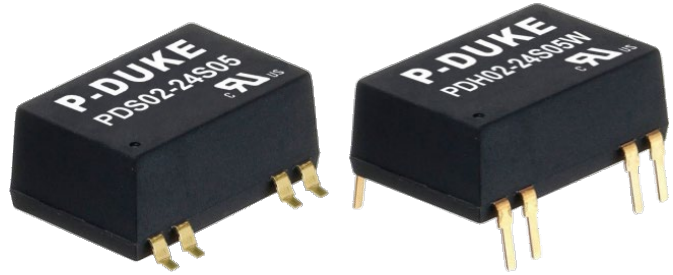


Features

- 2:1 Wide input 4.5~75V DC
- Isolation Voltage: 1600V DC & 3000V - DC Depending on model
- Operating Temperature Range: -40~71°C
- Approved to cURus, UKCA, CE, RoHS, REACH
- Safety standards to IEC/EN/UL 62368-1
- Efficiency upto 83%
- EMC Class A & B Certified



Ideal Power's 43PDH03-xyz 3W Series SMD, DIP DC/DC Converters are certified to cURus, UKCA, CE, RoHS, REACH & IEC/UL/EN 62368-1 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Video & Audio Industries and customised solutions are available upon request.

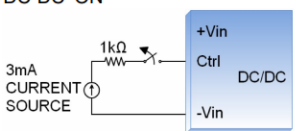
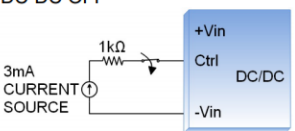
Part Number Structure

PDS03	-	48	S	05	H
Series Name		Output Power (VDC)	Output Quantity	Output Voltage (VDC)	Isolation Voltage (VDC)
PDS: SMD type		05: 4.5~9	S: Single	3P3: 3.3	□: Standard type
PDH: DIP type		12: 9~18		05: 5	1600VDC isolation
		24: 18~36		09: 9	H: 3000VDC isolation
		48: 36~75		12: 12	
			D: Dual	15: 15	
				05: <u>+5</u>	
				12: <u>+12</u>	
				15: <u>+15</u>	

Models

Model Number	Input Range VDC	Output Voltage VDC	Output current @ Full Load mA	Input Current @ No Load A	Efficiency %	Maximum Capacitor Load μF
43PDS(H)03-05S3P3	4.5~9	3.3	700	40	75	3300
43PDS(H)03-05S05	4.5~9	5	600	40	79	1680
43PDS(H)03-05S09	4.5~9	9	333	40	79	1000
43PDS(H)03-05S12	4.5~9	12	250	40	80	820
43PDS(H)03-05S15	4.5~9	15	200	50	81	680
43PDS(H)03-05D05	4.5~9	±5	±300	50	80	±1000
43PDS(H)03-05D12	4.5~9	±12	±125	50	80	±470
43PDS(H)03-05D15	4.5~9	±15	±100	55	81	±330
43PDS(H)03-12S3P3	9~18	3.3	700	30	76	3300
43PDS(H)03-12S05	9~18	5	600	30	80	1680
43PDS(H)03-12S09	9~18	9	333	30	80	1000
43PDS(H)03-12S12	9~18	12	250	30	82	820
43PDS(H)03-12S15	9~18	15	200	30	82	680
43PDS(H)03-12D05	9~18	±5	±300	30	80	±1000
43PDS(H)03-12D12	9~18	±12	±125	30	82	±470
43PDS(H)03-12D15	9~18	±15	±100	30	83	±330
43PDS(H)03-24S3P3	18~36	3.3	700	13	76	3300
43PDS(H)03-24S05	18~36	5	600	13	81	1680
43PDS(H)03-24S09	18~36	9	333	13	82	1000
43PDS(H)03-24S12	18~36	12	250	13	82	820
43PDS(H)03-24S15	18~36	15	200	13	83	680
43PDS(H)03-24D05	18~36	±5	±300	13	80	±1000
43PDS(H)03-24D12	18~36	±12	±125	13	83	±470
43PDS(H)03-24D15	18~36	±15	±100	13	83	±330
43PDS(H)03-48S3P3	36~75	3.3	700	10	76	3300
43PDS(H)03-48S05	36~75	5	600	10	81	1680
43PDS(H)03-48S09	36~75	9	333	10	80	1000
43PDS(H)03-48S12	36~75	12	250	10	82	820
43PDS(H)03-48S15	36~75	15	200	10	82	680
43PDS(H)03-48D05	36~75	±5	±300	10	81	±1000
43PDS(H)03-48D12	36~75	±12	±125	10	83	±470
43PDS(H)03-48D15	36~75	±15	±100	10	83	±330

