

PDL03W SERIES

DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 3 Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- UP TO 3000VDC INPUT TO OUTPUT ISOLATION
- SMALL SIZE AND LOW PROFILE : 0.86 X 0.36 X 0.44 INCH
- LOW OUTPUT RIPPLE AND NOISE
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- DISTRIBUTED POWER ARCHITECTURES
- SEMICONDUCTOR EQUIPMENT

3000VDC ISOLATION	1600VDC ISOLATION	REMOTE CONTROL	SCP
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TECHNICAL SPECIFICATION

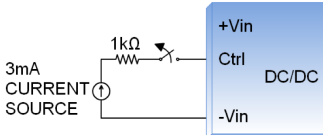
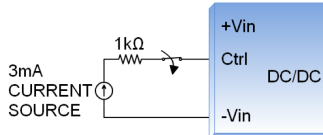
All specifications are typical at nominal input, full load and 25°C otherwise noted

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	mA	mA	%	µF
PDL03-12S3P3W	4.5 ~ 18	3.3	700	35	74	3300
PDL03-12S05W	4.5 ~ 18	5	600	40	78	1680
PDL03-12S09W	4.5 ~ 18	9	333	40	79	1000
PDL03-12S12W	4.5 ~ 18	12	250	40	80	820
PDL03-12S15W	4.5 ~ 18	15	200	40	80	680
PDL03-12D05W	4.5 ~ 18	±5	±300	40	80	±1000
PDL03-12D12W	4.5 ~ 18	±12	±125	40	80	±470
PDL03-12D15W	4.5 ~ 18	±15	±100	40	80	±330
PDL03-24S3P3W	9 ~ 36	3.3	700	20	75	3300
PDL03-24S05W	9 ~ 36	5	600	20	80	1680
PDL03-24S09W	9 ~ 36	9	333	19	80	1000
PDL03-24S12W	9 ~ 36	12	250	20	82	820
PDL03-24S15W	9 ~ 36	15	200	19	82	680
PDL03-24D05W	9 ~ 36	±5	±300	25	79	±1000
PDL03-24D12W	9 ~ 36	±12	±125	25	81	±470
PDL03-24D15W	9 ~ 36	±15	±100	25	81	±330
PDL03-48S3P3W	18 ~ 75	3.3	700	12	74	3300
PDL03-48S05W	18 ~ 75	5	600	12	80	1680
PDL03-48S09W	18 ~ 75	9	333	13	80	1000
PDL03-48S12W	18 ~ 75	12	250	14	81	820
PDL03-48S15W	18 ~ 75	15	200	14	81	680
PDL03-48D05W	18 ~ 75	±5	±300	14	79	±1000
PDL03-48D12W	18 ~ 75	±12	±125	14	81	±470
PDL03-48D15W	18 ~ 75	±15	±100	14	81	±330

PART NUMBER STRUCTURE

PDL03 -	48	S	05	W	H
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Isolation Option
	12: 4.5~18 24: 9~36 48: 18~75	S: Single	3P3: 3.3 05: 5 09: 9 12: 12 15: 15	4 : 1	□: Standard type 1600VDC isolation H: 3000VDC isolation
		D: Dual	05: ± 5 12: ±12 15: ±15		

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	12Vin(nom) 24Vin(nom) 48Vin(nom)	4.5 9 18	12 24 48	18 36 75	VDC
Start up time	Constant resistive load Power up Remote ON/OFF		30 30		ms
Input surge voltage	100 ms, max. 12Vin(nom) 24Vin(nom) 48Vin(nom)			36 50 100	VDC
Input reflected ripple current	12Vin(nom) 24Vin(nom) 48Vin(nom)		25 10 8		mAp-p
Input filter			Capacitor type		
Remote ON/OFF	Ctrl pin applied current via 1kΩ DC-DC ON DC-DC OFF Remote off input current	2	3	4 2.5	mA mA
<p>Application circuit</p> <p>DC-DC ON</p>  <p>DC-DC OFF</p> 					

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy		-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load	-0.2		+0.2	%
Load regulation	No Load to Full Load	-1.0		+1.0	%
	5% Load to 100% Full Load	-1.0		+1.0	
Cross regulation	Asymmetrical load 25%/100% FL	-5.0		+5.0	%
Ripple and noise	20MHz bandwidth		30		mVp-p
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		250		μs
Short circuit protection		Continuous, automatic recovery			

