

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



2
x
MOPP

4000
VAC
Reinforced
Insulation

ADJ.
Output
Voltage

Internal
EN55032
Class
Filter **B**

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

65

Output
Power
(W)

U

Input
Voltage
(VAC)

S

Output
Quantity

12

Output
Voltage
(VDC)

C

Protection
Type

-

□

Connector
Option

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
15:15
18:18
24:24
241:24
28:28
281:28
36:36
48:48
53:53

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

□: JST
M: Molex
T: Terminal Block

※NRND: Not recommended for new designs

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
VPAD65US05C UD65US05C ED65US05C DD65US05C	85 ~ 264	5	10	50	0.11	90	20000
VPAD65US7P5C UD65US7P5C ED65US7P5C DD65US7P5C	85 ~ 264	7.5	8.67	65	0.11	90	11560
VPAD65US09C UD65US09C ED65US09C DD65US09C	85 ~ 264	9	7.23	65	0.11	91	8033
VPAD65US12C UD65US12C ED65US12C DD65US12C	85 ~ 264	12	5.42	65	0.11	92.5	4520
VPAD65US15C UD65US15C ED65US15C DD65US15C	85 ~ 264	15	4.34	65	0.11	93.5	2900
VPAD65US18C UD65US18C ED65US18C DD65US18C	85 ~ 264	18	3.62	65	0.11	93.0	2015
VPAD65US24C UD65US24C ED65US24C DD65US24C	85 ~ 264	24	2.71	65	0.11	93.5	1130
VPAD65US241C UD65US241C ED65US241C DD65US241C	85 ~ 264	24	2.71	65	0.11	92	1130
VPAD65US28C UD65US28C ED65US28C DD65US28C	85 ~ 264	28	2.33	65	0.11	93.5	830
VPAD65US281C UD65US281C ED65US281C DD65US281C	85 ~ 264	28	2.33	65	0.11	91.5	830
VPAD65US36C UD65US36C ED65US36C DD65US36C	85 ~ 264	36	1.81	65	0.11	92.5	520

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
VPAD65US48C UD65US48C ED65US48C DD65US48C	85 ~ 264	48	1.36	65	0.11	93	285
VPAD65US53C UD65US53C ED65US53C DD65US53C	85 ~ 264	53	1.24	65	0.11	92.5	235

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			1.6	A
	240VAC and Full Load			0.9	
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		16		ms
Input inrush current	230VAC		60		A
Input protection	Internal fuse in line and neutral			T3.15A/250VAC	

OUTPUT SPECIFICATIONS

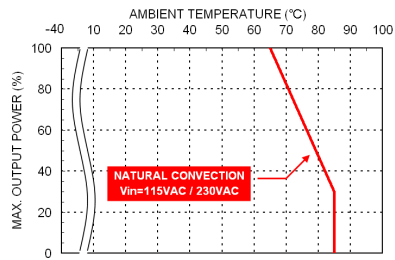
Parameter	Conditions	Min.	Typ.	Max.	Unit
Output power				65	Watts
Initial set voltage accuracy	230VAC and Full Load	-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load	-0.2		+0.2	%
Load regulation	No Load to Full Load	5Vout		+0.7	%
		Others	-0.5	+0.5	
	10% Load to 90% Load	5Vout	-0.6	+0.6	
		Others	-0.4	+0.4	
Voltage adjustability	Single output	53Vout		+10	%
		Others	-20	+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	%/°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 Input (Output) to F.G.	4000 2500			VAC
Isolation resistance	500VDC		0.1			GΩ
Switching frequency	230VAC	5Vout 7.5Vout 9Vout Others		60 80 70 120		kHz
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		MAD MUD MED MDD				117g (4.13oz) 157g (5.54oz) 172g (6.07oz) 193g (6.81oz)
MTBF	MIL-HDBK-217F, Full load					1.257 x 10 ⁶ hrs

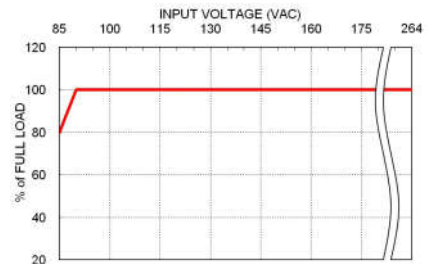
ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature	Natural convection	With derating	-40		+85	°C
Storage temperature range			-40		+85	°C
Operating altitude					5000	m
Shock						IEC60068-2-27
Vibration						IEC60068-2-6
Relative humidity	Non-condensing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

EMC SPECIFICATIONS			
Parameter	Conditions		Level
EMI	EN60601-1-2, EN55011, EN55032, and FCC Part 18 / 15		Conducted Radiated
	External components may be required for class I application.		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	Air ± 15kV and Contact ± 8kV	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	30 A/m	Perf. Criteria A
Dip and interruptions	EN61000-4-11		