Input Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Operating input voltage range	05Vin(nom)		4.5	5	9	VDC
	12Vin(nom)		9	12	18	
	24Vin(nom)		18	24	36	
	48Vin(nom)		36	48	75	
Start-up time	Constant resistive load	Power up		5		ms
		Remote ON/OFF		5		
Input surge voltage	1 Second, max.	05Vin(nom)			15	VDC
		12Vin(nom)			25	
		24Vin(nom)			50	
		48Vin(nom)			100	
Input filter	Capacitor Type					
		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	Watts
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	
	10% Load to 100% Full Load	Single	-0.5		+0.5	
		Dual	-0.8		+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	1600		3000	V DC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					50	
					50	
Switching frequency	Full load to minimum load		100			kHz
Safety approvals	IEC/ EN/ UL62368-1					UL:E193009 CB:UL(Demko)
Weight						4.5g (0.16oz)
MTBF	MIL-HDBK-217F, Full load					7.137 x 10 ⁶ hrs

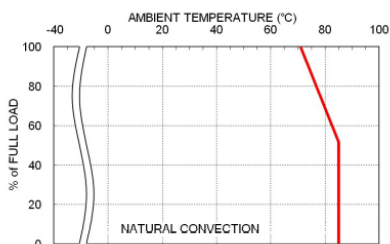
Environmental Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating ambient temperature	Without derating	-40		+71	°C
	With derating	+71		+85	
Maximin case temperature				100	
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	Only for SMD type				IPC J-STD-020E
Moisture sensitivity level(MSL)	Only for SMD type				IPC J-STD-033C Level 2a

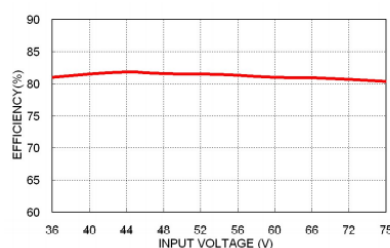
EMC Specifications

Parameter	Conditions	Level
EMI	EN55022 With external components	Class A, Class B
EMS	EN55024	
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, 220µF/100V)	Perf. Criteria A
Surge	EN61000-4-5 ± 1kV With an external input filter capacitor (Nippon chemi-con KY series, 220µF/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

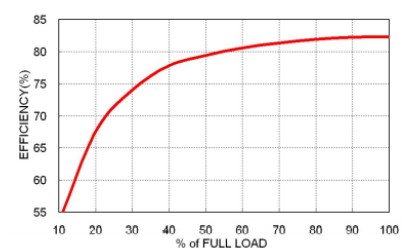
CAUTION: This power module is not internally fused. An input line fuse must always be used.

Characteristic Curve


43PDS03-48S05 Derating Curve



43PDS03-48S05 Efficiency vs. Input Voltage



43PDS03-48S05 Efficiency vs. Output Load

Fuse Considerations

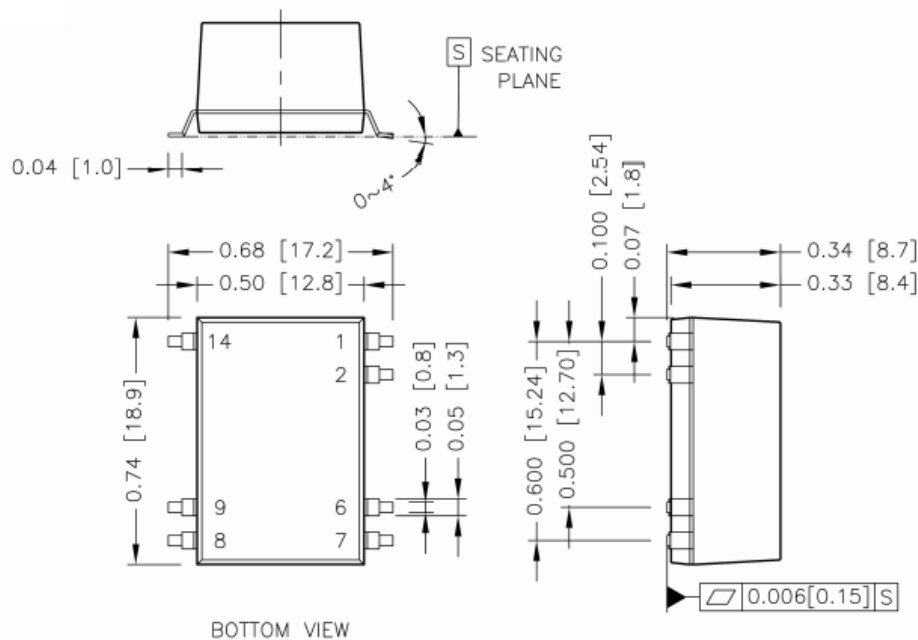
This power module is not internally fused. An input line fuse must always be used. This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture. To maximum flexibility, internal fusing 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
43PDS(H)03-05S□□, 43PDS(H)03-05D□□	3	Slow-Blow
43PDS(H)03-12S□□, 43PDS(H)03-12D□□	3	Slow-Blow
43PDS(H)03-24S□□, 43PDS(H)03-24D□□	1.5	Slow-Blow
43PDS(H)03-48S□□, 43PDS(H)03-48D□□	1.5	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

