

Features

- Universal input 85-265VAC
- High Efficiency Rating up to 94%
- Operating ambient temperature range: -40°C to +85°C
- Approved to UKCA, CE, CB, cURs, FCC, RoHS & REACH
- EN/IEC/UL 62368-1 Safety Approved
- Output Voltage 12 - 53VDC



Ideal Power's 43MxD180-USxy 180W AC/DC Power Supply Module Series are certified to cURus, UKCA, CE, FCC, CB, 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

43MxD180- U S 12 A - M □

Series Name	Input Voltage (V AC)	Output Quantity	Output Voltage (V DC)	Protection Type	Package Options
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A: Open type	85 ~ 264	S: Single	12: 12	A: CLASS I	□: Open type
E: Enclosed type			15: 15	B: CLASS II	E1: Enclosed type
D: Din Rail type			18: 18		D1: Din rail type
			24: 24		
			28: 28		
			36: 36		
			48: 48		
			53: 53		

Models

Model Number	Input Range	Output Voltage	Output Current Natural Convection	Forced Air Cooling With 10 CFM	Input Power @ No Load	Efficiency	Maximum Capacitor Load
	V AC	V DC	A	W	W	%	µF
43MAD180US12A-M 43MED180US12A-M 43MDD180US12A-M	85 ~ 264	12	12.5	15	0.15	92	10000
43MAD180US15A-M 43MED180US15A-M 43MDD180US15A-M	85 ~ 264	15	10	12	0.15	92	6800
43MAD180US18A-M 43MED180US18A-M 43MDD180US18A-M	85 ~ 264	18	8.34	10	0.15	92	4700
43MAD180US24A-M 43MED180US24A-M 43MDD180US24A-M	85 ~ 264	24	6.25	7.5	0.15	94	2700
43MAD180US28A-M 43MED180US28A-M 43MDD180US28A-M	85 ~ 264	28	5.36	6.43	0.15	93	1800
43MAD180US36A-M 43MED180US36A-M 43MDD180US36A-M	85 ~ 264	36	4.17	5	0.15	93	1200
43MAD180US48A-M 43MED180US48A-M 43MDD180US48A-M	85 ~ 264	48	3.13	3.75	0.15	93	680
43MAD180US53A-M 43MED180US53A-M 43MDD180US53A-M	85 ~ 264	53	2.83	3.40	0.15	93	560

Input Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating input voltage range	AC input	85	--	264	VAC
	DC input	120	--	370	VDC
Input frequency	AC input	47	--	63	Hz
Input current	100VAC and Full Load	--	--	3	A
	240VAC and Full Load	--	--	1.5	A
No load input power	230VAC	--	0.15	--	W
Leakage current	264VAC	--	--	100	µA
Power factor		0.95	--	--	
Start-up time		--	--	1500	ms
Rise time		--	15	--	ms
Hold up time	115VAC and Full Load	10	--	--	ms
Input inrush current	230VAC	--	--	100	A
Input protection	Internal fuse	T4.0A/250VAC			

Output Specifications

Parameter	Conditions	Min	Typ	Max	Unit	
Output power	Forced air cooling with 10CF	--	--	180	W	
	Natural convection	--	--	150		
Output peak power	Peak power	--	--	220	s	
	Peak power time	--	5	--		
	Peak power duty	--	20	--		
	Average operation power (% of Full Load)	--	55	--		
Initial set voltage accuracy	230VAC and Full Load	-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	-0.5	--	+0.5		
	10% Load to 90% Load	-0.4	--	+0.4		
Voltage adjustability		-8	--	+8		
Minimum load		--	0	--		
Ripple and noise	Measured by 20MHz bandwidth		--	--	mVp-p	
	With a 1 μ F/25V 1206 X7R MLCC	12Vout, 15Vout, 18Vout	--	120		--
	With a 1 μ F/50V 1206 X7R MLCC	24Vout, 28Vout, 36Vout	--	120		--
	With a 0.1 μ F/100V 1206 X7R MLCC	48Vout, 53Vout	--	250		--
Temperature coefficient		-0.02	--	+0.02	%/°C	
Transient response	Load step from 50 ~ 75% change at 2.5A/ μ s	Peak deviation	--	3	--	% Vout
		Recovery time	--	600	--	μ s
Over voltage protection	% Of Vout(nom); Latch mode	115	--	135	%	
Overload protection	% Of maximum Iout rated; Hiccup mode	--	150	--		
Short circuit protection		Continuous, automatic recovery				

