POWER MATE TECHNOLOGY CO.,LTD.

PDL03W SERIES



FEATURES

- 3 WATTS MAXIMUM OUTPUT POWER
- OUTPUT CURRENT UP TO 700mA
- SIP PACKAGE, 0.86 x 0.36x 0.44 INCH
- HIGH EFFICIENCY UP TO 82%
- 4:1 ULTRA WIDE INPUT VOLTAGE RANGE
- SWITCHING FREQENCY (100KHz, min)
- LOW RIPPLE & NOISE
- UL94-V0 CASE POTTING MATERIALS
- INPUT TO OUTPUT ISOLATION UP TO 1.6KVdc
- CONTINUOUS SHORT CIRCUIT PROTECTION
- EXTERNAL ON/OFF CONTROL
- CE MARK MEETS 2006/95/EC, 93/68/EEC AND 2004/108/EC
- DESIGN MEETS UL60950-1, EN60950-1 AND IEC60950-1
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

DESCRIPTION

The PDL03W series offer 3 watts of output power from a 0.86 x 0.36 x 0.44 inch package without derating to 71ºC. The PDL03W series have 4:1 ultra wide input voltage of 4.5-18 9-36 and 18-75VDC and features 1600VDC of isolation, short-circuit protection.

TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS

Output power			3 Watts, max
Voltage accuracy	Full load and nominal Vin		± 1%
Minimum load			0%
Line regulation	LL to HL at Full Load		± 0.2%
Load regulation	Single	No Load to Full load	± 1%
		5% load to 100% load	± 0.5%
	Dual	No Load to Full Load	± 1%
Cross regulation (Dual)	Asymmetrical load 25%/100% FL		±5%
Ripple and noise	20MHz bandwidth		See table
Temperature coefficient			±0.02% / ºC, max
Transient response recovery time	25% load step change		250uS, typ
Short circuit protection			Continuous, automatics recovery

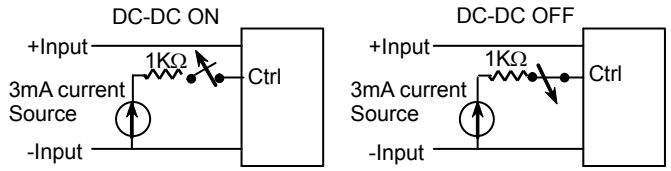
GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage		1600VDC, min
Isolation resistance		10^9 ohms, min
Isolation capacitance		200pF, max
Switching frequency	Full load to minimum load	100KHz, min
Design meets safety standard	IEC60950-1, UL60950-1, EN60950-1	
Case material		Non-conductive black plastic
Base material		None
Potting material		Silicon (UL94-V0)
Dimensions		0.86 X 0.36 X 0.44 Inch (21.8 X 9.2 X 11.1 mm)
Weight		4.8g (0.17oz)
MTBF(Note 1)	Bellcore TR-NWT-000332 MIL-HDBK-217F	3.963 x 10^6 hrs 1.707 x 10^6 hrs

INPUT SPECIFICATIONS

Input voltage range	12V nominal input 24V nominal input 48V nominal input		4.5 – 18VDC 9 – 36VDC 18 – 75VDC
Input filter			Capacitor type
Input surge voltage 100mS max	12V input 24V input 48V input		36VDC 50VDC 100VDC
Input reflected ripple current(Note 6)	12V input 24V input 48V input		25mAp-p, typ 10mAp-p, typ 8mAp-p, typ
Start up time	Nominal Vin and constant resistive load	Power up Remote ON/OFF	30mS, typ 30mS, typ
Remote ON/OFF	DC-DC ON DC-DC OFF		Open or high impedance Control pin applied current 2 ~ 4mA max(via 1KΩ)
Remote off state input current	Nominal Vin		2.5mA, max

Application circuit



ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	-40ºC ~ +71ºC (without derating) +71ºC ~ +100ºC (with derating)
Storage temperature range	-55ºC to +125ºC
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity	5% to 95% RH

EMC CHARACTERISTICS

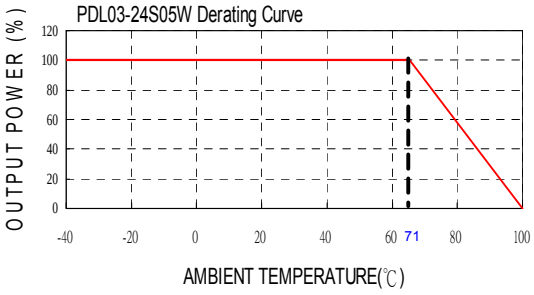
EMI(Note6)	EN55022		Class A
ESD	EN61000-4-2	Air ± 8KV Contact ± 6KV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient(Note 7)	EN61000-4-4	± 2KV	Perf. Criteria A
Surge (Note 7)	EN61000-4-5	± 1KV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