43PDS03



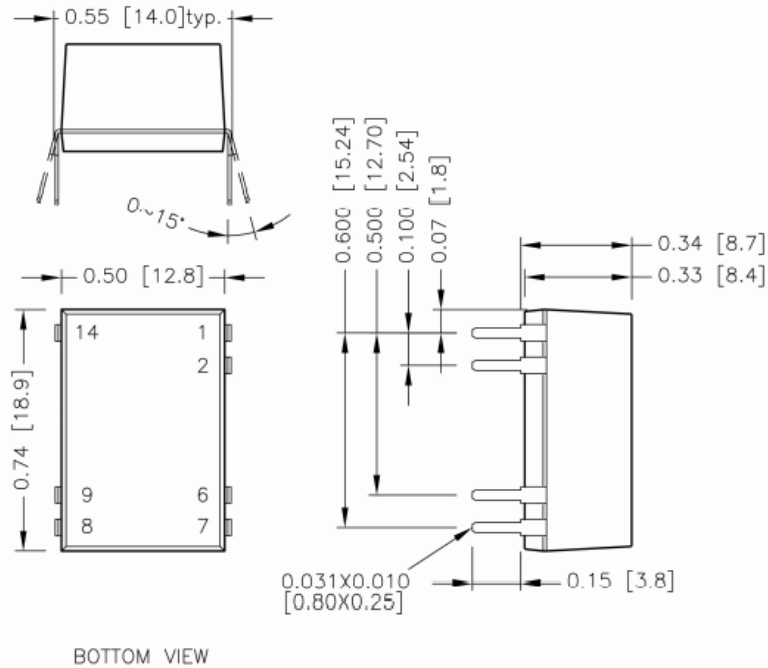
- All dimensions in inch (mm)
- Tolerance :x.xx±0.02 (x.x±0.5)
x.xxx±0.01 (x.xx±0.25)
- Pin pitch tolerance ±0.01 (0.25)
- Pin dimension tolerance ±0.004(0.1)

DIP 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

Mechanical Drawing

43PDH03



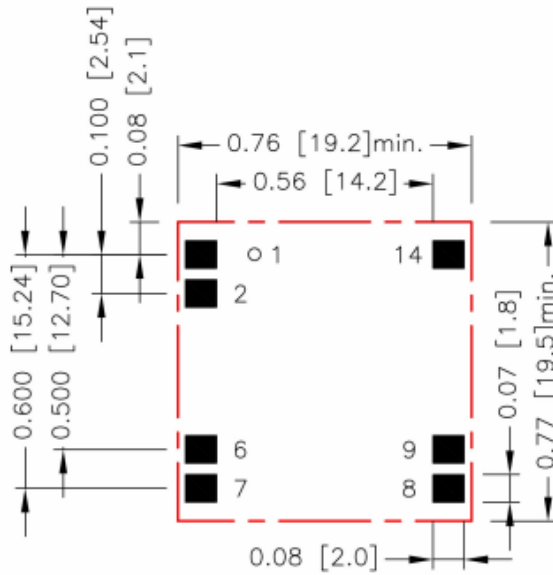
1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.x±0.5)
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)

