

Features

- 4:1 Wide input 4.5~75V DC
- Isolation Voltage: 1600V DC & 3000V DC
Depending on model
- Operating Temperature Range: -40~100°C
- Approved to cURus, UKCA, CE, RoHS, REACH
- Safety standards to IEC/EN/UL 62368-1
- Efficiency up to 82%
- EMC Class A & B Certified



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

Part Number Structure

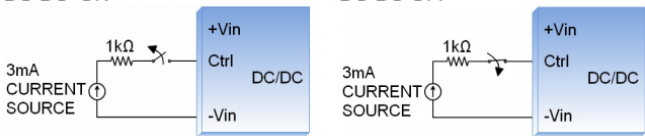
PDL03	-	48	S	05	W	H
Series Name		Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Case & Isolation Options
		12: 4.5~18 24: 9~36 48: 18~75	S: Single D: Dual	3P3: 3.3 05: 5 09: 9 12: 12 15: 15 05: +5 12: +12 15: +15	4 : 1	<input type="checkbox"/> : Standard type 1600V DC Isolation H: 3000V DC Isolation

Models

Model Number	Input Range	Output Voltage	Output current @Full Load	Input Current @ No Load	Efficiency %	Maximum Capacitor Load
	V DC	V DC	mA	A		μF
43PDL03-12S3P3W	4.5 ~ 18	3.3	700	35	74	3300
43PDL03-12S05W	4.5 ~ 18	5	600	40	78	1680
43PDL03-12S09W	4.5 ~ 18	9	333	40	79	1000
43PDL03-12S12W	4.5 ~ 18	12	250	40	80	820
43PDL03-12S15W	4.5 ~ 18	15	200	40	80	680
43PDL03-12D05W	4.5 ~ 18	±5	±300	40	80	±1000
43PDL03-12D12W	4.5 ~ 18	±12	±125	40	80	±470
43PDL03-12D15W	4.5 ~ 18	±15	±100	40	80	±330
43PDL03-24S3P3W	9 ~ 36	3.3	700	20	75	3300
43PDL03-24S05W	9 ~ 36	5	600	20	80	1680
43PDL03-24S09W	9 ~ 36	9	333	19	80	1000
43PDL03-24S12W	9 ~ 36	12	250	20	82	820
43PDL03-24S15W	9 ~ 36	15	200	19	82	680
43PDL03-24D05W	9 ~ 36	±5	±300	25	79	±1000
43PDL03-24D12W	9 ~ 36	±12	±125	25	81	±470
43PDL03-24D15W	9 ~ 36	±15	±100	25	81	±330
43PDL03-48S3P3W	18 ~ 75	3.3	700	12	74	3300
43PDL03-48S05W	18 ~ 75	5	600	12	80	1680
43PDL03-48S09W	18 ~ 75	9	333	13	80	1000
43PDL03-48S12W	18 ~ 75	12	250	14	81	820
43PDL03-48S15W	18 ~ 75	15	200	14	81	680
43PDL03-48D05W	18 ~ 75	±5	±300	14	79	±1000
43PDL03-48D12W	18 ~ 75	±12	±125	14	81	±470
43PDL03-48D15W	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	V DC	
	24Vin(nom)	9	24	36		
	48Vin(nom)	18	48	75		
Start-up time	Constant resistive load	Power up	--	30	--	ms
		Remote ON/OFF	--	30	--	
Input surge voltage	100 Second, max.	12Vin(nom)	--	--	36	V DC
		24Vin(nom)	--	--	50	
		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				
	Application Circuit	Remote off input current	2	3	4	mA
	DC-DC ON		--	--	2.5	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	-1.0	--	+0.1	%
		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	%/°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	--	--	V DC
		Standard Type Suffix "H"	3000	--	--	
Isolation resistance	500VDC		1	--	--	GΩ
Isolation capacitance			Standard Type	--	--	200
			Suffix "H"	--	--	40
Switching frequency	Full load to minimum load		100	--	--	kHz
Safety approvals	IEC/ EN/ UL62368-1					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, Full load					3.482 x 10 ⁶ hrs

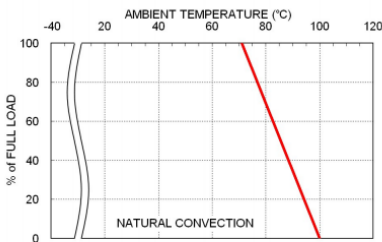
Environmental Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Operating ambient temperature	With derating		-40	--	+100	°C
Maximin case temperature			--	--	100	°C
Storage temperature range			-55	--	+125	°C
Thermal Shock						MIL-STD-810F
Vibration						MIL-STD-810F
Relative humidity						5% to 95% RH

