

APPLICATIONS

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

FEATURES

- 3 WATTS MAXIMUM OUTPUT POWER
- SMD AND DIP PACKAGE, 0.74 x 0.50 x 0.33 INCH
- SMD PACKAGE QUALIFIED FOR LEADFREE REFLOW SOLDER PROCESS ACCORDING IPC J-STD-020D
- 2:1 WIDE INPUT VOLTAGE RANGE
- HIGH EFFICIENCY UP TO 83%
- 1600VDC INPUT TO OUTPUT ISOLATION AND 3000VDC FOR OPTION
- LOW RIPPLE & NOISE
- EXTERNAL ON/OFF CONTROL
- SWITCHING FREQUENCY (100kHz, MIN)
- CONTINUOUS SHORT CIRCUIT PROTECTION
- UL94-V0 PACKAGE MATERIALS
- CE MARK MEETS 2006/95/EC, 2011/95/EC AND 2004/108/EC
- SAFETY MEETS UL60950-1, EN60950-1 AND IEC60950-1
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

OPTIONS

3000VDC ISOLATION

DESCRIPTION

The PDS03(SMD type), PDH03(DIP type) offer 3 watts of output power from a 0.74 x 0.50 x 0.33 inch package without derating to 71°C. The PDS(H)03 series have 2:1 wide input voltage of 4.5~9, 9~18, 18~36 and 36~75VDC and features 3000VDC of isolation, short-circuit protection.

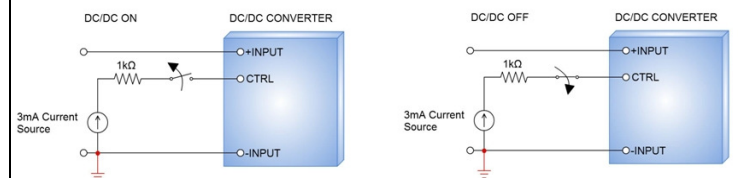
TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS	
Output power	3 Watts, max.
Voltage accuracy	± 1%
Minimum load	0%
Line regulation	LL to HL at Full Load ± 0.2%
Load regulation	No load to Full load
	10% load to 90% load
	Single ±1.0% Dual ±1.0%
	Single ±0.5% Dual ±0.8%
Cross regulation (Dual)	Asymmetrical load 25%/100% FL ±5%
Ripple and noise	20MHz bandwidth See table
Temperature coefficient	±0.02% / °C, max.
Transient response recovery time	25% load step change 250µs
Short circuit protection	Continuous, automatics recovery
GENERAL SPECIFICATIONS	
Efficiency	See table
Isolation voltage	Standard 1600VDC, min.1 minute
	Suffix "H" 3000VDC, min.1 minute
Isolation resistance	500VDC 10 ⁹ ohms, min.
Isolation capacitance	Standard 50pF, max.
	Suffix "H" 50pF, max.
Switching frequency	100kHz, min.
Design meets safety standard	IEC60950-1, UL60950-1, EN60950-1
Dimensions	0.74 x 0.50 x 0.33 Inch (18.9 X 12.8 X 8.4 mm)
Weight	4.5g(0.16oz)
MTBF(Note 1)	BELLCORE TR-NWT-000332 4.386 x 10 ⁶ hrs
	MIL-HDBK-217F 2.401 x 10 ⁶ hrs
EMC CHARACTERISTICS	
EMI (Note 6)	EN55022 Class A, Class B
ESD	Air ± 8kV Perf. Criteria A
	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

INPUT SPECIFICATIONS	
Input voltage range	5V nominal input 4.5 ~ 9VDC
	12V nominal input 9 ~ 18VDC
	24V nominal input 18 ~ 36VDC
	48V nominal input 36 ~ 75VDC
Input filter	Capacitor type
Input surge voltage	5V input 15VDC 1sec, max.
	12V input 25VDC 1sec, max.
	24V input 50VDC 1sec, max.
	48V input 100VDC 1sec, max.
Input reflected ripple current(Note 6)	5V input 80mA-p-p
	12V input 40mA-p-p
	24V input 30mA-p-p
	48V input 20mA-p-p
Start up time	Nominal input and constant resistive load Power up 5ms
	Remote ON/OFF Remote ON/OFF 5ms
Remote ON/OFF	DC-DC ON Open or high impedance
	DC-DC OFF Control pin applied current 2 ~ 4mA max(via 1kΩ)
Remote off state input current	Nominal input 2.5mA, max.

