

Features

- 2:1 Wide input 4.5~75V DC
- Isolation Voltage: 1600V DC
- Operating Temperature Range: -40~100°C
- Approved to cURus, UKCA, CE, RoHS, REACH
- Safety standards to IEC/EN/UL 62368-1
- Efficiency up to 86%
- EMC Class A & B Certified



Ideal Power's 43EDL03-xyz 3W DC/DC PCB Mount Power Supply Series are certified to UKCA, CE, RoHS, REACH & EN 62368-1/IEC 62368-1/UL 62368-1 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Audio & Video Industries and customised solutions are available upon request.

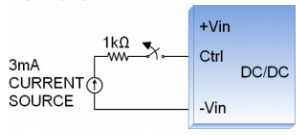
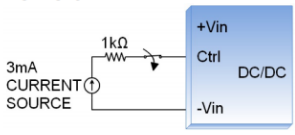
Part Number Structure

43EDL03	-	48	S	05
Series Name		Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)
		05: 4.5~13.2	S: Single	3P3: 3.3
		12: 9~18		05: 5
		24: 18~36		09: 9
		48: 36~75		12: 12
				15: 15
				24: 24
			D: Dual	05: +5
				12: +12
				15: +15

Models

Model Number	Input Range V DC	Output Voltage V DC	Output current @Full Load mA	Input Current @ No Load A	Efficiency %	Maximum Capacitor Load µF
43EDL03-05S3P3	4.5 ~ 13.2	3.3	700	40	75	4400
43EDL03-05S05	4.5 ~ 13.2	5	600	50	78	2200
43EDL03-05S09	4.5 ~ 13.2	9	333	60	81	1300
43EDL03-05S12	4.5 ~ 13.2	12	250	60	83	1000
43EDL03-05S15	4.5 ~ 13.2	15	200	60	84	820
43EDL03-05S24	4.5 ~ 13.2	24	125	50	82	470
43EDL03-05D05	4.5 ~ 13.2	±5	±300	50	79	±1200
43EDL03-05D12	4.5 ~ 13.2	±12	±125	50	82	±520
43EDL03-05D15	4.5 ~ 13.2	±15	±100	65	82	±440
43EDL03-12S3P3	9 ~ 18	3.3	700	20	77	4400
43EDL03-12S05	9 ~ 18	5	600	20	81	2200
43EDL03-12S09	9 ~ 18	9	333	30	82	1300
43EDL03-12S12	9 ~ 18	12	250	30	84	1000
43EDL03-12S15	9 ~ 18	15	200	30	85	820
43EDL03-12S24	9 ~ 18	24	125	30	85	470
43EDL03-12D05	9 ~ 18	±5	±300	30	81	±1200
43EDL03-12D12	9 ~ 18	±12	±125	30	85	±520
43EDL03-12D15	9 ~ 18	±15	±100	30	83	±440
43EDL03-24S3P3	18 ~ 36	3.3	700	12	77	4400
43EDL03-24S05	18 ~ 36	5	600	12	82	2200
43EDL03-24S09	18 ~ 36	9	333	12	83	1300
43EDL03-24S12	18 ~ 36	12	250	12	85	1000
43EDL03-24S15	18 ~ 36	15	200	12	86	820
43EDL03-24S24	18 ~ 36	24	125	12	84	470
43EDL03-24D05	18 ~ 36	±5	±300	12	82	±1200
43EDL03-24D12	18 ~ 36	±12	±125	12	84	±520
43EDL03-24D15	18 ~ 36	±15	±100	15	85	±440
43EDL03-48S3P3	36 ~ 75	3.3	700	8	75	4400
43EDL03-48S05	36 ~ 75	5	600	8	80	2200
43EDL03-48S09	36 ~ 75	9	333	8	82	1300
43EDL03-48S12	36 ~ 75	12	250	8	84	1000
43EDL03-48S15	36 ~ 75	15	200	8	85	820

Input Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Operating input voltage range	05Vin(nom)		4.5	5	13.2	V DC
	12Vin(nom)		9	12	18	
	24Vin(nom)		18	24	36	
	48Vin(nom)		36	48	75	
Start-up voltage	05Vin(nom)		--	--	4.5	V DC
	12Vin(nom)		--	--	9	
	24Vin(nom)		--	--	18	
	48Vin(nom)		--	--	36	
Shutdown voltage	05Vin(nom)		2	3	4	V DC
	12Vin(nom)		6	7	8	
	24Vin(nom)		13	15	17	
	48Vin(nom)		29	32	35	
Start-up time	Constant resistive load	Power up	--	10	20	ms
		Remote ON/OFF	--	10	20	
Input surge voltage	100 Second, max.	05Vin(nom)	--	--	15	V DC
		12Vin(nom)	--	--	25	
		24Vin(nom)	--	--	50	
		48Vin(nom)	--	--	100	
Input filter	Capacitor Type					
Remote ON/OFF	Ctrl pin applied current via 1kΩ	DC_DC ON	Open or high impedance			
		DC_DC OFF	2	3	4	mA
Application circuit		Remote off input current	--	2.5	--	
DC-DC ON						
DC-DC OFF						

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	--	+1.0	%
		Dual	-1.0	--	+1.0	
	5% 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		--	75	--	mVp-p
Temperature coefficient			-0.02	--	+0.02	%/°C
Transient response recovery time	25% Load step change		--	500	--	µs
Over current protection			140	180	240	%
Short circuit protection	Continuous, automatics recovery					

General Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Isolation voltage	1 minute	Input to Output	1600	--	--	V DC
Isolation resistance	500V DC		1	--	--	GΩ
Isolation capacitance			--	--	50	pF
Switching frequency	Full load to minimum load		100	--	--	kHz
Safety approvals						IEC/ EN/ UL62368-1
Case material						Non-conductive black plastic
Potting material						Silicone (UL94 V-0)
Weight						4.5g (0.16oz)
MTBF	MIL-HDBK-217F, Full load					5.124 x 10 ⁶ hrs

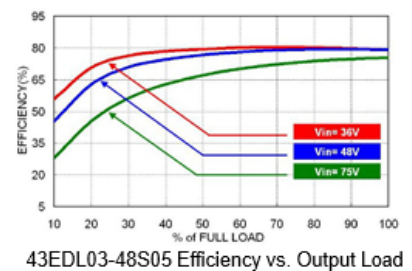
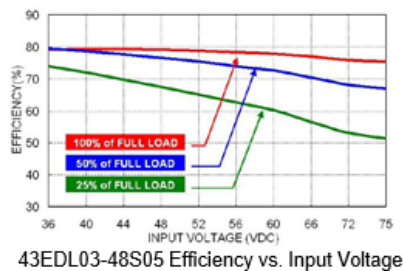
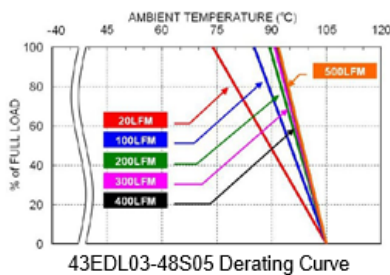
Environmental Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Operating ambient temperature	With derating		-40	--	+105	
Maximin case temperature			--	--	105	°C
Storage temperature range			-55	--	+125	
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 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


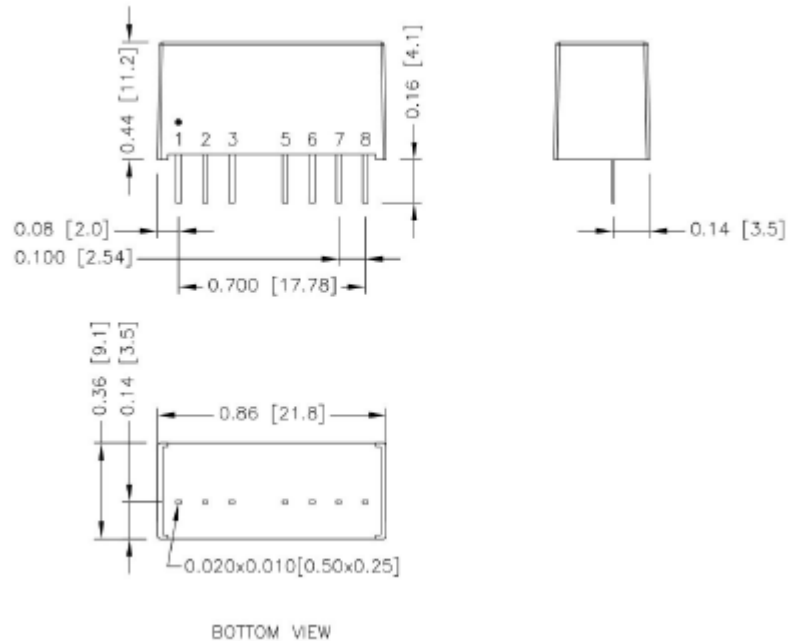
Fuse Considerations

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
43EDL03-05S□□, 43EDL03-05D□□	1.6	Slow-Blow
43EDL03-12S□□, 43EDL03-12D□□	0.8	Slow-Blow
43EDL03-24S□□, 43EDL03-24D□□	0.5	Slow-Blow
43EDL03-48S□□, 43EDL03-48D□□	0.315	Slow-Blow

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin.

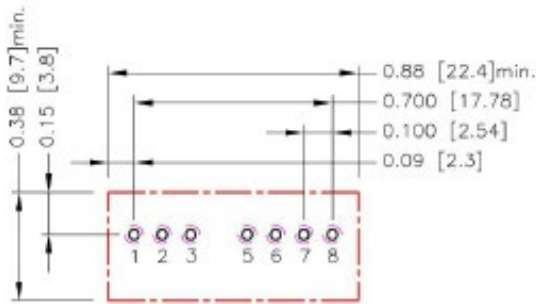
Mechanical Drawing



Pin Connection

Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	Ctrl	Ctrl
5	NC*/No pin**	NC
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

Recommended Pad Layout

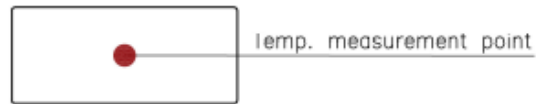


All dimensions in inch[mm]
 Pad size (lead free recommended)
 Through hole 1.2.3.6.7.8: $\Phi 0.031[0.80]$
 Top view pad 1.2.3.6.7.8: $\Phi 0.039[1.00]$
 Bottom view pad 1.2.3.6.7.8: $\Phi 0.063[1.60]$

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