 ~ 18 V	±15 V	0mA	±100mA	30 mVp-p	40 mA	329 mA	80	±330uF
PDL03-24S3P3W	9 ~ 36 V	3.3 V	0mA	700mA	30 mVp-p	20mA	140mA	75	3300uF
PDL03-24S05W	9 ~ 36 V	5 V	0mA	600mA	30 mVp-p	20mA	165mA	80	1680uF
PDL03-24S09W	9 ~ 36 V	9 V	0mA	333mA	30 mVp-p	19mA	165mA	80	1000uF
PDL03-24S12W	9 ~ 36 V	12 V	0mA	250mA	30 mVp-p	20mA	160mA	82	820uF
PDL03-24S15W	9 ~ 36 V	15 V	0mA	200mA	30 mVp-p	19mA	160mA	82	680uF
PDL03-24D05W	9 ~ 36 V	±5 V	0mA	±300mA	30 mVp-p	25mA	167mA	79	±1000uF
PDL03-24D12W	9 ~ 36 V	±12 V	0mA	±125mA	30 mVp-p	25mA	162mA	81	±470uF
PDL03-24D15W	9 ~ 36 V	±15 V	0mA	±100mA	30 mVp-p	25mA	162mA	81	±330uF
PDL03-48S3P3W	18 ~ 75 V	3.3 V	0mA	700mA	30 mVp-p	12mA	71mA	74	3300uF
PDL03-48S05W	18 ~ 75 V	5 V	0mA	600mA	30 mVp-p	12mA	82mA	80	1680uF
PDL03-48S09W	18 ~ 75 V	9 V	0mA	333mA	30 mVp-p	13mA	82mA	80	1000uF
PDL03-48S12W	18 ~ 75 V	12 V	0mA	250mA	30 mVp-p	14mA	81mA	81	820uF
PDL03-48S15W	18 ~ 75 V	15 V	0mA	200mA	30 mVp-p	14mA	81mA	81	680uF
PDL03-48D05W	18 ~ 75 V	±5 V	0mA	±300mA	30 mVp-p	14mA	84mA	79	±1000uF
PDL03-48D12W	18 ~ 75 V	±12 V	0mA	±125mA	30 mVp-p	14mA	81mA	81	±470uF
PDL03-48D15W	18 ~ 75 V	±15 V	0mA	±100mA	30 mVp-p	14mA	81mA	81	±330uF

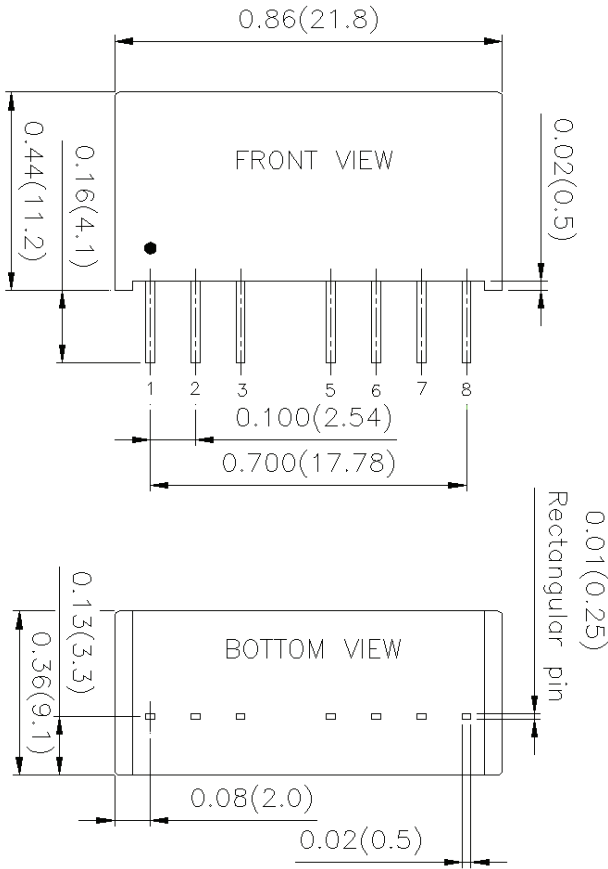
Note

- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C.
MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment)
 - Maximum value at nominal input and full load.
 - Typical value at nominal input and no load.
 - Typical value at nominal input and full load.
 - Test by minimum input and constant resistive load.
 - The PDL03W series meet EN55022 Class A and input reflected ripple current with external L-C filter before the input pins to the converter. (Connect networks following Class B figure.)
Recommend: 12VDC input: C1=4.7uF/25V 1210 MLCC. L1=2.2uH 0504 SMD Inductor P/N:PMT-059
24VDC input: C1=2.2uF/50V 1210 MLCC. L1=10uH 0504 SMD Inductor P/N:PMT-047.
48VDC input: C1=2.2uF/100V 1210 MLCC. L1=10uH 0504 SMD Inductor P/N:PMT-047.
 - An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 100uF/100V, ESR 110mΩ.
- CAUTION:** This power module is not internally fused. An input line fuse must always be used.



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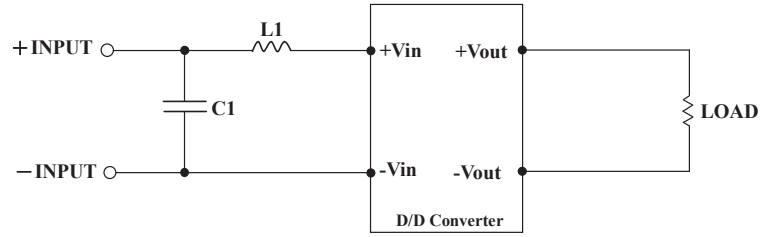
- All dimensions in Inch (mm)
Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01(0.25)
- Pin dimension tolerance ±0.004 (0.1)

Pin Connection		
PIN	SINGLE	DUAL
1	- INPUT	- INPUT
2	+ INPUT	+ INPUT
3	CTRL	CTRL
5	NC* / No Pin**	NC* / No Pin**
6	+ OUTPUT	+ OUTPUT
7	- OUTPUT	COMMON
8	NC	- OUTPUT

*NC pin for standard.

**No pin for 3KV isolation. (P/N suffix "H")

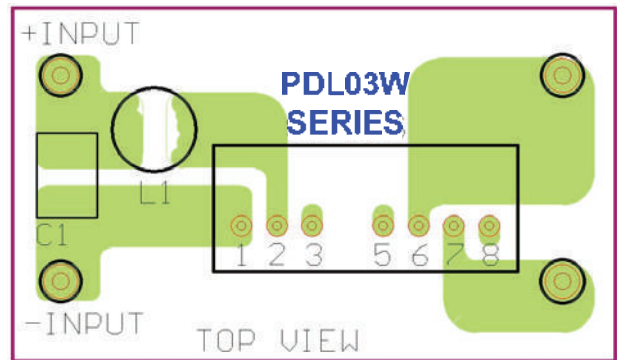
Recommended EMI Filter:



Recommended Filter for Class B Compliance

The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

	C1	L1
PDL03-12xxxW	10uF/25V 1812 MLCC	2.2uH 0504 SMD Inductor PMT-059
PDL03-24xxxW	6.8uF/50V 1812 MLCC	18uH 0504 SMD Inductor PMT-046
PDL03-48xxxW	2.2uF/100V 1812 MLCC	18uH 0504 SMD Inductor PMT-046



Remote Control Application circuit