Application circuit:



ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	-40°C ~ +71°C (without derating) +71°C ~ +85°C (with derating)
Storage temperature range	-55°C ~ +125°C
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity(non-condensing)	5% to 90% RH
Lead-free reflow solder process	IPC J-STD-020D
Moisture sensitivity level(MSL)	IPC J-STD-033B Level 2a

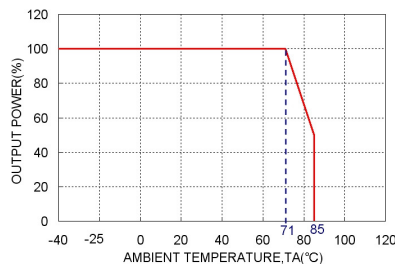
Model Number	Input Range	Output Voltage	Output Current		Output (2) Ripple & Noise	No load (3) Input Current	Eff (4) (%)	Capacitor (5) Load max.
			Min. load	Full load				
PDS(H)03-05S3P3	4.5 ~ 9 VDC	3.3 VDC	0mA	700mA	30 mVp-p	40mA	75	3300μF
PDS(H)03-05S05	4.5 ~ 9 VDC	5 VDC	0mA	600mA	30 mVp-p	40mA	79	1680μF
PDS(H)03-05S09	4.5 ~ 9 VDC	9 VDC	0mA	333mA	30 mVp-p	40mA	79	1000μF
PDS(H)03-05S12	4.5 ~ 9 VDC	12 VDC	0mA	250mA	30 mVp-p	40mA	80	820μF
PDS(H)03-05S15	4.5 ~ 9 VDC	15 VDC	0mA	200mA	30 mVp-p	50mA	81	680μF
PDS(H)03-05D05	4.5 ~ 9 VDC	±5 VDC	0mA	±300mA	30 mVp-p	50mA	80	±1000μF
PDS(H)03-05D12	4.5 ~ 9 VDC	±12 VDC	0mA	±125mA	30 mVp-p	50mA	80	±470μF
PDS(H)03-05D15	4.5 ~ 9 VDC	±15 VDC	0mA	±100mA	30 mVp-p	55mA	81	±330μF
PDS(H)03-12S3P3	9 ~ 18 VDC	3.3 VDC	0mA	700mA	30 mVp-p	30mA	76	3300μF
PDS(H)03-12S05	9 ~ 18 VDC	5 VDC	0mA	600mA	30 mVp-p	30mA	81	1680μF
PDS(H)03-12S09	9 ~ 18 VDC	9 VDC	0mA	333mA	30 mVp-p	30mA	80	1000μF
PDS(H)03-12S12	9 ~ 18 VDC	12 VDC	0mA	250mA	30 mVp-p	30mA	82	820μF
PDS(H)03-12S15	9 ~ 18 VDC	15 VDC	0mA	200mA	30 mVp-p	30mA	82	680μF
PDS(H)03-12D05	9 ~ 18 VDC	±5 VDC	0mA	±300mA	30 mVp-p	30mA	80	±1000μF
PDS(H)03-12D12	9 ~ 18 VDC	±12 VDC	0mA	±125mA	30 mVp-p	30mA	82	±470μF
PDS(H)03-12D15	9 ~ 18 VDC	±15 VDC	0mA	±100mA	30 mVp-p	30mA	83	±330μF
PDS(H)03-24S3P3	18 ~ 36 VDC	3.3 VDC	0mA	700mA	30 mVp-p	13mA	76	3300μF
PDS(H)03-24S05	18 ~ 36 VDC	5 VDC	0mA	600mA	30 mVp-p	13mA	81	1680μF
PDS(H)03-24S09	18 ~ 36 VDC	9 VDC	0mA	333mA	30 mVp-p	13mA	82	1000μF
PDS(H)03-24S12	18 ~ 36 VDC	12 VDC	0mA	250mA	30 mVp-p	13mA	82	820μF
PDS(H)03-24S15	18 ~ 36 VDC	15 VDC	0mA	200mA	30 mVp-p	13mA	83	680μF
PDS(H)03-24D05	18 ~ 36 VDC	±5 VDC	0mA	±300mA	30 mVp-p	13mA	80	±1000μF
PDS(H)03-24D12	18 ~ 36 VDC	±12 VDC	0mA	±125mA	30 mVp-p	13mA	83	±470μF
PDS(H)03-24D15	18 ~ 36 VDC	±15 VDC	0mA	±100mA	30 mVp-p	13mA	83	±330μF
PDS(H)03-48S3P3	36 ~ 75 VDC	3.3 VDC	0mA	700mA	30 mVp-p	10mA	76	3300μF
PDS(H)03-48S05	36 ~ 75 VDC	5 VDC	0mA	600mA	30 mVp-p	10mA	81	1680μF
PDS(H)03-48S09	36 ~ 75 VDC	9 VDC	0mA	333mA	30 mVp-p	10mA	80	1000μF
PDS(H)03-48S12	36 ~ 75 VDC	12 VDC	0mA	250mA	30 mVp-p	10mA	82	820μF
PDS(H)03-48S15	36 ~ 75 VDC	15 VDC	0mA	200mA	30 mVp-p	10mA	82	680μF
PDS(H)03-48D05	36 ~ 75 VDC	±5 VDC	0mA	±300mA	30 mVp-p	10mA	81	±1000μF
PDS(H)03-48D12	36 ~ 75 VDC	±12 VDC	0mA	±125mA	30 mVp-p	10mA	83	±470μF
PDS(H)03-48D15	36 ~ 75 VDC	±15 VDC	0mA	±100mA	30 mVp-p	10mA	83	±330μF

