

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 Isolation Voltage
 ADJ. Output Voltage
 Internal EN55032 Class **B** Filter
 LOW Cross Reg.
 LOW Leakage Current
 LOW Standby Power
 Operating Altitude **5000** meter
 Protection Class I Class II
OPP
OVP
SCP

PART NUMBER STRUCTURE

VPAD	65	U						C	- xx	yy	-	
Series Name	Output Power (W)	Input Voltage (VAC)	Output Quantity	Output Voltage 1 (VDC)	Output Voltage 2 (VDC)	Output Voltage 3 (VDC)	Output Voltage 3 (VDC)	Protection Type	Vo2 Voltage Code	Vo3 Voltage Code		Connector Option
VPAD: Open type		U: Universal	D: Dual	Vo1	Vo2	Vo3 (Triple only)		C: CLASS I				□: JST
VPUD: U chassis type		85 ~ 264	T: Triple	3: 5V	1: 2.5V	M: Minus	1: 2.5V	D: CLASS II				M: Molex
VPED: Enclosed type				4: 7.5V	2: 3.3V	□: Positive	2: 3.3V					T: Terminal Block
VPDD: Din rail type				5: 9V	3: 5V		3: 5V					
				6: 12V	x: refer to Suffix xx		4: 7.5V	□: CLASS I				
				7: 15V			5: 9V	(*NRND)				
				8: 18V			6: 12V	B: CLASS II				
				9: 24V			7: 15V	(*NRND)				
				0: 28V			8: 18V					
							9: 24V	*NRND: Not recommended for new designs				
							y: refer to Suffix yy					

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

Model Number	Output 1			Output 2			Output 3		Max. Output Power W	Efficiency %	Maximum Capacitor Load µF
	Voltage	Current (Normal)	Current (MAX)	Voltage	Current (Normal)	Current (MAX)	Voltage	Current (MAX)			
	VDC	A	A	VDC	A	A	VDC	A			
VPAD65UD32C UD65UD32C ED65UD32C DD65UD32C	+5	6	10	+3.3	6	8	---	---	50	88.5	12000 / 3000
VPAD65UD63C UD65UD63C ED65UD63C DD65UD63C	+12	3	5.42	+5	6	8	---	---	65	90	2500 / 3000
VPAD65UD62C UD65UD62C ED65UD62C DD65UD62C	+12	3	5.42	+3.3	6	8	---	---	65	89.5	2500 / 3000
VPAD65UD73C UD65UD73C ED65UD73C DD65UD73C	+15	2.4	4.34	+5	6	8	---	---	65	90.5	1200 / 3000
VPAD65UD93C UD65UD93C ED65UD93C DD65UD93C	+24	1.5	2.71	+5	6	8	---	---	65	89	625 / 3000
VPAD65UD03C UD65UD03C ED65UD03C DD65UD03C	+28	1.25	2.33	+5	6	8	---	---	65	88	390 / 3000
VPAD65UT32M3C UD65UT32M3C ED65UT32M3C DD65UT32M3C	+5	6	10	+3.3	6	8	-5	0.6	50	88	12000 / 3000 / 500
VPAD65UT326C UD65UT326C ED65UT326C DD65UT326C	+5	6	10	+3.3	6	8	+12	0.6	50	88	12000 / 3000 / 500
VPAD65UT32M6C UD65UT32M6C ED65UT32M6C DD65UT32M6C	+5	6	10	+3.3	6	8	-12	0.6	50	88	12000 / 3000 / 500
VPAD65UT63M3C UD65UT63M3C ED65UT63M3C DD65UT63M3C	+12	3	5.42	+5	6	8	-5	0.6	65	89.5	2500 / 3000 / 500
VPAD65UT63M6C UD65UT63M6C ED65UT63M6C DD65UT63M6C	+12	3	5.42	+5	6	8	-12	0.6	65	89	2500 / 3000 / 500
VPAD65UT623C UD65UT623C ED65UT623C DD65UT623C	+12	3	5.42	+3.3	6	8	+5	0.6	65	89	2500 / 3000 / 500

Model Number	Output 1			Output 2			Output 3		Max. Output Power W	Efficiency %	Maximum Capacitor Load µF
	Voltage	Current (Normal)	Current (MAX)	Voltage	Current (Normal)	Current (MAX)	Voltage	Current (MAX)			
	VDC	A	A	VDC	A	A	VDC	A			
VPAD65UT62M6C UD65UT62M6C ED65UT62M6C DD65UT62M6C	+12	3	5.42	+3.3	6	8	-12	0.6	65	88.5	2500 / 3000 / 500
VPAD65UT73M7C UD65UT73M7C ED65UT73M7C DD65UT73M7C	+15	2.4	4.34	+5	6	8	-15	0.6	65	89.5	1200 / 3000 / 500
VPAD65UT936C UD65UT936C ED65UT936C DD65UT936C	+24	1.5	2.71	+5	6	8	+12	0.6	65	88.5	625 / 3000 / 500
VPAD65UT93M6C UD65UT93M6C ED65UT93M6C DD65UT93M6C	+24	1.5	2.71	+5	6	8	-12	0.6	65	88.5	625 / 3000 / 500