GENERAL SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	Standard Type Suffix "H"	1600			VDC
Isolation resistance	500VDC			3000			GΩ
Isolation capacitance	Standard Type Suffix "H"					200 40	pF
Switching frequency	Full load to minimum load			100			kHz
Safety approvals							UL60950-1 EN60950-1 IEC60950-1
Case material							Non-conductive black plastic
Base material							None
Potting material							Silicone (UL94 V-0)
Weight							4.8g (0.17oz)
MTBF	MIL-HDBK-217F						3.482 x 10 ⁶ hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating	With derating	-40		+71 +100	°C
Storage temperature range				-55		+125	°C
Thermal shock							MIL-STD-810F
Vibration							MIL-STD-810F
Relative humidity							5% to 95% RH

EMC SPECIFICATIONS

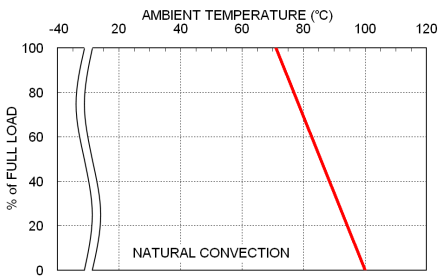
Parameter	Conditions		Level
EMI ⁽¹⁾	EN55022		Class A , Class B
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient ⁽²⁾	EN61000-4-4	± 2kV	Perf. Criteria A
Surge ⁽²⁾	EN61000-4-5	±1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	100A/m continuous; 1000A/m 1 second	Perf. Criteria A

Note:

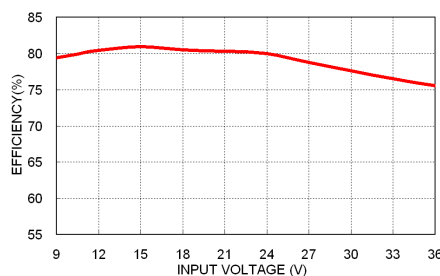
- The standard module meets EMI Class A or Class B with external components. For further information, please contact with P-DUKE.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
 The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 100µF/100V.

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

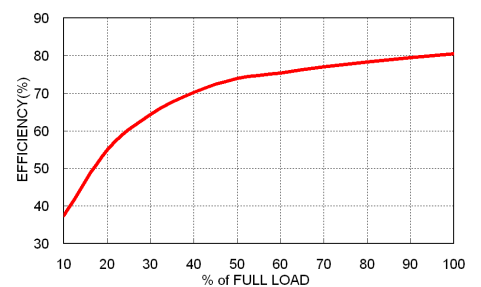
CHARACTERISTIC CURVE



PDL03-24S05W Derating Curve

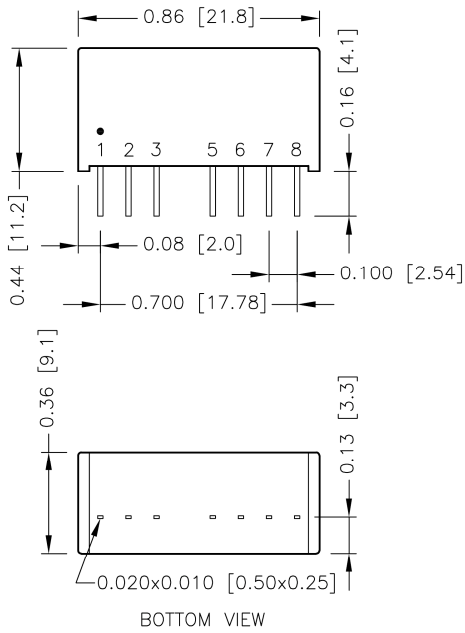


PDL03-24S05W Efficiency vs. Input Voltage



PDL03-24S05W Efficiency vs. Output Load

MECHANICAL DRAWING



PIN CONNECTION

PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	Ctrl	Ctrl
5	NC*/No pin**	NC*/No pin**
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

*NC pin for standard type model.

**No pin for 3kVDC isolation model (suffix "H").

1. All dimensions in inch [mm]
2. Tolerance :x.xx±0.02 [x.x±0.5]
x.xxx±0.01 [x.xx±0.25]
3. Pin pitch tolerance ±0.01 [0.25]
4. Pin dimension tolerance ±0.004 [0.1]