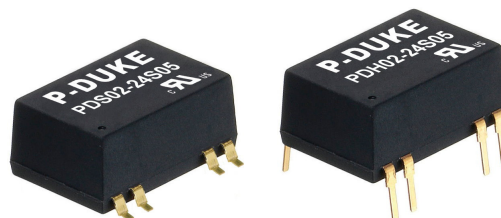


PDS02 PDH02 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 2Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- UP TO 3000VDC INPUT TO OUTPUT ISOLATION
- SMALL SIZE AND LOW PROFILE : 0.74 X 0.50 X 0.33 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

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
PDS(H)02-05S3P3	4.5 ~ 9	3.3	500	35	74	3300
PDS(H)02-05S05	4.5 ~ 9	5	400	35	80	1680
PDS(H)02-05S09	4.5 ~ 9	9	222	40	79	1000
PDS(H)02-05S12	4.5 ~ 9	12	167	35	81	820
PDS(H)02-05S15	4.5 ~ 9	15	134	40	83	680
PDS(H)02-05D05	4.5 ~ 9	±5	±200	40	78	±1000
PDS(H)02-05D12	4.5 ~ 9	±12	±83	40	81	±470
PDS(H)02-05D15	4.5 ~ 9	±15	±67	40	82	±330
PDS(H)02-12S3P3	9 ~ 18	3.3	500	20	75	3300
PDS(H)02-12S05	9 ~ 18	5	400	20	81	1680
PDS(H)02-12S09	9 ~ 18	9	222	20	79	1000
PDS(H)02-12S12	9 ~ 18	12	167	20	81	820
PDS(H)02-12S15	9 ~ 18	15	134	20	84	680
PDS(H)02-12D05	9 ~ 18	±5	±200	25	78	±1000
PDS(H)02-12D12	9 ~ 18	±12	±83	25	83	±470
PDS(H)02-12D15	9 ~ 18	±15	±67	25	82	±330
PDS(H)02-24S3P3	18 ~ 36	3.3	500	10	75	3300
PDS(H)02-24S05	18 ~ 36	5	400	10	81	1680
PDS(H)02-24S09	18 ~ 36	9	222	10	79	1000
PDS(H)02-24S12	18 ~ 36	12	167	10	84	820
PDS(H)02-24S15	18 ~ 36	15	134	10	84	680
PDS(H)02-24D05	18 ~ 36	±5	±200	10	79	±1000
PDS(H)02-24D12	18 ~ 36	±12	±83	10	84	±470
PDS(H)02-24D15	18 ~ 36	±15	±67	10	84	±330
PDS(H)02-48S3P3	36 ~ 75	3.3	500	7	75	3300
PDS(H)02-48S05	36 ~ 75	5	400	7	81	1680
PDS(H)02-48S09	36 ~ 75	9	222	7	79	1000
PDS(H)02-48S12	36 ~ 75	12	167	7	82	820
PDS(H)02-48S15	36 ~ 75	15	134	7	82	680
PDS(H)02-48D05	36 ~ 75	±5	±200	7	78	±1000
PDS(H)02-48D12	36 ~ 75	±12	±83	7	83	±470
PDS(H)02-48D15	36 ~ 75	±15	±67	7	83	±330

PART NUMBER STRUCTURE

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Isolation Option
PDS: SMD type PDH: DIP type	05: 4.5~9 12: 9~18 24: 18~36 48: 36~75	S: Single D: Dual	3P3: 3.3 05: 5 09: 9 12: 12 15: 15 05: ±5 12: ±12 15: ±15	□: Standard type H: 3000VDC isolation

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	05Vin(nom) 12Vin(nom) 24Vin(nom) 48Vin(nom)	4.5 9 18 36	5 12 24 48	9 18 36 75	VDC
Start up time	Constant resistive load Power up Remote ON/OFF		5 5		ms
Input surge voltage	1 second, max. 05Vin(nom) 12Vin(nom) 24Vin(nom) 48Vin(nom)			15 25 50 100	VDC
Input reflected ripple current	05Vin(nom) 12Vin(nom) 24Vin(nom) 48Vin(nom)		80 40 30 20		mAp-p
Input filter				Capacitor type	
Remote ON/OFF	DC-DC ON Ctrl pin applied current via 1kΩ DC-DC OFF Remote off input current Application circuit DC-DC ON DC-DC OFF	2	3	4 2.5	mA mA

