43MxD 40 Single AC-DC Converter Series

Up to 40Watt

Features

- Universal input 85~264VAC or 120~370VDC
- Operating Temperature Range: -40~105°
- 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 93%
- EMC EN60601-1-2, EN55011, EN55032 & FCC Class B Certified
- Single Output 5-53V DC

Ideal Power's 43MAD40USxy 40W Series 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.

Part Number Structure

M	A	D	40	U	S	12	C	- □
Application	Package Code	Dimension Code	Output Power (W)	Input Voltage (VAC)	Output Quantity	Output Voltage (VDC)	Protection Type	Connector Options
Medical Application	**A:** Open type **U:** U chassis type **E:** Enclosed type **D:** Din rail type			**U:** Universal 85 ~ 264	**S:** Single	**05:** 5 **7P5:** 7.5 **09:** 9 **12:** 12 **121:** 12 **15:** 15 **151:** 15 **18:** 18 **24:** 24 **28:** 28 **36:** 36 **48:** 48 **53:** 53	**C:** CLASS I **D:** CLASS II 0: CLASS I (※NRND) **B:** CLASS II (※NRND) ※NRND: Not recommended for new designs	0: JST **M:** Molex **T:** Terminal Block

Models

Model Number	Input Range	Output Voltage	Output Current Natural Convection	Max. Output Power	Input Power No Load	Efficiency	Maximum Capacitor Load
	VAC	VDC	A	W	W	%	µF
43MxD40US05C *	85 ~ 264	5	8	40	0.11	90	16000
43MxD40US7P5C*	85 ~ 264	7.5	5.34	40	0.11	90	7120
43MxD40US09C*	85 ~ 264	9	4.45	40	0.11	91	4945
43MxD40US12C*	85 ~ 264	12	3.34	40	0.11	92	2785
43MxD40US121C*	85 ~ 264	12	3.34	40	0.11	90	2785
43MxD40US15C*	85 ~ 264	15	2.67	40	0.11	92	1780
43MxD40US151C*	85 ~ 264	15	2.67	40	0.11	90	1780
43MxD40US18C*	85 ~ 264	18	2.23	40	0.11	91	1250
43MxD65US24C*	85 ~ 264	24	1.67	40	0.11	92	700
43MxD65US28C*	85 ~ 264	28	1.43	40	0.11	91	510
43MxD65US36C*	85 ~ 264	36	1.12	40	0.11	92	310
43MxD65US48C*	85 ~ 264	48	0.84	40	0.11	93	175
43MxD65US53C*	85 ~ 264	53	0.77	40	0.11	92.5	140

Note* Please use **43MAD** for Open Type, **43MUD** for U Chassis Type, **43MED** for Enclosed Type and **43MDD** for Din Rail Type

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	--	--	1.0	A
	240VAC and Full Load	--	--	0.5	
No load input power	230VAC	--	0.11	--	Watts
Leakage current	264VAC	--	75	--	µA
Start-up time		--	--	1000	ms
Rise time		--	20	--	ms
Hold up time	115VAC and Full Load	--	25	--	ms
Input inrush current	230VAC	--	60	--	A
Input protection	Internal fuse in line and neutral		T3.15A/250VAC		

AC – DC

Output Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Output power			--	--	40	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	5Vout	-0.7	--	+0.7	%
		Others	-0.5	--	+0.5	
	10% Load to 90% Load	5Vout	-0.6	--	+0.6	
		Others	-0.4	--	+0.4	
Voltage adjustability	Single output	53Vout	-20	--	+10	%
		Others	-10	--	+10	
Minimum load			--	0	--	%
Ripple and Noise	Measured by 20MHz bandwidth With a 10µF/25V 1206 X7R MLCC	5Vout, 7.5Vout, 9Vout	--	75	--	mVp-p
		12Vout, 15Vout,18Vout	--	75	--	
	With a 1µF/50V 1206 X7R MLCC	24Vout, 28Vout,36Vout	--	75	--	
	With a 0.1µF/100V 1206 X7R MLCC	48Vout, 53Vout	--	150	--	
Temperature coefficient			-0.02	--	+0.02	%/℃
Transient response	Load step from 50 ~ 75% change at 2.5A/µs	Peak deviation	--	--	3	% Vout
		Recovery time	--	600	--	µs
Over voltage protection	% of Vout(nom); Latch mode		125	--	140	%
Overload protection	% of Iout rated; Hiccup mode		--	145	--	%
Short circuit protection			Continuous, automatics recovery			

General Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Isolation voltage	1 minute (2MOPP insulation)	Input to Output	4000	--	--	VAC
		Input (Output) to F.G.	2500	--	--	
Isolation resistance	500VDC		0.1	--	--	GΩ
Switching frequency	230VAC	5Vout	--	70	--	kHz
		Others	--	120	--	
Safety approvals	IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/ EN/ UL 62368-1					UL:E360199 UL:E193009 CB:UL(Demko)
Weight		43MAD				114g (4.02oz)
		43MUD				154g (5.43oz)
		43MED				169g (5.96oz)
		43MDD				190g (6.70oz)
MTBF	MIL-HDBK-217F Ta=25℃, Full load					3.010 x 10^6 hrs

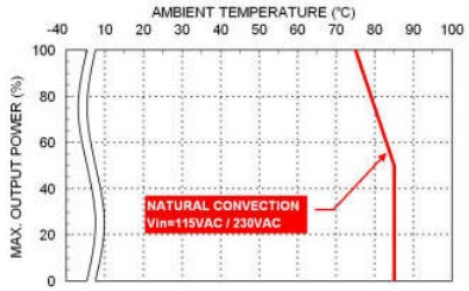
Environmental Specifications

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

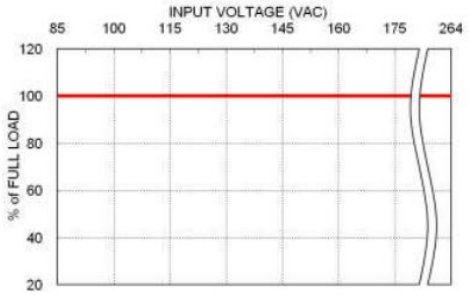
EMC Specifications

Parameter	Conditions		Level
EMI	EN55011, EN55032, EN60601-1-2 and FCC Part 18 / 15 External components may be required for class I application.		Conducted Class B Radiated 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 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		

