

Features

- Operating Temperature Range: -40~100°
- Approved to RoHS & REACH
- Safety Standards to IEC/ EN/ UL62368-1
- Efficiency up to 96%
- Single 30W Output Models
- Available with optional heatsink (HS)



Ideal Power's 43PSR02-xSy 30W Series Pin Connection DC/DC Converters are certified to UKCA, 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.

Models

Model Number	Input Range VDC	Output Voltage VDC	Output Current @ Full Load A	Input Current @ No Load mA	Efficiency		Maximum Capacitor Load μ F
					Min. Vin %	Max. Vin %	
43PSR02-05S1P2	3.0 ~ 5.5	1.2	2	1	90	86	2500
43PSR02-05S1P5	3.0 ~ 5.5	1.5	2	1	91	88	2000
43PSR02-05S1P8	3.0 ~ 5.5	1.8	2	1	92	90	1600
43PSR02-05S2P5	3.8 ~ 5.5	2.5	2	1	95	92	1200
43PSR02-12S1P2	4.6 ~ 36	1.2	2	1	84	75	2500
43PSR02-12S1P5	4.6 ~ 36	1.5	2	1	86	77	2000
43PSR02-12S1P8	4.6 ~ 36	1.8	2	1	87	79	1600
43PSR02-12S2P5	4.6 ~ 36	2.5	2	1	89	83	1200
43PSR02-12S3P3	4.75 ~ 36	3.3	2	1	91	86	900
43PSR02-12S05	6.5 ~ 36	5.0	2	1	94	89	600
43PSR02-12S6P5	9.0 ~ 36	6.5	2	1	94	91	470
43PSR02-24S09	12 ~ 36	9.0	2	1	95	92	330
43PSR02-24S12	15 ~ 36	12	2	1	95	93	270
43PSR02-24S15	18 ~ 36	15	2	1	96	94	200

Input Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating input voltage range	43PSR02-05S1P2	3.0	5.0	5.5	VDC
	43PSR02-05S1P5	3.0	5.0	5.5	
	43PSR02-05S1P8	3.0	5.0	5.5	
	43PSR02-05S2P5	3.8	5.0	5.5	
	43PSR02-12S1P2	4.6	12	36	
	43PSR02-12S1P5	4.6	12	36	
	43PSR02-12S1P8	4.6	12	36	
	43PSR02-12S2P5	4.6	12	36	
	43PSR02-12S3P3	4.75	12	36	
	43PSR02-12S05	6.5	12	36	
	43PSR02-12S6P5	9.0	12	36	
	43PSR02-24S09	12	12	36	
	43PSR02-24S12	15	12	36	
	43PSR02-24S15	18	12	36	
For PSR02-12S□□ and PSR02-24S□□, only if the input will be switched electromechanically, the input should install an external 22μF/50V E/C.					
Start-up time	Constant resistive load	Power up		5	ms
Input filter	Capacitor type				

Output Specifications

Parameter	Conditions	Min	Typ	Max	Unit	
voltage accuracy		-2.0		+2.0	%	
Line regulation	Low Line to High Line at Full Load	-0.5		+0.5	%	
Load regulation		-0.1		+0.1	%	
Ripple and Noise	Measured by 20MHz bandwidth		50		mVp-p	
	Vout≤6.5V Vout≤9.0V		75			
Temperature coefficient		-0.02		+0.02	%/°C	
Dynamic load response	50% load step change	Peak deviation	24S□□	300	500	mV
			Others	150	250	μs
		Recovery time	All	100	200	
Overload protection	% of lout rated; Hiccup mode		05S□□	8	A	
			Others	3.6		
Short circuit protection	Continuous, automatic recovery					

