

# PDL06W SERIES

DC/DC Converter Single & Dual Output: 6 Watts



## Features

- 4:1 Input voltage range
- Input voltage options: 9~36V & 18~75V
- Single & Dual outputs
- Fixed switching frequency 580KHz
- Industry Standard SIP package
- High efficiency up to 87%
- Regulated output & Short circuit protection
- 1600V isolation, optional 3000VDC, Suffix "H"
- Low ripple & Noise
- External ON/OFF control

## Specifications:

<b>Input Voltage</b>	24VDC ( 9 ~ 36 ) 48VDC ( 18 ~75 )	<b>Efficiency</b>	Model dependant 84 ~ 87%
<b>Input Filter</b>	Capacitor type	<b>Isolation</b>	1600VDC ( 1min) 3000VDC Suffix "H"
<b>Input Surge Voltage.</b> ( 100mS )	12V : 36VDC, 24V: 50VDC. 48V: 100VDC	<b>Isolation- Option</b> ( Metal case )	1600VDC ( 1min ) Suffix "M"
<b>Input Reflected</b> <b>Ripple Current</b>	24V input 20mA p-p 48V input 84mA p-p	<b>Isolation Cap.</b>	50pF
<b>Start Up time</b>	30mS typical constant resistive load	<b>Switching Freq.</b>	100KHz
<b>Remote ON/OFF</b>	DC-DC ON Open or high impedance DC-DC OFF Control pin applied current 2~ 4mA max via 1Kohm ( ref -VE input )	<b>Safety</b>	EN60950-1, UL60950-1
<b>Output power</b>	6 watts	<b>Case Material</b>	Std-Non-conductive black plastic "H"-Non-conductive black plastic "M"-Copper
<b>Voltage Accuracy</b>	±1.0%	<b>Base Material</b>	None
<b>Minim Load</b>	zero	<b>Potting</b>	Epoxy UL94-V0
<b>Line Regulation</b>	±0.2%	<b>Dimensions</b>	21.8 x 9.2 x 11.2mm
<b>Load Regulation</b>	Typically ±1%, 5% to 100% load	<b>Weight</b>	4.8g ( suffix M 5.9g )
<b>Cross Regulation</b>	±5% Asymmetrical load: 25-100% load )	<b>MTBF</b>	8.408 x 10 <sup>5</sup> Hrs
<b>Ripple &amp; noise</b>	20MHZ bandwidth 3 ~9Vout, typically 75 -100mVp-p 12~15Vout, typically 100-125mVp-p 24Vout, typically 100-1125mV	<b>Operating Temp</b>	-40°C to +71°C ( without derating ) +71°C to 100°C with derating
<b>Temp. Coefficient</b>	±0.02% / °C	<b>Thermal shock</b>	MIL-STD-810F
<b>Transient Response</b>	250uS ( 25% load step change )	<b>Vibration</b>	10-55Hz, 10G, 30min along X, Y,Z
<b>Overload Protection</b>	Typically 180% of load	<b>Humidity</b>	5-95% RH
<b>Short Circuit</b> <b>protection</b>	Continuous hiccup mode	<b>EMC</b>	EN55022 Class A ( Note 1 ) Consult office for Class B design
		<b>ESD</b>	EN61000-4-2
		<b>Radiated Immunity</b>	EN61000-4-3
		<b>Fast Transients</b>	EN61000-4-4
		<b>Surge</b>	EN61000-4-5
		<b>Conducted Immunity</b>	EN61000-4-6