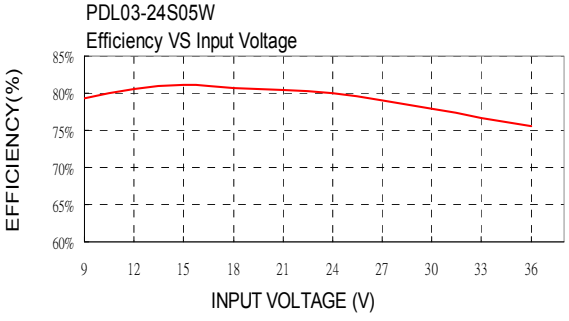
3WATTS DC-DC CONVERTER

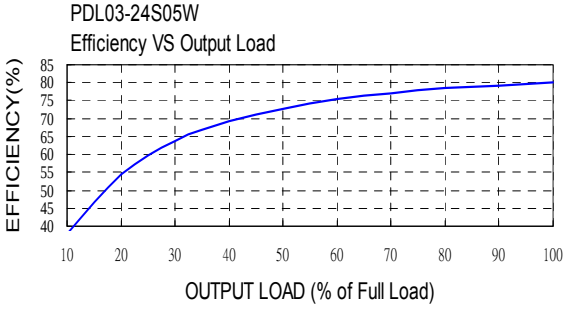
Model Number	Input Range	Output Voltage	Output Current		Output [4] Ripple & Noise	Input Current		Eff [4] (%)	Capacitor [5] Load max
			Min. load	Full load		No load[3]	Full load[2]		
PDL03-12S3P3W	4.5 – 18 VDC	3.3 VDC	0mA	700mA	30 mVp-p	35 mA	285 mA	74	1760uF
PDL03-12S05W	4.5 – 18 VDC	5 VDC	0mA	600mA	30 mVp-p	40 mA	338 mA	78	1000uF
PDL03-12S09W	4.5 – 18 VDC	9 VDC	0mA	333mA	30 mVp-p	40 mA	333 mA	79	470uF
PDL03-12S12W	4.5 – 18 VDC	12 VDC	0mA	250mA	30 mVp-p	40 mA	329 mA	80	170uF
PDL03-12S15W	4.5 – 18 VDC	15 VDC	0mA	200mA	30 mVp-p	40 mA	329 mA	80	110uF
PDL03-12D05W	4.5 – 18 VDC	±5 VDC	0mA	±300mA	30 mVp-p	40 mA	329 mA	80	±470uF
PDL03-12D12W	4.5 – 18 VDC	±12 VDC	0mA	±125mA	30 mVp-p	40 mA	329 mA	80	±100uF
PDL03-12D15W	4.5 – 18 VDC	±15 VDC	0mA	±100mA	30 mVp-p	40 mA	329 mA	80	±47uF
PDL03-24S3P3W	9 – 36 VDC	3.3 VDC	0mA	700mA	30 mVp-p	20mA	140mA	75	1760uF
PDL03-24S05W	9 – 36 VDC	5 VDC	0mA	600mA	30 mVp-p	20mA	165mA	80	1000uF
PDL03-24S09W	9 – 36 VDC	9 VDC	0mA	333mA	30 mVp-p	19mA	165mA	80	470uF
PDL03-24S12W	9 – 36 VDC	12 VDC	0mA	250mA	30 mVp-p	20mA	160mA	82	170uF
PDL03-24S15W	9 – 36 VDC	15 VDC	0mA	200mA	30 mVp-p	19mA	160mA	82	110uF
PDL03-24D05W	9 – 36 VDC	±5 VDC	0mA	±300mA	30 mVp-p	25mA	167mA	79	±470uF
PDL03-24D12W	9 – 36 VDC	±12 VDC	0mA	±125mA	30 mVp-p	25mA	162mA	81	±100uF
PDL03-24D15W	9 – 36 VDC	±15 VDC	0mA	±100mA	30 mVp-p	25mA	162mA	81	±47uF
PDL03-48S3P3W	18 – 75 VDC	3.3 VDC	0mA	700mA	30 mVp-p	12mA	71mA	74	1760uF
PDL03-48S05W	18 – 75 VDC	5 VDC	0mA	600mA	30 mVp-p	12mA	82mA	80	1000uF
PDL03-48S09W	18 – 75 VDC	9 VDC	0mA	333mA	30 mVp-p	13mA	82mA	80	470uF
PDL03-48S12W	18 – 75 VDC	12 VDC	0mA	250mA	30 mVp-p	14mA	81mA	81	170uF
PDL03-48S15W	18 – 75 VDC	15 VDC	0mA	200mA	30 mVp-p	14mA	81mA	81	110uF
PDL03-48D05W	18 – 75 VDC	±5 VDC	0mA	±300mA	30 mVp-p	14mA	84mA	79	±470uF
PDL03-48D12W	18 – 75 VDC	±12 VDC	0mA	±125mA	30 mVp-p	14mA	81mA	81	±100uF
PDL03-48D15W	18 – 75 VDC	±15 VDC	0mA	±100mA	30 mVp-p	14mA	81mA	81	±47uF