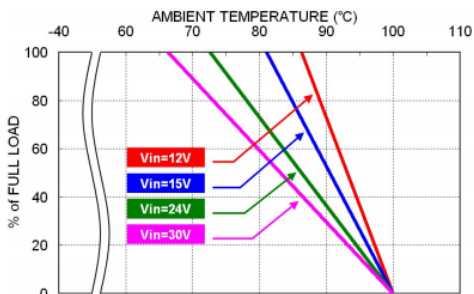
General Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Switching frequency	05S□□		1200		kHz
	Others		410		
Safety meets	IEC/ EN/ UL62368-1				
Case material	Non-conductive black plastic				
Base material	Silicone (UL94 V-0)				
Weight	2.6g(0.092oz)				
MTBF	MIL-HDBK-217F, Full load				1.352 x 10 ⁷ hrs

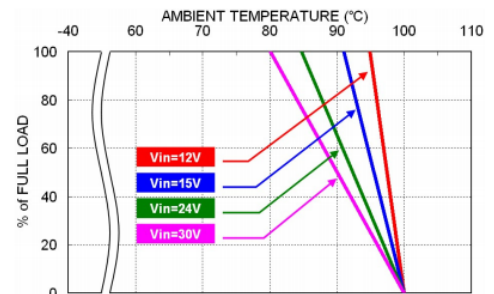
Environmental Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating ambient temperature	With derating	-40		+100	°C
43PSR1.0-5P0 Derating Curve Low VIN	* For high output power of 43PSR02-24S□□ has an optional heat-sink with suffix HS, which is able to be operated at least 50°C ambient temperatures without derating when applied input voltage doesn't exceed 30V. Other models can meet this condition without heat-sink and can install the heat-sink for higher operating ambient temperature as well.				
Maximum case temperature				105	°C
Over temperature protection	Internal IC junction		150		°C
Storage temperature range		-55		+125	°C
Thermal shock				MIL-STD-810F	
Vibration				MIL-STD-810F	
Relative humidity				5% to 95% RH	

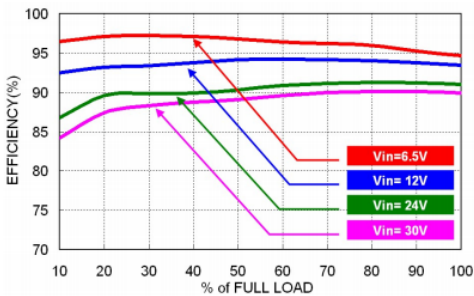
CAUTION: This power module is not internally fused. An input line fuse must always be used.

Characteristic Curve


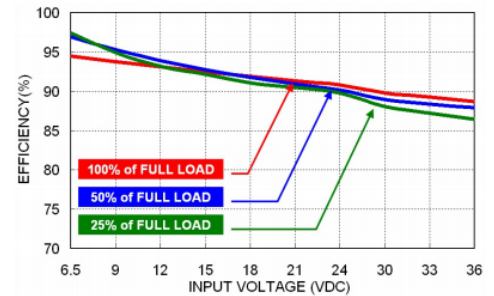
43PSR02-12S05 Derating Curve



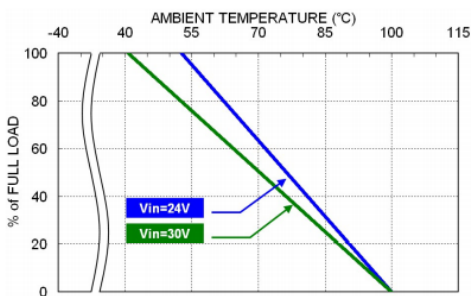
43PSR02-12S05-HS Derating Curve



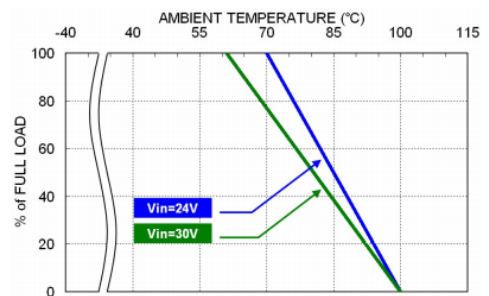
43PSR02-12S05 Efficiency vs. Output Load