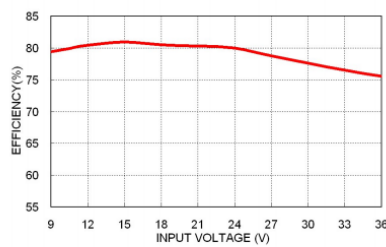
EMC Specifications

Parameter	Conditions		Level
EMI	EN55032	With external components	Class A, Class B
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	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

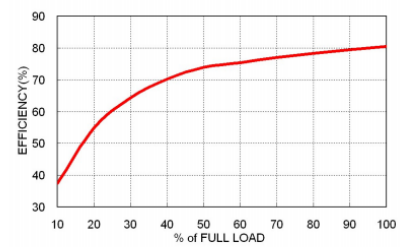
CAUTION: This power module is not internally fused. An input line fuse must always be used.

Characteristic Curve


43PDL03-24S05W Derating Curve



43PDL03-24S05W Efficiency vs. Input Voltage



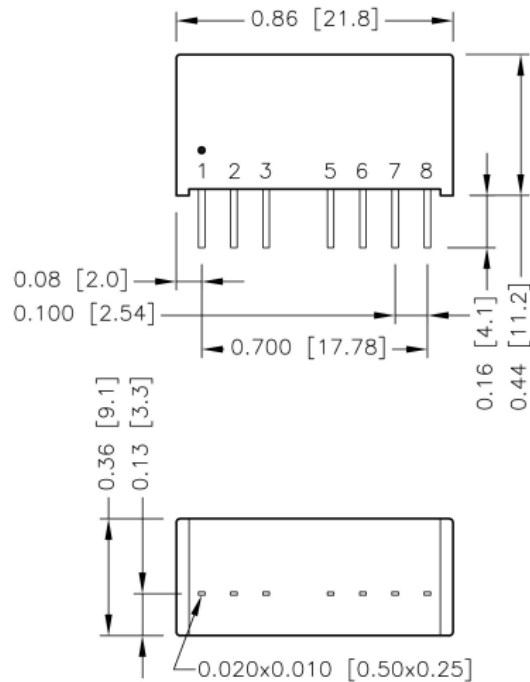
43PDL03-24S05W Efficiency vs. Output Load

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
43PDL03-12S□□W, 43PDL03-12D□□W	2	Slow-Blow
43PDL03-24S□□W, 43PDL03-24D□□W	1.6	Slow-Blow
43PDL03-48S□□W, 43PDL03-48D□□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


BOTTOM VIEW

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 dimension tolerance ±0.004 [0.10]

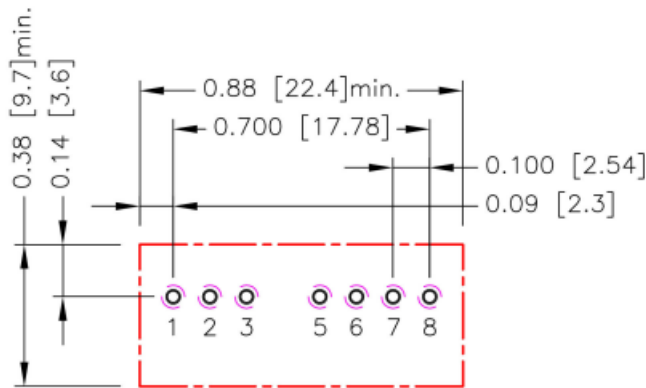
DIP Pin Connection

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").

Recommended Pad Layout

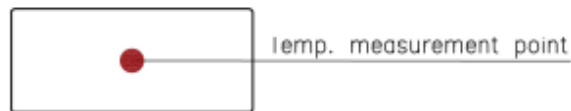


All dimensions in inch[mm]
 Pad size(lead free recommended)
 Through hole 1.2.3.6.7.8: $\Phi 0.031[0.80]$
 Top view pad 1.2.3.6.7.8: $\Phi 0.039[1.00]$
 Bottom view pad 1.2.3.6.7.8: $\Phi 0.063[1.60]$

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 "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.

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



TOP VIEW