Note

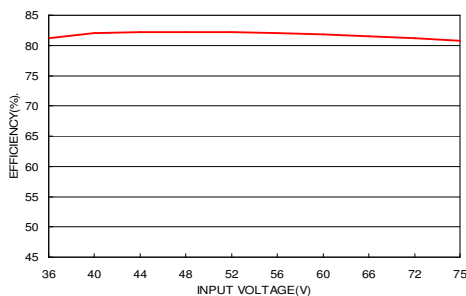
1. BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C.
MIL-HDBK-217F Notice2 @Ta=25 °C, Full load (Ground, Benign, controlled environment)
2. Typical value at nominal input and full load. (20MHz BW.)
3. Typical value at nominal input and no load.
4. Typical value at nominal input and full load.
5. Test by minimum input and constant resistive load.
6. The PDS(H)03 series standard module meets EN55022 Class A and Class B with external components.
For more detail information, please contact with P-DUKE.
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, 220 μF/100V.

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

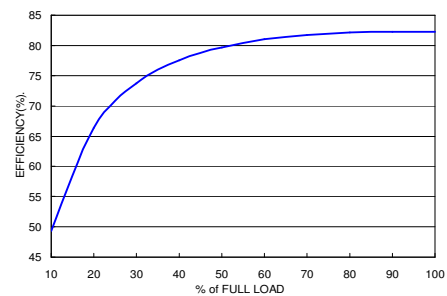
PDS03-48S05 Derating Curve



PDS03-48S05 Efficiency VS Input Voltage



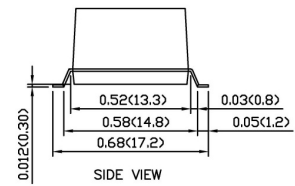
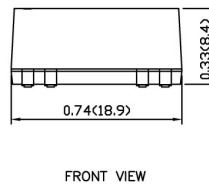
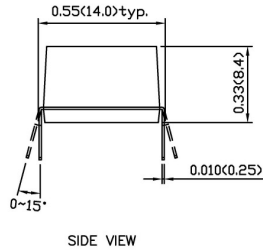
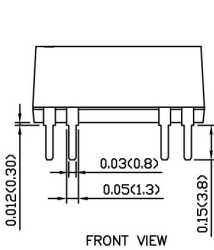
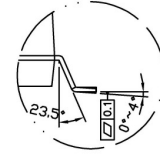
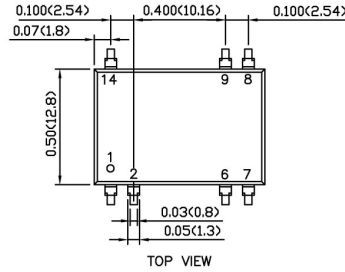
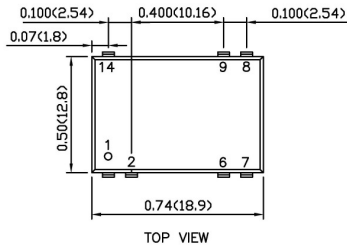
PDS03-48S05 Efficiency VS Output Load



MECHANICAL DRAWING :

DIP TYPE

SMD TYPE



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)

PIN CONNECTION		
PIN	SINGLE	DUAL
1	-INPUT	-INPUT
2	CTRL	CTRL
6	NC	COMMON
7	NC	-OUTPUT
8	+OUTPUT	+OUTPUT
9	-OUTPUT	COMMON
14	+INPUT	+INPUT