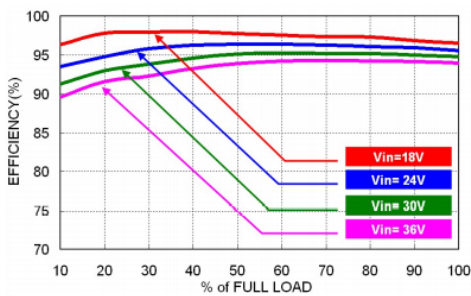
43PSR02-12S05 Efficiency vs. Input Voltage

Characteristic Curve (Continued)


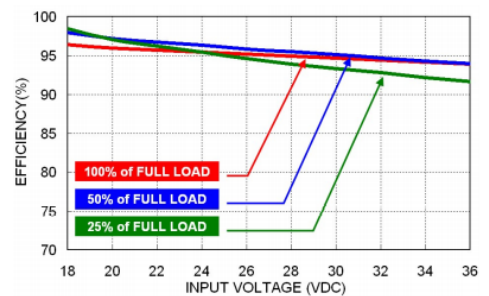
43PSR02-24S15 Derating Curve



43PSR02-24S15-HS Derating Curve



43PSR02-24S15 Efficiency vs. Output Load



43PSR02-24S15 Efficiency vs. Input Voltage

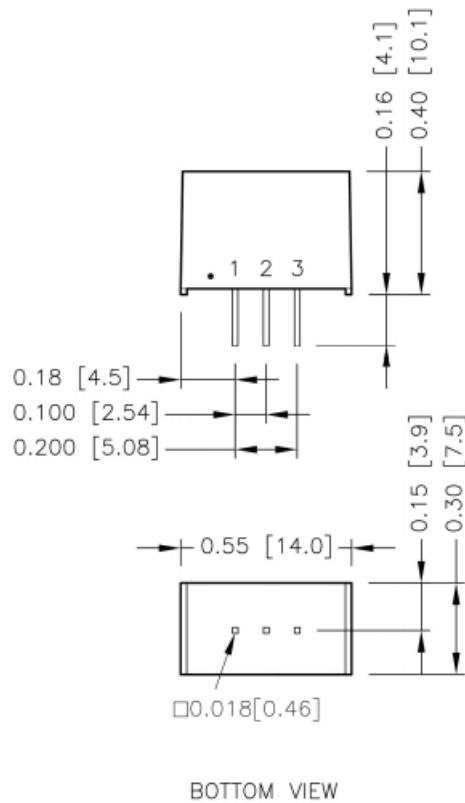
Fuse Considerations

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
43PSR02-05S□□	2	Slow-Blow
43PSR02-12S1P2, 12S1P5, 12S1P8	1.6	Slow-Blow
43PSR02-12S2P5, 12S3P3, 12S05, 12S6P5	2.5	Slow-Blow

Mechanical Drawing

43PSR02-□□S□□



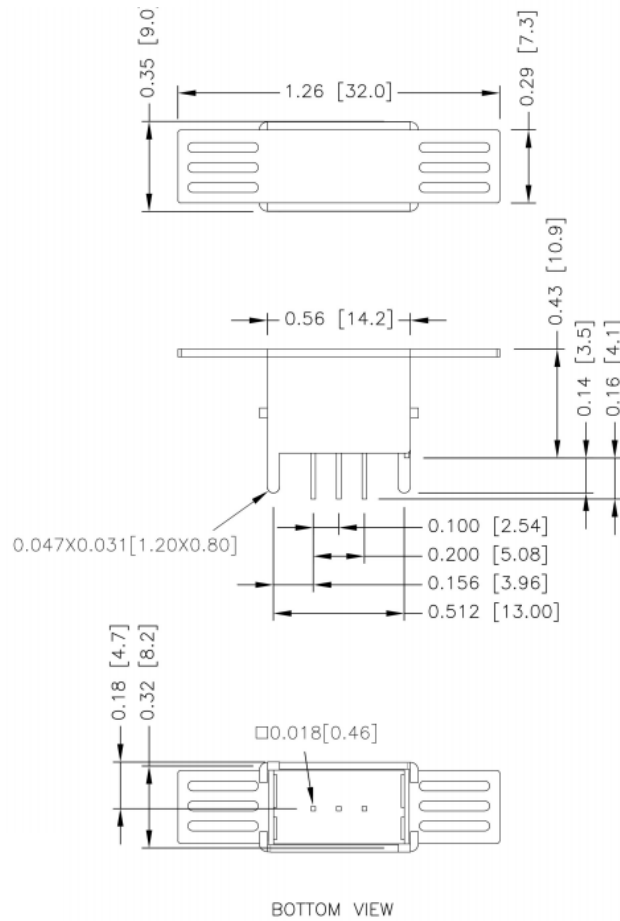
1. All dimensions in inch [mm]
Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$]
 $x.xxx \pm 0.010$ [$x.xx \pm 0.25$]
2. Pin pitch tolerance ± 0.010 [0.25]
3. Pin dimension tolerance ± 0.004 [0.10]

