

VPAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES

Up to 40 Watts

5
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT

+85°C
-40°C
AMBIENT TEMP.



Medical



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



PV



Railway

UL **US**

CB

CE

FC



2
x
MOPP

4000
VAC
Reinforced
Insulation

ADJ.
Output
Voltage

Internal
EN55032
Class **B**
Filter

LOW
Leakage
Current

LOW
Standby
Power

Operating
Altitude
5000
meter

Protection
Class I
Class II

OCP

OVP

SCP

PART NUMBER STRUCTURE

VP

A

Package
Code

D

Dimension
Code

40

Output
Power
(W)

U

Input
Voltage
(VAC)

U: Universal
85 ~ 264

S

Output
Quantity

S: Single

12

Output
Voltage
(VDC)

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

Protection
Type

C: CLASS I
D: CLASS II

□: CLASS I (※NRND)
B: CLASS II (※NRND)

-

□

Connector
Option

□: JST
M: Molex
T: Terminal Block

A: Open type
U: U chassis type
E: Enclosed type
D: Din rail type

※NRND: Not recommended
for new designs

VPAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES

Up to 40 Watts

TECHNICAL SPECIFICATION All specifications are typical at 230VAC input, full load and 25°C unless otherwise noted

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
VPAD40US05C UD40US05C ED40US05C DD40US05C	85 ~ 264	5	8	40	0.11	90	16000
VPAD40US7P5C UD40US7P5C ED40US7P5C MDD40US7P5C	85 ~ 264	7.5	5.34	40	0.11	90	7120
VPAD40US09C UD40US09C ED40US09C MDD40US09C	85 ~ 264	9	4.45	40	0.11	91	4945
VPAD40US12C UD40US12C ED40US12C DD40US12C	85 ~ 264	12	3.34	40	0.11	92	2785
VPAD40US121C UD40US121C ED40US121C DD40US121C	85 ~ 264	12	3.34	40	0.11	90	2785
VPAD40US15C UD40US15C ED40US15C MDD40US15C	85 ~ 264	15	2.67	40	0.11	92	1780
VPAD40US151C UD40US151C ED40US151C DD40US151C	85 ~ 264	15	2.67	40	0.11	90	1780
VPAD40US18C UD40US18C ED40US18C DD40US18C	85 ~ 264	18	2.23	40	0.11	91	1250
VPAD40US24C UD40US24C ED40US24C DD40US24C	85 ~ 264	24	1.67	40	0.11	92	700
VPAD40US28C UD40US28C ED40US28C DD40US28C	85 ~ 264	28	1.43	40	0.11	91	510
VPAD40US36C UD40US36C ED40US36C MDD40US36C	85 ~ 264	36	1.12	40	0.11	92	310
VPAD40US48C UD40US48C ED40US48C DD40US48C	85 ~ 264	48	0.84	40	0.11	93	175
VPAD40US53C UD40US53C ED40US53C DD40US53C	85 ~ 264	53	0.77	40	0.11	92.5	140

VPAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES

Up to 40 Watts

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	A
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		

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					mVp-p
	With a 10μF/25V 1206 X7R MLCC			75		
	With a 1μF/50V 1206 X7R MLCC			75		
	With a 0.1μF/100V 1206 X7R MLCC			75		
Temperature coefficient			-0.02		+0.02	%/°C
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	%
Over load protection	% of Iout rated; Hiccup mode			145		%
Short circuit protection				Continuous, automatic 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 60950-1				UL:E360199 UL:E193009 CB:UL(Demko)	
Safety approvals(Pending)	IEC/ EN/ UL 62368-1					
Weight		VPAD			114g (4.02oz)	
		VPUD			154g (5.43oz)	
		VPED			169g (5.96oz)	
		VPDD			190g (6.70oz)	
MTBF	MIL-HDBK-217F, Full load				3.010 x 10 ⁵	hrs

VPAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES

Up to 40 Watts

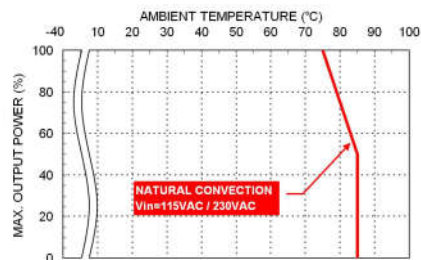
ENVIRONMENTAL SPECIFICATIONS

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

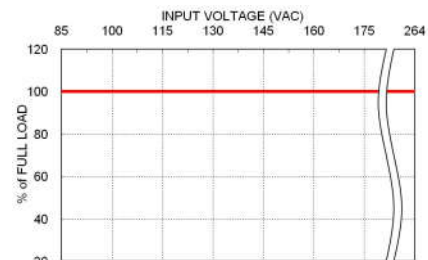
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN60601-1-2, EN55011, EN55032 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 Air ± 15 kV and Contact ± 8 kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 20 V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2 kV	Perf. Criteria A
Surge	EN61000-4-5 DM ± 1 kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 20 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 30 A/m	Perf. Criteria A
Dip and interruptions	EN61000-4-11	