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 Dual	-1.0 -1.0		+1.0 +1.0	%
	10% Load to 100% Full Load Single Dual	-0.5 -0.8		+0.5 +0.8	%
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	%/°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 3000			VDC
Isolation resistance	500VDC			1			GΩ
Isolation capacitance			Standard Type Suffix "H"			50 50	pF
Switching frequency	Full load to minimum load			100			kHz
Safety approvals						UL60950-1 EN60950-1 IEC60950-1	
Weight						4.5g (0.16oz)	
MTBF	MIL-HDBK-217F					7.137 x 10 ⁶ hrs	

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions			Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating With derating		-40 +85		+85 +100	°C
Storage temperature range				-55		+125	°C
Thermal shock						MIL-STD-810F	
Vibration						MIL-STD-810F	
Relative humidity						5% to 95% RH	
Lead-free reflow solder process						IPC J-STD-020D	
Moisture sensitivity level	MSL					IPC J-STD-033B Level 2a	

EMC SPECIFICATIONS

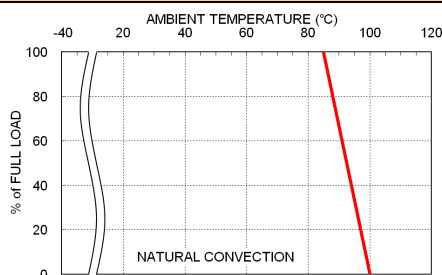
Parameter	Conditions		Level
EMI ⁽¹⁾	EN55022		Class A · Class B
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient ⁽²⁾	EN61000-4-4	± 2kV	Perf. Criteria A
Surge ⁽²⁾	EN61000-4-5	±1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Note:

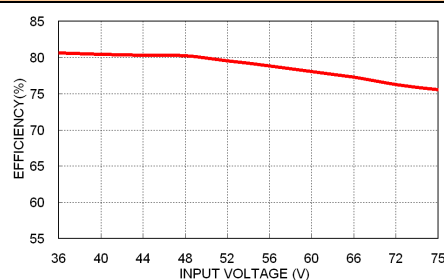
- The standard modules meet EMI Class A or Class B with external components. For further information, please contact with P-DUKE.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220μF/100V.

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

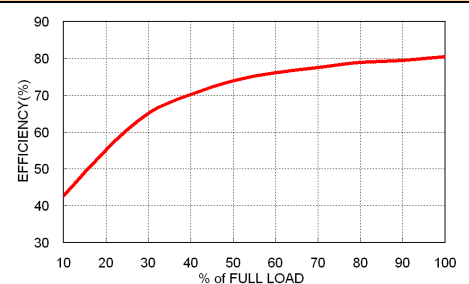
CHARACTERISTIC CURVE



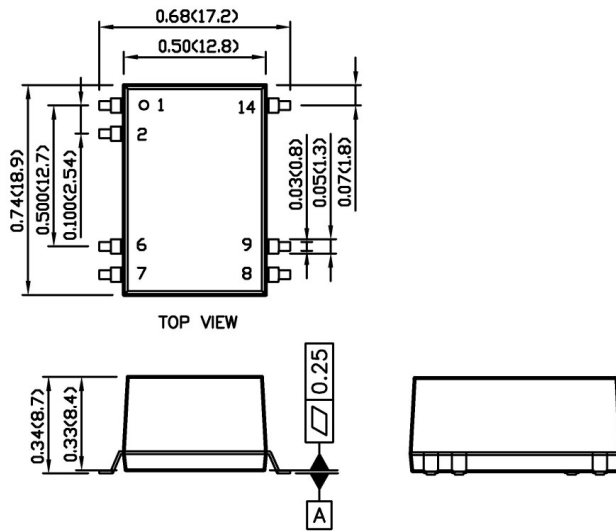
PDS02-48S05 Derating Curve



PDS02-48S05 Efficiency vs. Input Voltage



PDS02-48S05 Efficiency vs. Output Load

MECHANICAL DRAWING
PDS02

PIN CONNECTION

PIN	SINGLE	DUAL
1	-Vin	-Vin
2	Ctrl	Ctrl
6	NC	Common
7	NC	-Vout
8	+Vout	+Vout
9	-Vout	Common
14	+Vin	+Vin

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)

PDH02