DIP 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

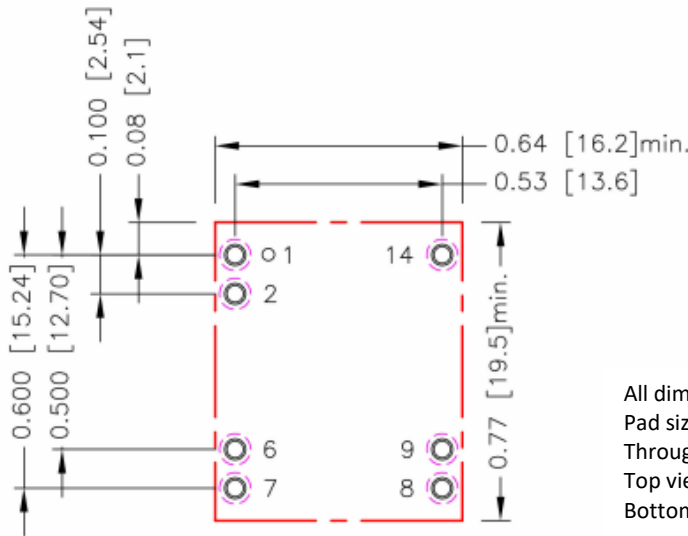
Recommended Pad Layout

43PDS03



All dimensions in inch[mm]
 Pad size(lead free recommended)
 Top view pad:0.080x0.070[2.00x1.80]

43PDH03

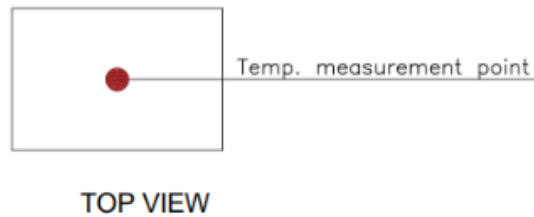


All dimensions in inch[mm]
 Pad size(lead free recommended)
 Through hole 1.2.6.7.8.9.14: Φ 0.043[1.10]
 Top view pad 1.2.6.7.8.9.14: Φ 0.055[1.40]
 Bottom view pad 1.2.6.7.8.9.14: Φ 0.080[2.04]

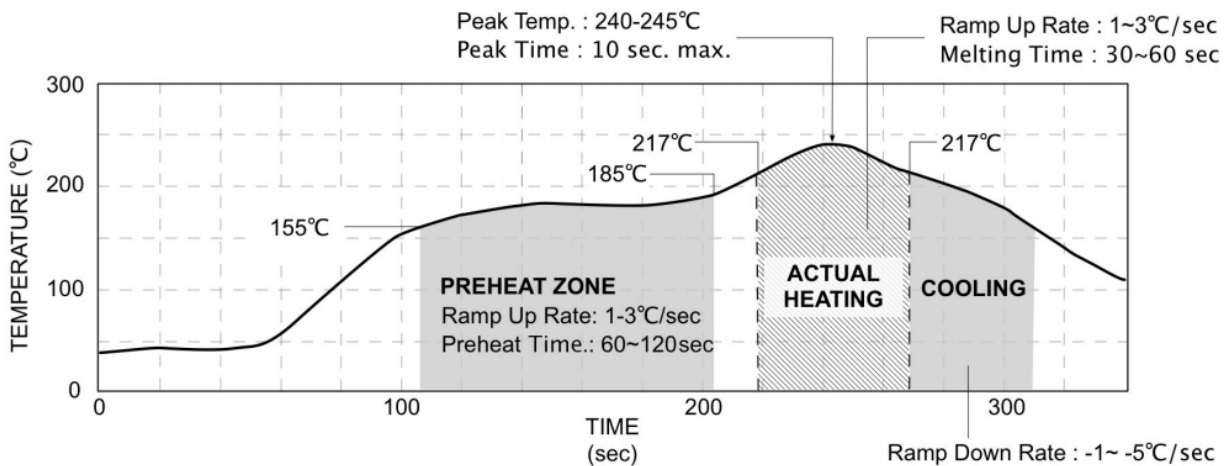
Thermal Considerations

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 "Maximum case temperature". When Operating, adequate cooling must be provided to maintain the test point temperature at or below "Maximum case temperature". You can limit this Temperature to a lower value for extremely high reliability.

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



Lead Free Reflow Profile (For SMD Type)



*The curves define the maximum peak reflow temperature permissible measured on pin1 or Vin pin.