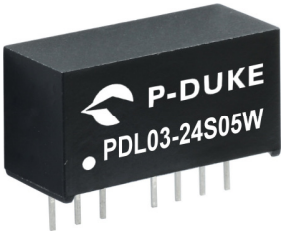
3 YEARS WARRANTY

RoHS COMPLIANT

REACH COMPLIANT



Automation | Datacom | IPC

Industry | Measurement | Telecom

Automobile | Boat | Charger

Medical | PV | Railway

cULus CB CE

3000 VDC Isolation Voltage | 1600 VDC Isolation Voltage | 4 : 1 Wide Input Range | NO Min. Load Required | REMOTE ON OFF | SCP

PART NUMBER STRUCTURE

PDL03 - 48 S 05 W H - M3

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Isolation Option	Operating Temp 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	□: Standard -40~+100℃ With derating **M3:** M3 Version -55~+100℃ With derating
		D:Dual	**05:**±5 **12:**±12 **15:**±15			

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25℃ unless otherwise noted

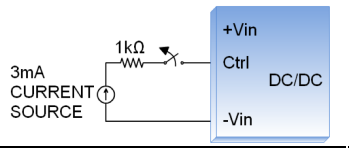
Model Number	Input Range VDC	Output Voltage VDC	Output Current @Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load μF
PDL03-12S3P3W	4.5 ~ 18	3.3	700	35	74	3300
PDL03-12S05W	4.5 ~ 18	5	600	40	78	1680
PDL03-12S09W	4.5 ~ 18	9	333	40	79	1000
PDL03-12S12W	4.5 ~ 18	12	250	40	80	820
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

INPUT SPECIFICATIONS

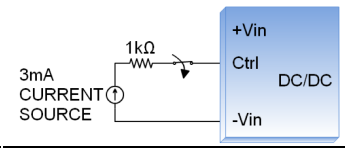
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range		12Vin(nom)	4.5	12	18	
		24Vin(nom)	9	24	36	VDC
		48Vin(nom)	18	48	75	
Start up time	Constant resistive load	Power up		30		ms
		Remote ON/OFF		30		
Input surge voltage	100 ms, max.	12Vin(nom)			36	
		24Vin(nom)			50	VDC
		48Vin(nom)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

Application circuit

DC-DC ON



DC-DC OFF



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	Single	-1.0		+1.0	%
		Dual	-1.0		+1.0	
	5% Load to 100% Full Load	Single	-0.5		+0.5	%
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
Ripple and noise	20MHz bandwidth			30		mVp-p
Temperature coefficient			-0.02		+0.02	%/℃
Transient response recovery time	25% load step change			250		μs
Short circuit protection				Continuous, automatics recovery		

GENERAL SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	Standard Type	1600			VDC
			Suffix "H"	3000			
Isolation resistance	500VDC			1			GΩ
Isolation capacitance			Standard Type			200	pF
			Suffix "H"			40	
Switching frequency	Full load to minimum load			100			kHz
Safety approvals	IEC /UL/ EN60950-1					UL:E193009 CB:UL(Demko)	
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

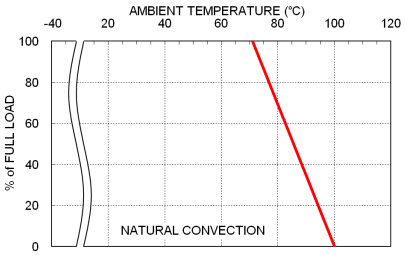
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature	Standard	With derating	-40		+100	℃
	M3 Version	With derating	-55		+100	
Storage temperature range			-55		+125	℃
Thermal shock					MIL-STD-810F	
Vibration					MIL-STD-810F	
Relative humidity					5% to 95% RH	