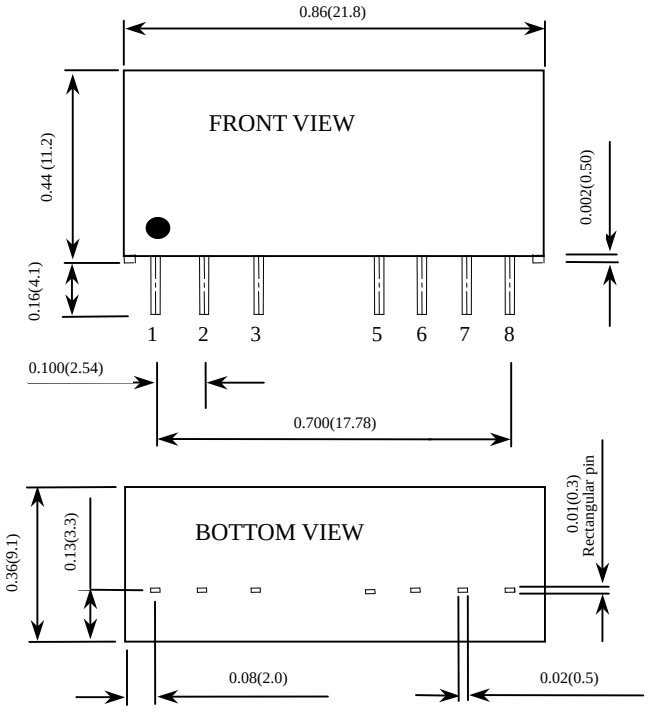
Note

1. BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40ºC.
   MIL-HDBK-217F Notice2 @Ta=25 ºC, Full load(Ground, Benign, controlled environment)
2. Maximum value at nominal input voltage and full load.
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Test by minimum Vin and constant resistive load.
6. 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: 12 Vin : C1=4.7uF/25V 1210 MLCC. L1=2.2uH 0504 SMD Inductor P/N:PMT-059
   24 Vin : C1=2.2μF/50V 1210 MLCC. L1=10μH 0504 SMD Inductor P/N:PMT-047.
   48 Vin : C1=2.2μF/100V 1210 MLCC. L1=10μH 0504 SMD Inductor P/N:PMT-047.
7. 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, ESR 110mΩ.

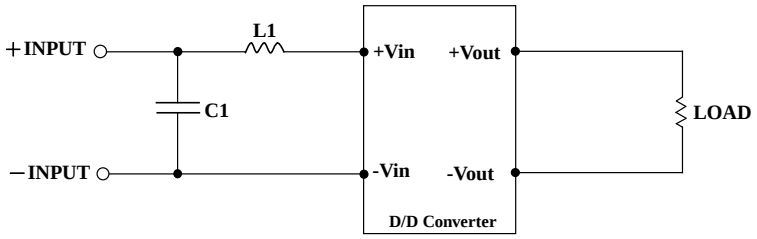








1. All dimensions in Inches (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01(0.25)
3. Pin dimension tolerance ±0.004 (0.1)



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	6.8μF/50V 1812 MLCC	18μH 0504 SMD Inductor PMT-046
PDL03-48xxxW	2.2μF/100V 1812 MLCC	18μH 0504 SMD Inductor PMT-046

PIN CONNECTION		
PIN	SINGLE	DUAL
1	- INPUT	- INPUT
2	+ INPUT	+ INPUT
3	CTRL	CTRL
5	NC	NC
6	+ OUTPUT	+ OUTPUT
7	- OUTPUT	COM
8	NC	- OUTPUT

