AC – DC

Features

- Universal input 85~264VAC or 120~370VDC
- Operating Temperature Range: -40~85°
- Open Frame Power Supply (PSU)
- Approved to cURus, UKCA, CE, FCC, CB
- Safety standards to IEC/EN/UL 62368-1, IEC/ EN/ UL 62368-1
- Efficiency up to 91.5%
- EMC EN60601-1-2, EN55011, EN55032 & FCC Class B Certified
- Single Output 5-53V DC

Ideal Power's 43MAD30USxy 30W Series JST Connector DC/DC Converters are certified to cURus, UKCA, CE, FCC, CB, RoHS, REACH & IEC/EN/ANSI/AAMI ES 60601-1, IEC/EN/UL 62368-1 Standards and comply with Efficiency Regulations. These are primarily used in ITE, Video & Audio, Medical Industries and customised solutions are available upon request.

Models

Model Number	Input Range VAC	Output Voltage VDC	Output Current Natural Convection A	Max Output Power W	Input Power No Load W	Efficiency %	Maximum Capacitor Load µF
43MAD30US3P3B	85 ~ 264	3.3	6	20	40	84	10000
43MAD30US05B	85 ~ 264	5	6	30	40	87	12000
43MAD30US7P5B	85 ~ 264	7.5	4	30	40	87	5340
43MAD30US09B	85 ~ 264	9	3.34	30	40	88	3720
43MAD30US12B	85 ~ 264	12	2.5	30	40	90.5	2085
43MAD30US121B	85 ~ 264	12	2.5	30	40	88	2085
43MAD30US15B	85 ~ 264	15	2	30	40	90.5	1350
43MAD30US151B	85 ~ 264	15	2	30	40	88	1350
43MAD30US18B	85 ~ 264	18	1.67	30	40	88	930
43MAD30US24B	85 ~ 264	24	1.25	30	40	89.5	520
43MAD30US28B	85 ~ 264	28	1.08	30	40	89.5	385
43MAD30US36B	85 ~ 264	36	0.84	30	40	90	235
43MAD30US48B	85 ~ 264	48	0.63	30	40	91.5	130
43MAD30US53B	85 ~ 264	53	0.58	30	40	91	109

AC – DC

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		--	--	0.8	A
	240VAC and Full Load		--	--	0.4	
No load input power	230VAC		--	40	--	mW
Leakage current	264VAC		--	--	100	µA
Start-up time			--	--	1500	ms
Rise time		Others	--	20	--	ms
		24Vout, 28Vout, 36Vout	--	40	--	
		48Vout, 53Vout	--	50	--	
Hold up time	115VAC and Full Load		--	16	--	ms
Input inrush current	230VAC		--	40	--	A
Input protection	Internal fuse in line and neutral				T1.6A/250VAC	

Output Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Output power			--	--	30	Watts
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	3.3Vout, 5Vout	-0.7	--	+0.7	%
		Others	-0.5	--	+0.5	
	10% Load to 90% Load	3.3Vout, 5Vout	-0.6	--	+0.6	
		Others	-0.4	--	+0.4	
Voltage adjustability			-10	--	+10	%
Minimum load			--	0	--	%
Ripple and Noise	Measured by 20MHz bandwidth					
	With a 10µF/25V 1206 X7R MLCC	3.3Vout, 5Vout, 7.5Vout, 9Vout	--	50	--	mVp-p
	With a 1µF/50V 1206 X7R MLCC	12Vout, 15Vout, 18Vout, 24Vout, 28Vout, 36Vout, 48Vout	--	50	--	
	With a 0.1µF/100V 1206 X7R MLCC		--	50	--	
			--	50	--	
Temperature coefficient			-0.02	--	+0.02	%/℃
Transient response	Load step from 50 ~ 75% change at 2.5A/µs	Peak deviation	--	--	3	% Vout
		Recovery time	--	500		µs
Over voltage protection	% of Vout(nom); Latch mode		125	--	140	%
Overload protection	% of Iout rated; Hiccup mode		--	140	--	%
Short circuit protection			Continuous, automatics recovery			

General Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Isolation voltage	1 minute (2MOPP insulation)	Input to Output	4000			VDC
Isolation resistance	500VDC		0.1			GΩ
Switching frequency	230VAC and Full Load		30	45	60	kHz
Safety approvals	IEC 60335-1/ IEC 61558-1/ IEC 61558-2-16 IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/ EN/ UL 62368-1					CB:TUV UL:E360199 UL:E193009 CB:UL(Demko)
Weight		Connector type Pin type				60.5g (2.13oz) 58.0g (2.05oz))
MTBF	MIL-HDBK-217F Ta=25℃, Full load					3.341 x 10^6 hrs

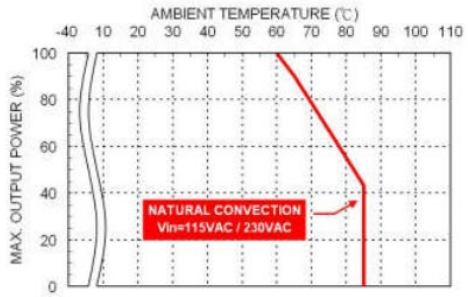
Environmental Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Operating ambient temperature	Natural convection	With derating	-40	--	+85	℃
Storage temperature range			-40	--	+85	℃
Operating altitude			--	--	5000	m
Shock						IEC60068-2-27
Vibration						IEC60068-2-6
Relative humidity	Non-condensing					5% to 95% RH

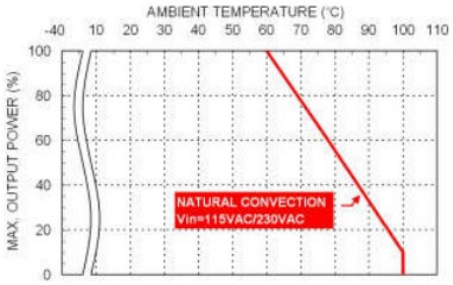
EMC Specifications

Parameter	Conditions		Level	
EMI	EN55011, EN55032, EN60601-1-2 and FCC Part 18 / 15		Conducted Radiated	Class B Class B
Harmonic currents	EN61000-3-2	Full Load		Class A
Voltage flicker	EN61000-3-3			
EMS	EN55024 and EN60601-1-2			
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		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			

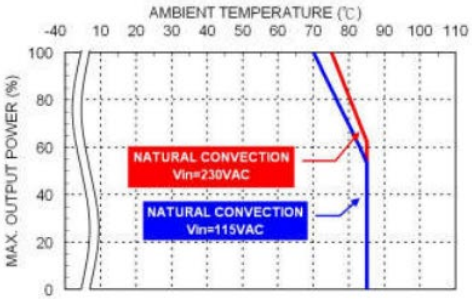
Characteristic Curve



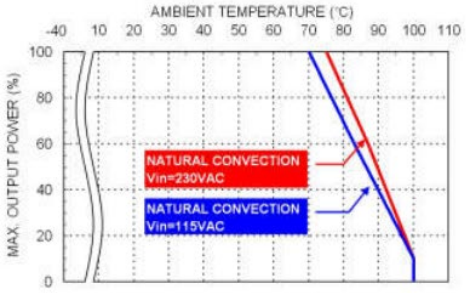
Derating Curve vs. Ambient Temperature
43MAD30USxxB xx=3P3/05/7P5/09/121/151/18
Connector Option：(□: JST)



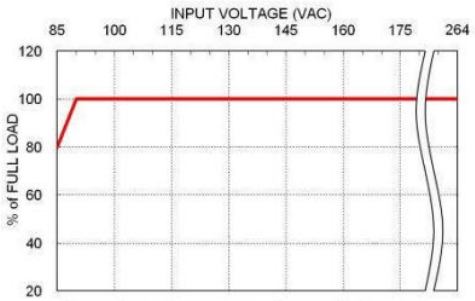
Derating Curve vs. Ambient Temperature
43MAD30USxxB xx=3P3/05/7P5/09/121/151/18
Connector Option：(-M / -T / -D)