General Specifications

Parameter	Conditions	Min	Typ	Max	Unit	
Isolation voltage	1 minute (Reinforced insulation)	Input to Output	4000	--	--	V AC
		Input (Output) to F.G	2500	--	--	
Isolation resistance	500V DC	0.1	--	--	G Ω	
Switching frequency	230VAC, Full load	--	170	--	kHz	
Safety approvals	IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/ EN/ UL 62368-1				UL:E360199 UL:E193009 CB:UL(Demko)	
Weight	43MAD				162g (5.70oz)	
	43MED				218g (7.70oz)	
	43MDD				240g (8.47oz)	
MTBF	MIL-HDBK-217F Ta=25°C, Full load				1.145 x 10 ⁶ hrs	

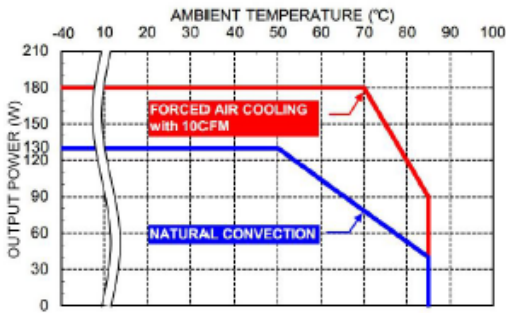
Environmental Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating ambient temperature	With derating	-40	--	+85	
Storage temperature range		-40	--	+85	°C
Over temperature protection	Internal thermistor; Hiccup mode	--	125	--	
Operating altitude				5000	m
Thermal shock				MIL-STD-810F	
Shock				IEC60068-2-27	
Vibration				IEC60068-2-6	
Relative humidity	Non-condensing			5% to 95% RH	

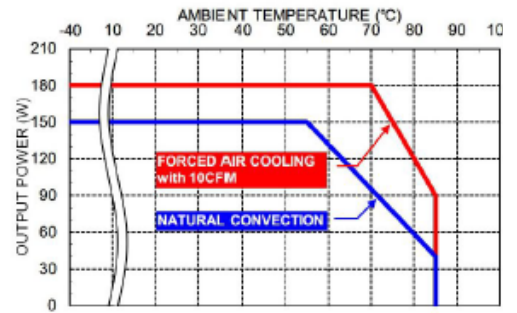
EMC Specifications

Parameter	Conditions	Level
EMI	EN55011, EN55032, EN60601-1-2, and FCC Part 18 / 15	Conducted Radiated Class B Class A
Harmonic currents	EN61000-3-2 Full Load	Class D
Voltage flicker	EN61000-3-3	
EMS	EN55024	
ESD	EN61000-4-2	Perf. Criteria A
Radiated immunity	EN61000-4-3 20 V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge	EN61000-4-5 DM ± 1kV and CM ± 2kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 20 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 30A/m	Perf. Criteria A
Dip and interruptions	EN61000-4-11	

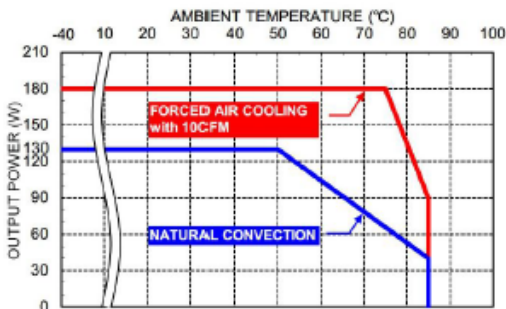
Characteristic Curve



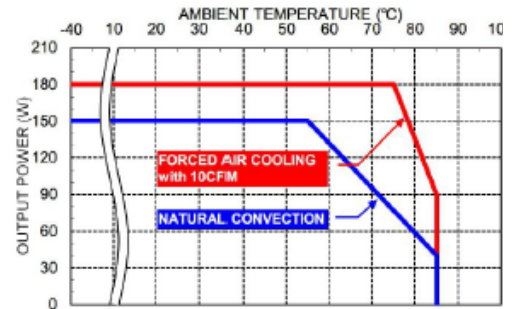
Derating Curve vs. Ambient Temperature
Temperature Vin=115VAC Open type



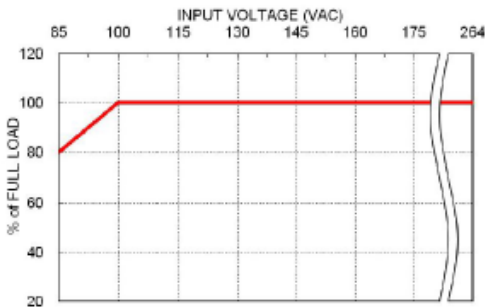
Derating Curve vs. Ambient Temperature
Temperature Vin=230VAC Open type