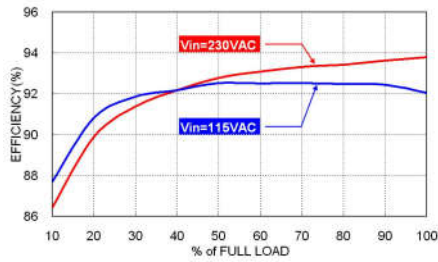
CHARACTERISTIC CURVE



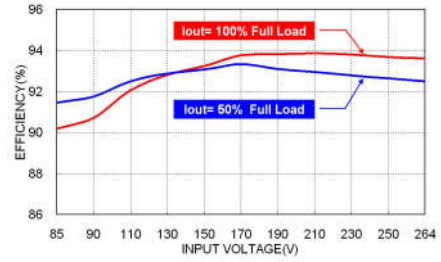
Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



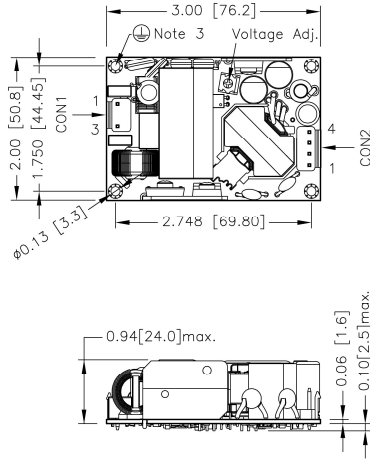
Efficiency VS Output Load
VP□D65US24C



Efficiency VS Input Voltage
VP□D65US24C

MECHANICAL DRAWING

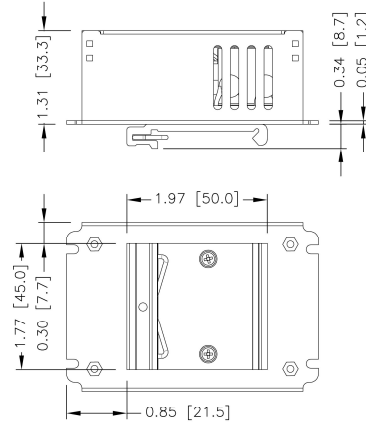
VPAD Open type



FRONT VIEW

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

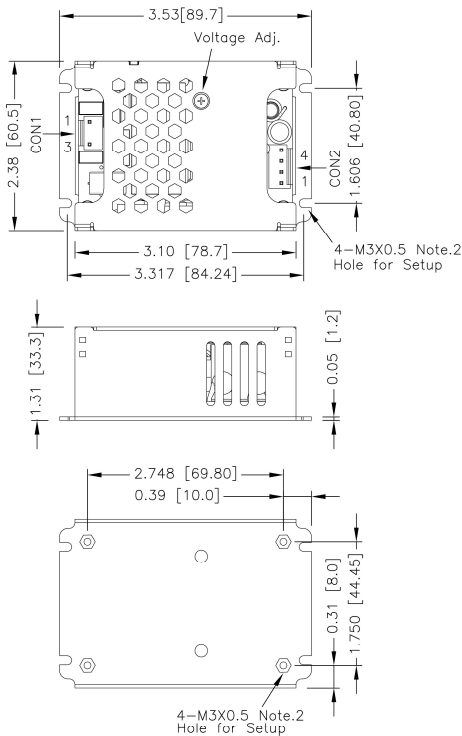
VPDD Din rail type



BOTTOM VIEW

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

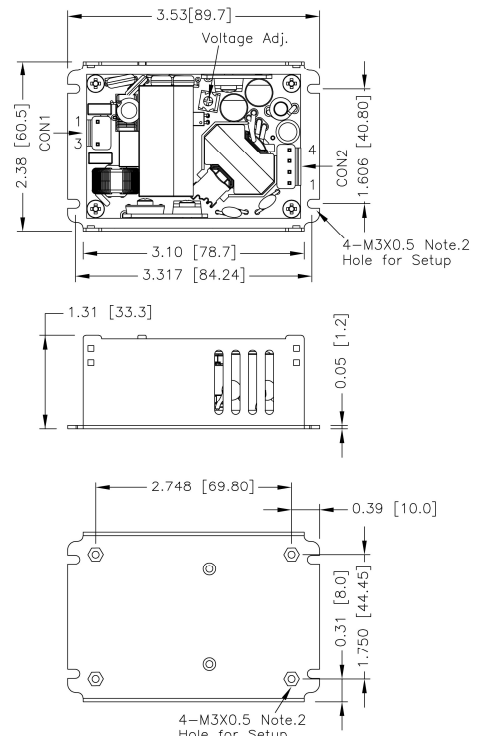
VPED Enclosed type



BOTTOM VIEW

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

VPUD U chassis type



BOTTOM VIEW

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

CONNECTOR CONNECTIONS**CON1 – Input Connector**

Pin Number	AC Input	DC Input	
		VP D65USXXC	VP D65USXXD
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**