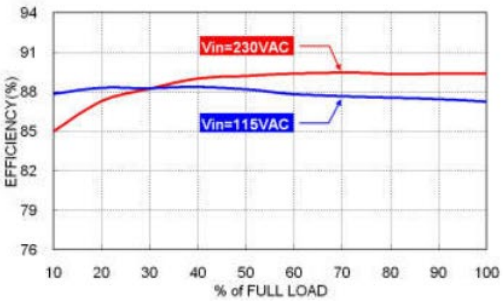
Derating Curve vs. Ambient Temperature
43MAD30USxxB xx=12/15/24/28/36/48/53
Connector Option：(□: JST)



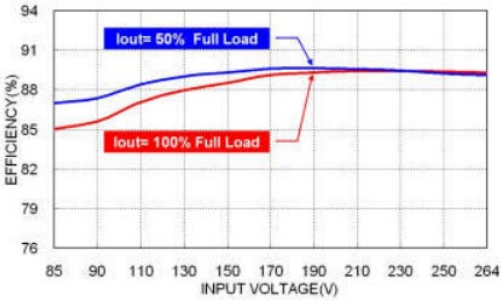
Derating Curve vs. Ambient Temperature
43MAD30USxxB xx=12/15/24/28/36/48/53
Connector Option：(-M / -T / -D)



Derating Curve vs. Input Voltage



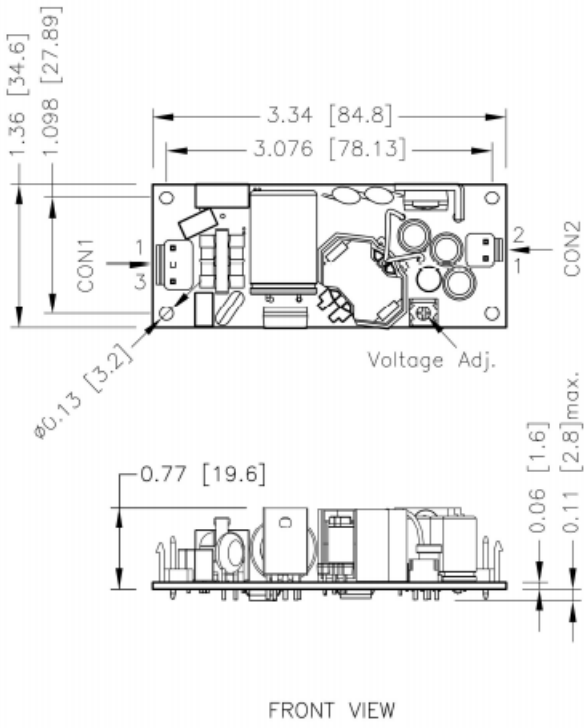
43MAD30US24B Efficiency vs. Output Load



43MAD30US24B Efficiency vs. Input Voltage

Mechanical Drawing

43MAD Connector Type



1.All dimensions in inch [mm]
Tolerance : x.xx±0.02 [x.x±0.5]
x.xxx±0.010 [x.xx±0.25]
2.The screw locked torque: MAX 5.0kgf-cm/0.49N-m

CONNECTORS CONNECTIONS

CON1 – Input Connector	
Pin 1	Line
Pin 3	Neutral

CON2 – Output Connector	
Pin 1	+Vout
Pin 3	-Vout

*Either one of four screws holes of Open / Chassis type can be considered as PE connection for CLASS I application.

Connector Options

Blank:	JST Type
	Housing CON1: **VHR-3N** CON2: **VHR-2N** Crimp terminals CON1: **SVH-21T-P1.1** CON2: **SVH-21T-P1.1**

-M	Molex Type
	Housing CON1: **09-50-8031** CON2: **09-50-8021** Crimp terminals CON1: **SD-2478** CON2: **SD-2478**

-T	Terminal Block
	Mates with **Screw locked torque** **MAX 2Kgf.cm/0.2N.m** **Wire dimension range** **26 ~ 16AWG**