EMC SPECIFICATIONS

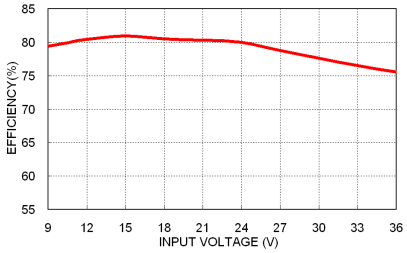
Parameter	Conditions		Level
EMI	EN55032	With external components	Class A，Class B
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient	EN61000-4-4	± 2kV With an external input filter capacitor (Nippon chemi-con KY series, 100μF/100V)	Perf. Criteria A
Surge	EN61000-4-5	±1kV With an external input filter capacitor (Nippon chemi-con KY series, 100μF/100V)	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

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

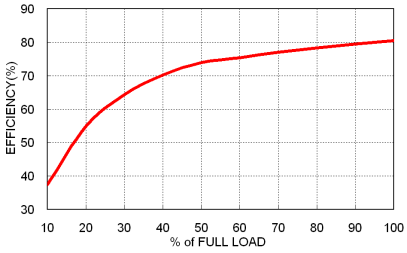
CHARACTERISTIC CURVE



PDL03-24S05W Derating Curve



PDL03-24S05W Efficiency vs. Input Voltage



PDL03-24S05W Efficiency vs. Output Load

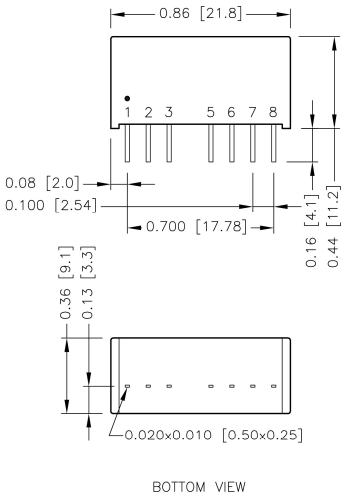
FUSE CONSIDERATION

This power module is not internally fused. An input line fuse must always be used.
This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture.
To maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse.
The input line fuse suggest as below：

Model	Fuse Rating (A)	Fuse Type
PDL03-12S□□W、PDL03-12D□□W	2	Slow-Blow
PDL03-24S□□W、PDL03-24D□□W	1.6	Slow-Blow
PDL03-48S□□W、PDL03-48D□□W	1	Slow-Blow

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin.

MECHANICAL DRAWING

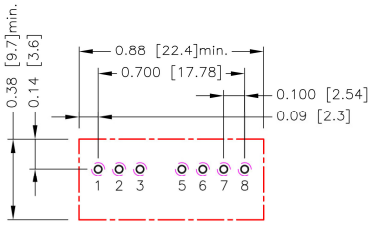


PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	Ctrl	Ctrl
5	NC*/No pin**	NC*/No pin**
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

*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 [0.10]

RECOMMENDED PAD LAYOUT

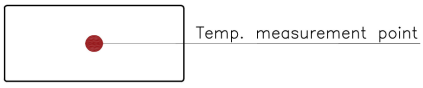


All dimensions in inch[mm]
Pad size(lead free recommended)
Through hole 1.2.3.5.6.7.8: Φ0.031[0.80]
Top view pad 1.2.3.5.6.7.8: Φ0.039[1.00]
Bottom view pad 1.2.3.5.6.7.8: Φ0.063[1.60]

THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments.
However, sufficient cooling should be provided to help ensure reliable operation of the unit.
Heat is removed by conduction, convection, and radiation to the surrounding Environment.
Proper cooling can be verified by measuring the point as the figure below.
The temperature at this location should not exceed 100℃.
When Operating, adequate cooling must be provided to maintain the test point temperature at or below 100℃.
Although the maximum point Temperature of the power modules is 100℃, you can limit this Temperature to a lower value for extremely high reliability.

■ Thermal test condition with vertical direction by natural convection (20LFM).



TOP VIEW

P-DUKE Technology Co., Ltd.

Tel +886-4-2359-0668
Fax +886-4-2359-1337
Email sale@pduke.com
Web www.pduke.com
Add No. 36, 22nd Rd., Taichung Industrial Park, Taichung, Taiwan, R.O.C.