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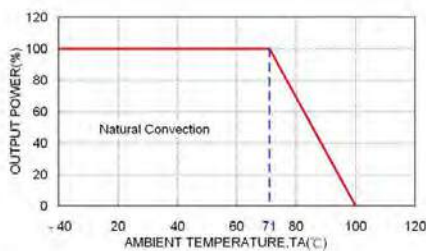
Model Number	Input Range	Output Voltage	Output Current @ Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	mA	mA	%	μF
PDL06-24S3P3W	9 ~ 36	3.3	1500	4	81	4700
PDL06-24S05W	9 ~ 36	5	1200	4	84	2200
PDL06-24S09W	9 ~ 36	9	666	4	86	1400
PDL06-24S12W	9 ~ 36	12	500	4	87	1100
PDL06-24S15W	9 ~ 36	15	400	4	88	1000
PDL06-24S24W	9 ~ 36	24	250	4	87	470
PDL06-24D05W	9 ~ 36	±5	±600	6	84	±1400
PDL06-24D12W	9 ~ 36	±12	±250	6	87	±660
PDL06-24D15W	9 ~ 36	±15	±200	8	87	±470
PDL06-48S3P3W	18 ~ 75	3.3	1500	4	81	4700
PDL06-48S05W	18 ~ 75	5	1200	4	84	2200
PDL06-48S09W	18 ~ 75	9	666	4	85	1400
PDL06-48S12W	18 ~ 75	12	500	4	87	1100
PDL06-48S15W	18 ~ 75	15	400	4	87	1000
PDL06-48S24W	18 ~ 75	24	250	4	87	470
PDL06-48D05W	18 ~ 75	±5	±600	6	84	±1400
PDL06-48D12W	18 ~ 75	±12	±250	6	87	±660
PDL06-48D15W	18 ~ 75	±15	±200	8	87	±470

**Note:**

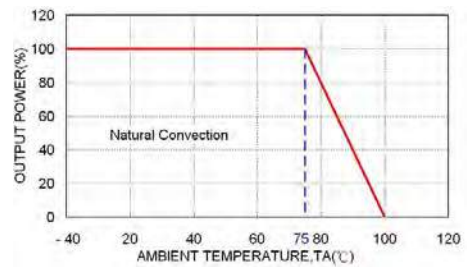
1. The PDL06W series meet EN55022 Class A with external filter.
2. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter Power Mate suggested: TBD.

**CAUTION:** This power module is not internally fused. An input line fuse must always be used.

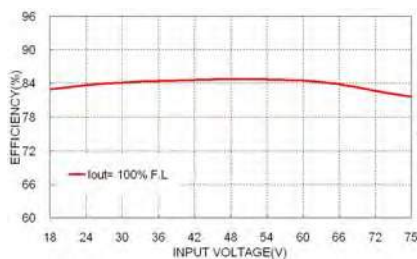
## CHARACTERISTIC CURVE



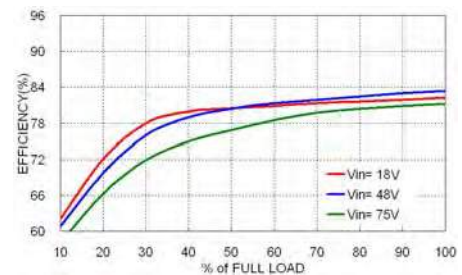
PDL06-48S05W Derating Curve



PDL06-48S05W-M Derating Curve



PDL06-48S05W Efficiency VS Input Voltage



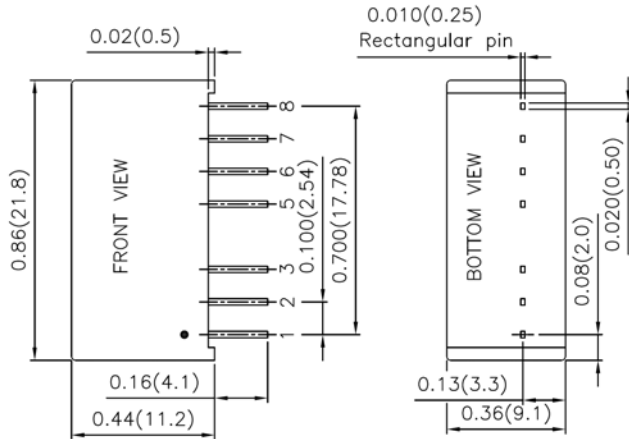
PDL06-48S05W Efficiency VS Output Load

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## MECHANICAL DRAWING

### Standard plastic case



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")