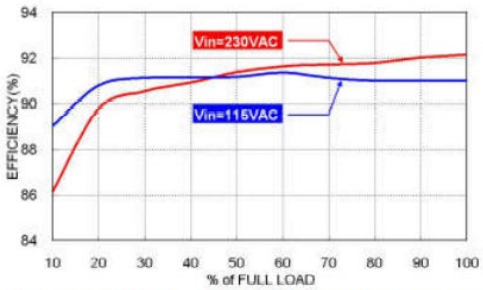
Characteristic Curve



Derating Curve vs. Ambient Temperature



43MxD40 Derating Curve vs. Input Voltage



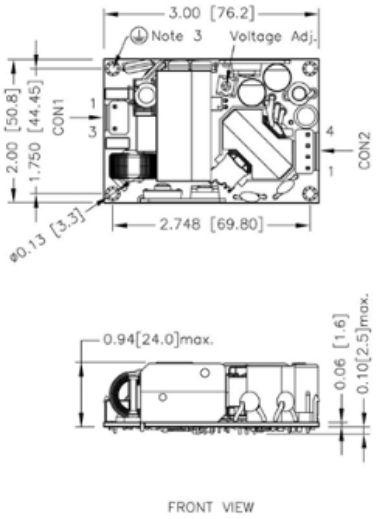
43MxD40US24B Efficiency vs. Output Load

43MxD40US24B Efficiency vs. Input Voltage

AC – DC

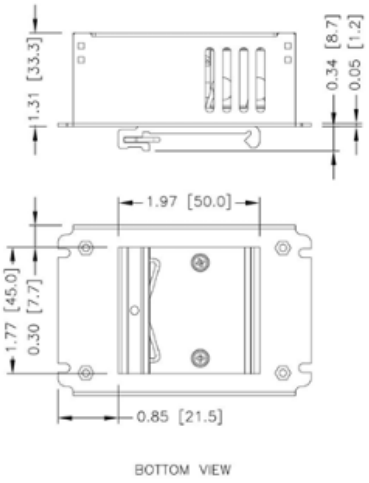
Mechanical Drawing

43MAD Open type



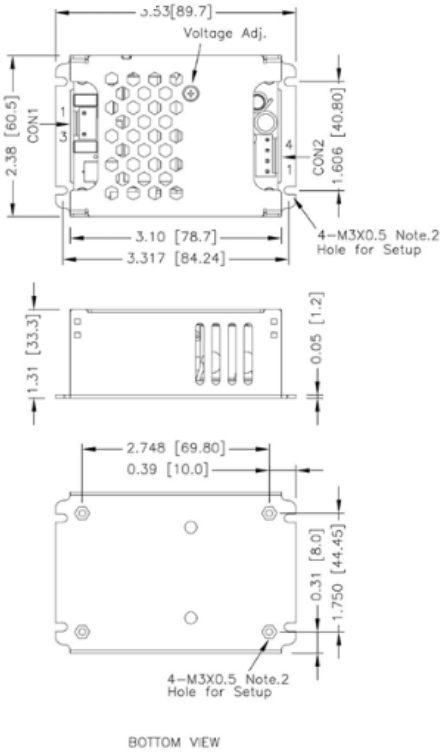
1. All dimensions in inch [mm]
   Tolerance : x.xx±0.02 [x.x±0.5] x.xxx±0.010 [x.xx±0.25]
2. The screw locked torque:MAX 5.0kgf-cm/0.49N-m
3. The screws holes can be considered as PE connection for CLASS I application.

43MDD Din Rail type



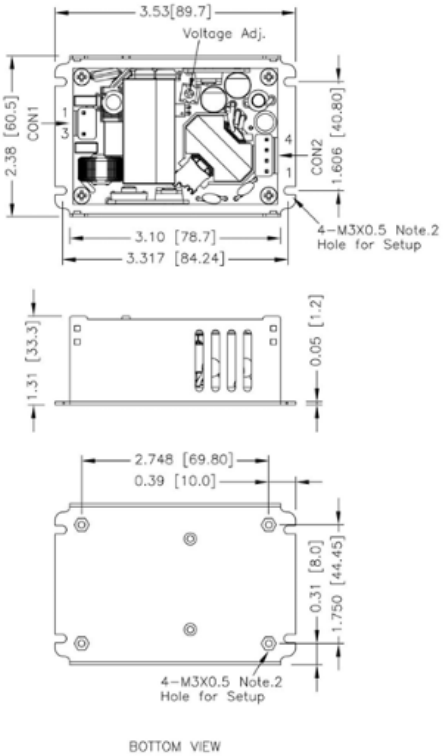
1. All dimensions in inch [mm]
   Tolerance : x.xx±0.02 [x.x±0.5] x.xxx±0.010 [x.xx±0.25]

43MED Enclosed 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

43MUD U Chassis 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 Number	AC Input	DC Input 43MxD40USXXC、43MxD40USXXD
Pin 1	Line	DC+
Pin 3	Neutral	DC-

CON2 – Output Connector

Pin 1,2	-Vout
Pin 3,4	+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 Mates with housing CON1: **VHR-3N** CON2: **VHR-4N** Crimp terminals CON1: **SVH-21T-P1.1** CON2: **SVH-21T-P1.1**	**-M**	Molex Type Mates with housing CON1: **09-50-8031** CON2: **09-50-8041** 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**