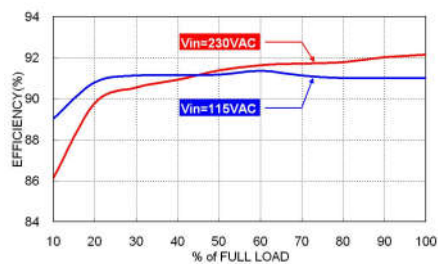
CHARACTERISTIC CURVE



Derating Curve vs. Ambient Temperature



VP D40 Derating Curve vs. Input Voltage



VP D40US24B Efficiency vs. Output Load



VP D40US24B Efficiency vs. Input Voltage

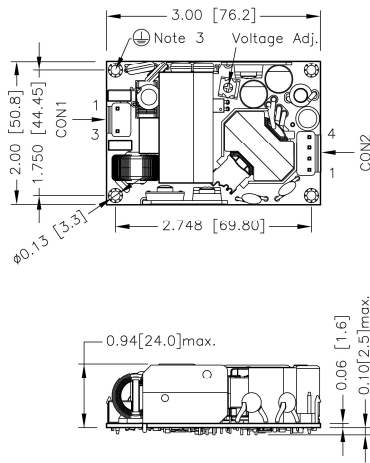
VPAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES

Up to 40 Watts

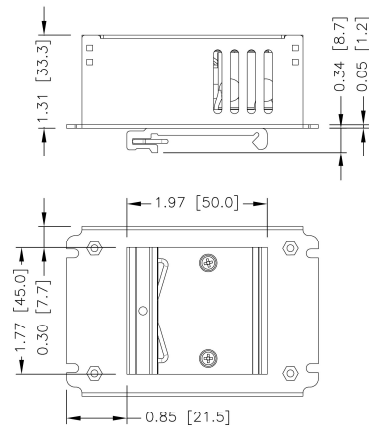
MECHANICAL DRAWING

VPAD Open type



FRONT VIEW

VPDD Din rail type



BOTTOM VIEW

1. All dimensions in inch [mm]

Tolerance : x.xx±0.02 [x.x±0.5] x.xxx±0.010 [x.xx±0.25]

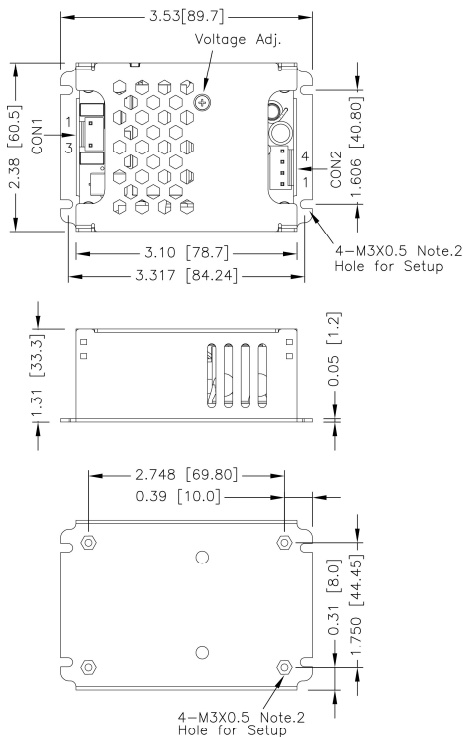
2.The screw locked torque:MAX 5.0kgf-cm/0.49N-m

3.The screws holes can be considered as PE connection for CLASS I application.

1. All dimensions in inch [mm]

Tolerance : x.xx±0.02 [x.x±0.5] x.xxx±0.010 [x.xx±0.25]

VPED Enclosed type



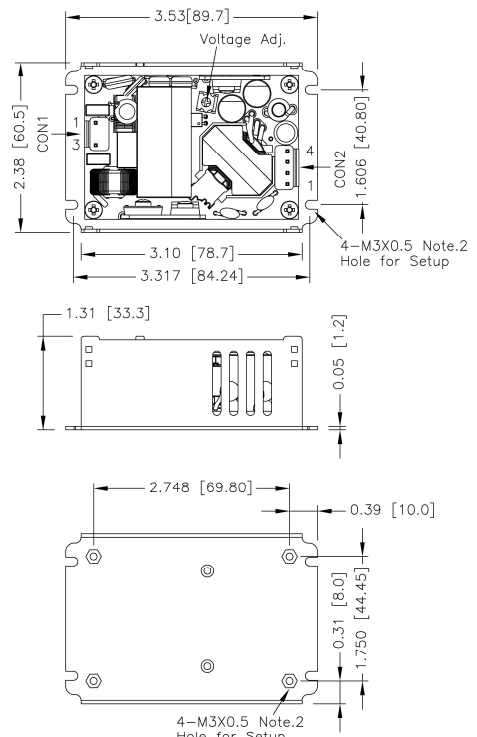
BOTTOM VIEW

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

VPUD U chassis type



BOTTOM VIEW

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

VPAD40 Single Series

2 X 3 Inch AC-DC POWER SUPPLIES

Up to 40 Watts

CONNECTOR CONNECTIONS

CON1 – Input Connector

Pin Number	AC Input	DC Input		
		VP	D40USXX C、VP	D40USXXD
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 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