Pin Connection

Pin	Single
1	+Vin
2	GND
3	+Vout

Mechanical Drawing (Continued)

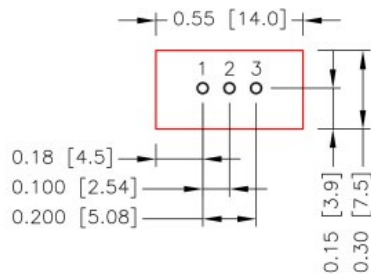
43PSR02-□□S□□-HS



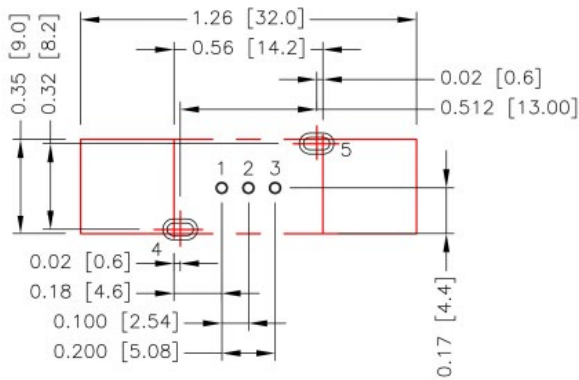
1. All dimensions in inch [mm]
Tolerance : x.xx±0.02 [x.x±0.5]
 x.xxx±0.010 [x.xx±0.25]
2. Pin pitch tolerance ±0.010 [0.25]
4. Pin dimension tolerance ±0.004 [0.10]

Pin Connection

Pin	Single
1	+Vin
2	GND
3	+Vout
4	Case
5	Case

Thermal Considerations


All dimensions in inch[mm]
 Pad size [lead free recommended]
 Through hole 1.2.3.: $\Phi 0.035$ [0.90]
 Top view pad 1.2.3: $\Phi 0.044$ [1.13]
 Bottom view pad 1.2.3: $\Phi 0.071$ [1.80]



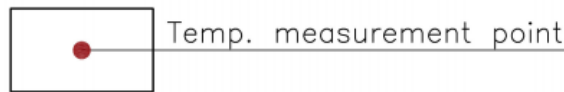
All dimensions in inch[mm]
 Pad size [lead free recommended]
 Through hole 1.2.3.: $\Phi 0.035$ [0.90]
 Through hole 4.5: 0.098×0.047 [2.50x1.20]
 Top view pad 1.2.3: $\Phi 0.044$ [1.13]
 Top view pad 4.5: 0.130×0.079 [3.30x2.00]
 Bottom view pad 1.2.3: $\Phi 0.071$ [1.80]
 Top view pad 4.5: 0.130×0.079 [3.30x2.00]

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.

The unit will shut down if the internal IC junction exceeds 150°C (typical), but the thermal shutdown is not intended as a guarantee that the unit will survive temperature beyond its rating. The module will automatically restart after it cools down.

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



TOP VIEW