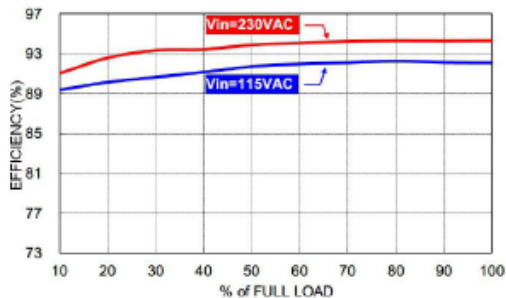
Derating Curve vs. Ambient Temperature
Vin=115VAC Enclosed type / Din rail type



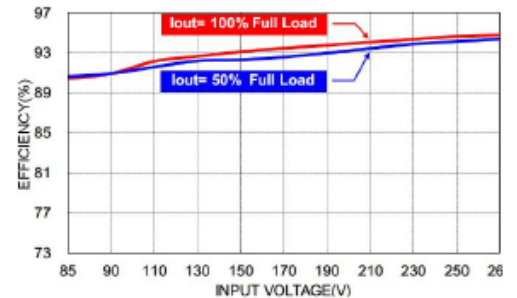
Derating Curve vs. Ambient Temperature
Vin=230VAC Enclosed type / Din rail type



Derating Curve vs. Input Voltage
43MAD180



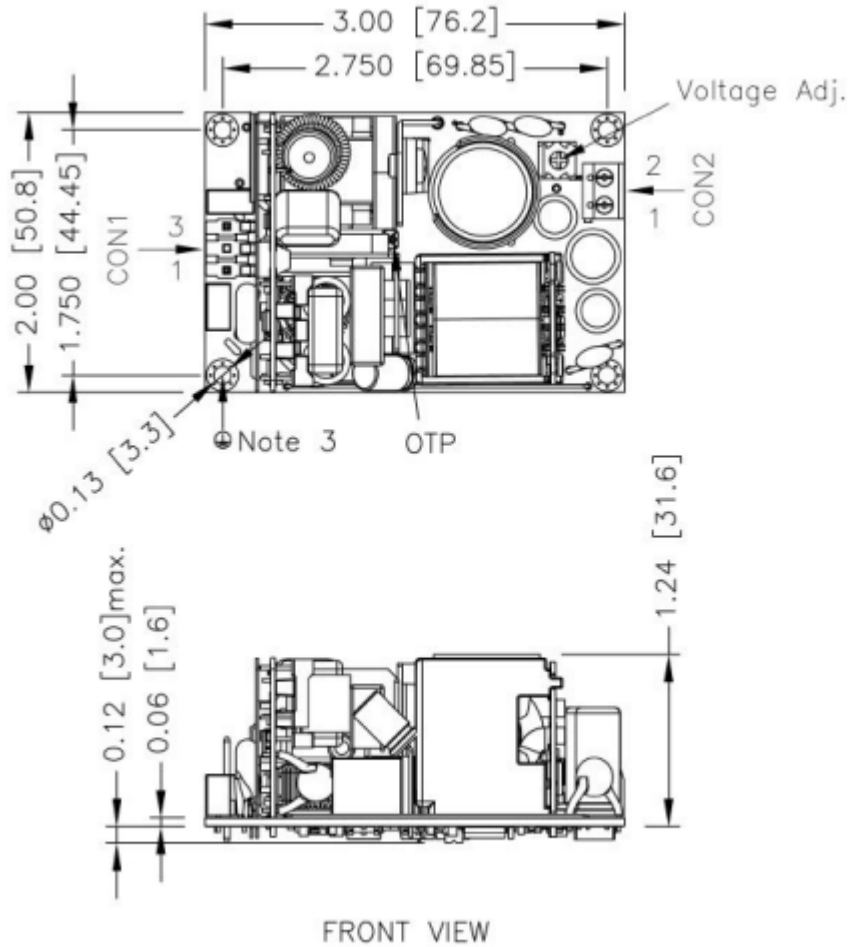
Efficiency vs. Output Load 43MAD180US24
with Forced air cooling