1. All dimensions in Inch (mm)

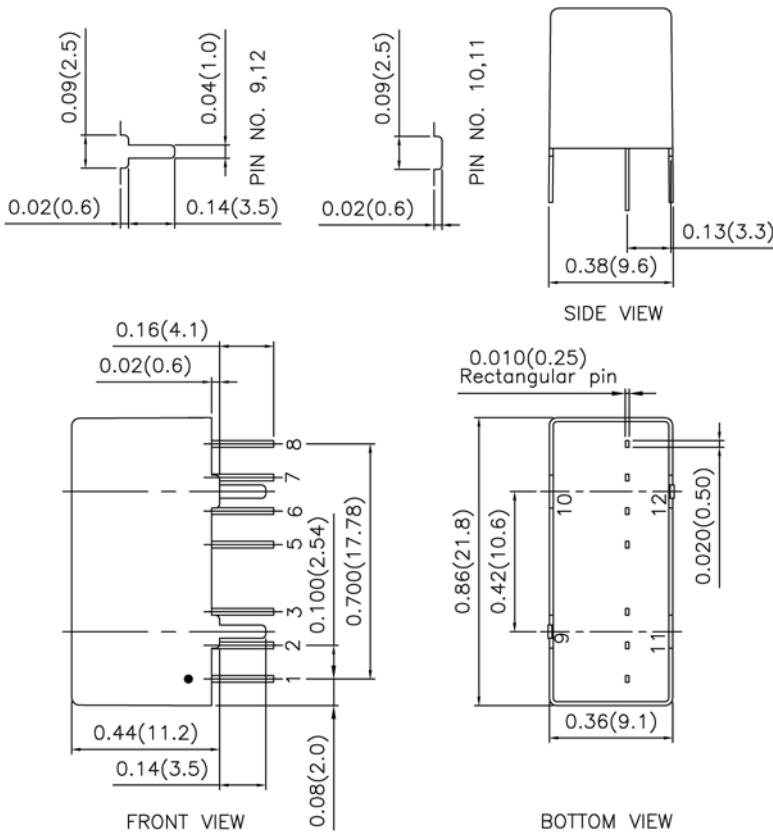
Tolerance: X.XX±0.02 (X.X±0.5)

X.XXX±0.01 (X.XX±0.25)

2. Pin pitch tolerance ±0.01(0.25)

3. Pin dimension tolerance ±0.004 (0.1)

### Option suffix "M" metal case



Pin Connection		
PIN	SINGLE	DUAL
1	-INPUT	-INPUT
2	+INPUT	+INPUT
3	CTRL	CTRL
5	NC	NC
6	+OUTPUT	+OUTPUT
7	-OUTPUT	COMMON
8	NC	-OUTPUT
9	CASE	CASE
10	STAND OFF	STAND OFF
11	STAND OFF	STAND OFF
12	CASE	CASE

1. All dimensions in Inch (mm)

Tolerance: X.XX±0.02 (X.X±0.5)

X.XXX±0.01 (X.XX±0.25)

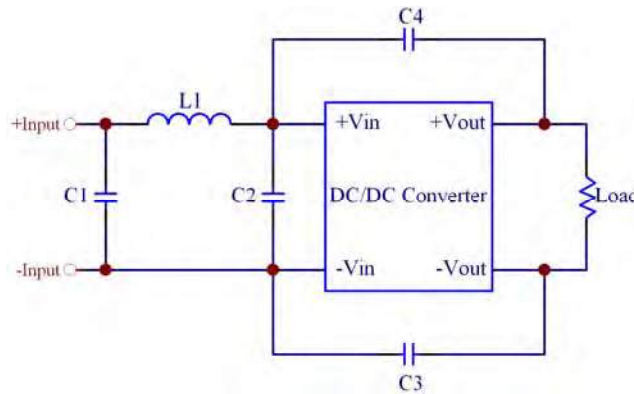
2. Pin pitch tolerance ±0.01(0.25)

3. Pin dimension tolerance ±0.004 (0.1)

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## Recommended EMI Filter:



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

### EN55022 Class A

	C1 & C2	C3 & C4	L1
PDL06-24xxxW	10 $\mu$ F/50V 1210 MLCC	331pF/3kV 1808 MLCC	10 $\mu$ H 0504 SMD Inductor PMT-047
PDL06-48xxxW	2.2 $\mu$ F/100V 1812 MLCC	331pF/3kV 1808 MLCC	15 $\mu$ H 0504 SMD Inductor PMT-089