Efficiency vs. Input Voltage
43MAD180US24 with Forced air cooling

Mechanical Drawing

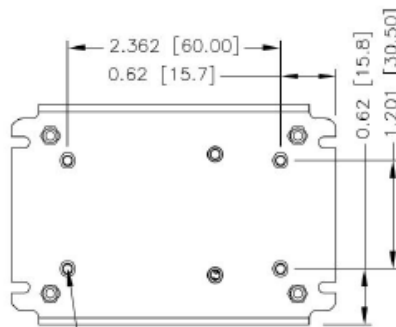
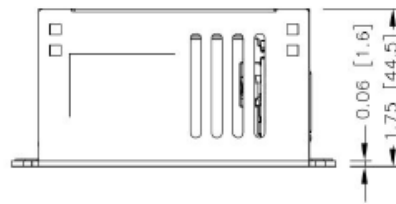
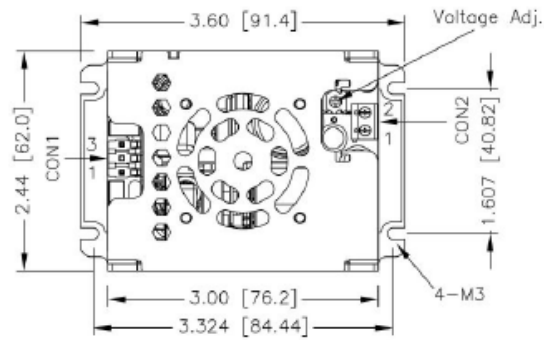
43MAD Open Type



1. All dimensions in inch [mm]
Tolerance : x.xx±0.02 [x.x±0.5]
 x.xxx±0.01 [x.xx±0.25]
2. The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m
3. The screws holes can be considered as PE connection for CLASS I application.

Mechanical Drawing (continued)

43MED Enclosed Type


 4-M3X0.5 Note 2
Screw for Setup

BOTTOM VIEW

1. All dimensions in inch [mm]

 Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$]

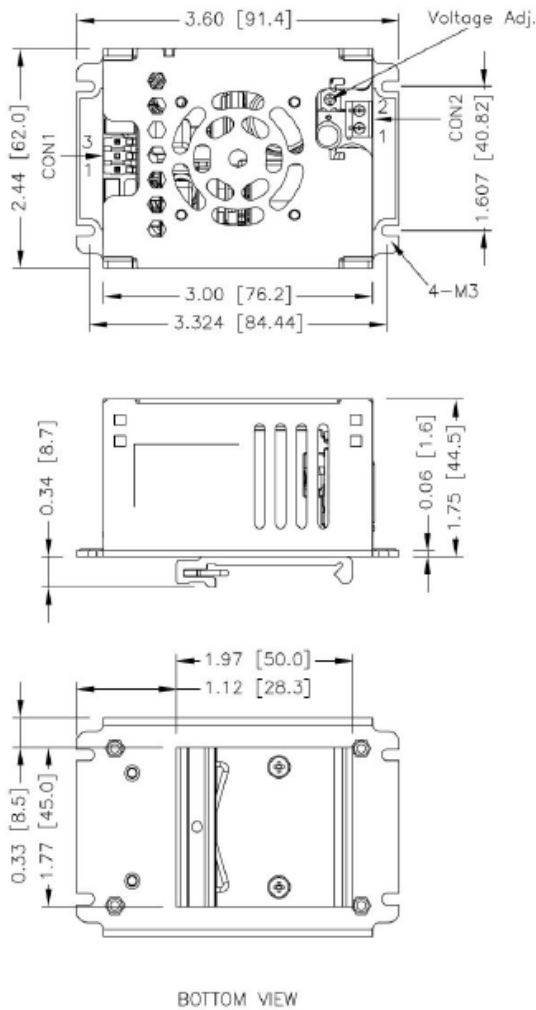
 $x.xxx \pm 0.01$ [$x.xx \pm 0.25$]

2. The screw locked torque: MAX 5Kgf.cm/0.49N.m

3. The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m

Mechanical Drawing (continued)

43MDD Din Rail Type



- All dimensions in inch [mm]
Tolerance : x.xx±0.02 [x.x±0.5]
 x.xxx±0.01 [x.xx±0.25]
- The screw locked torque: MAX 5Kgf.cm/0.49N.m
- The CON2 locked torque: MAX 2.5Kgf.cm/0.25N.m

CON1-Input Connector

Pin 3	Line
Pin 1	Neutral

CON2-Output Connector

Pin 1	+Vout
Pin 2	-Vout

Mates with
Molex housing : **09-50-8031**
Molex crimp terminals : **2478,6838,45570**

Mates with
Screw locked torque MAX 2.5Kgf.cm/0.25N.m
Wire dimension range 24 ~ 14AWG