"

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				1.65	A
	240VAC				0.95	
No load input power	230VAC			0.15		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		

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OUTPUT SPECIFICATIONS							
Parameter	Conditions		Min.	Typ.	Max.	Unit	
Output power	Pout 1+Pout 2+Pout 3	Vout 1 5V Others			50 65	Watts	
Initial set voltage accuracy	230VAC and Full Load	Vout 1 Vout 2 · Vout 3	-1.0 -2.0		+1.0 +2.0	%	
Line regulation	Low Line to High Line at Full Load		-0.2		+0.2	%	
Load regulation	No Load to Full Load	Vout 1 Vout 3	-0.5 -0.7		+0.5 +0.7	%	
	No Load to Full Load 0.1W Load to Full Load	Vout 2	-1.5 -0.7		+1.5 +0.7	%	
Cross regulation	Asymmetrical load 25%/100% FL		-1.5		+1.5	%	
Voltage adjustability		Vout 1	-10		+10	%	
Minimum load	VP□D65UD □□ VP□D65UT □□□; Vout 3 is full load	Vout 1 + Vout 2		0 0.5		W	
Ripple and noise	Measured by 20MHz bandwidth					mVp-p	
	With a 10µF/25V 1206 X7R MLCC	Vout 1 5V		100			
	With a 1µF/50V 1206 X7R MLCC	Vout 1	12V		120		
			15V		150		
			24V		240		
			28V		280		
With a 10µF/25V 1206 X7R MLCC	Vout 2 All		100				
With a 10µF/25V 1206 X7R MLCC	Vout 3	5V		100			
		12V		120			
		15V		150			
Temperature coefficient			-0.02		+0.02	%/°C	
Transient response	Load step from 50 ~ 75% change at 2.5A/µs	Vout 1 Peak deviation Recovery time		600	3	% Vout µs	
Over voltage protection	% of Vout(nom); Latch mode	Vout 1	125		140	%	
Over power protection	% of nominal output power; Hiccup mode	Pout 1+Pout 2		145		%	
Short circuit protection			Continuous, automatic recovery				

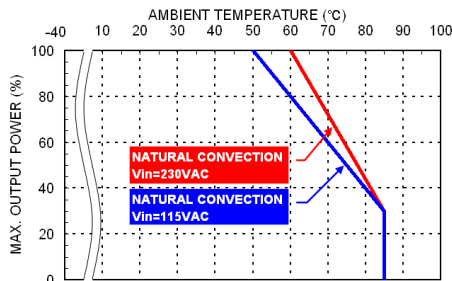
GENERAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute (2MOPP insulation)	Input to Output Input (Output) to F.G.	4000 2500			VAC
Isolation resistance	500VDC		0.1			GΩ
Switching frequency	230VAC	Vout 1 5V		60		kHz
		Others		115		
		Vout 2 Vout 3		750 510		
Safety 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				155g (5.47oz)
		VPUD				203g (7.16oz)
		VPED				221g (7.80oz)
		VPDD				243g (8.57oz)
MTBF	MIL-HDBK-217F, Full load					1.059 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

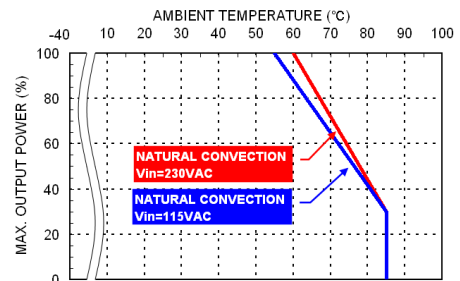
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN60601-1-2, EN55011, EN55032 and FCC Part 18 / 15	Conducted Class B Radiated Class B
	External components may be required for class I application	
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 \pm 15kV and Contact \pm 8kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 20 V/m	Perf. Criteria A
Fast transient	EN61000-4-4 \pm 2kV	Perf. Criteria A
Surge	EN61000-4-5 DM \pm 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	

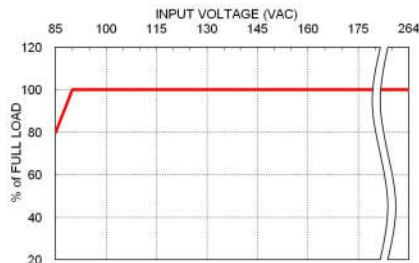
CHARACTERISTIC CURVE



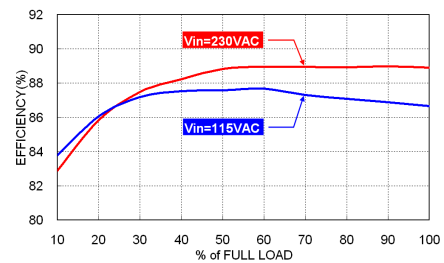
Derating Curve vs. Ambient Temperature
VP D65UD



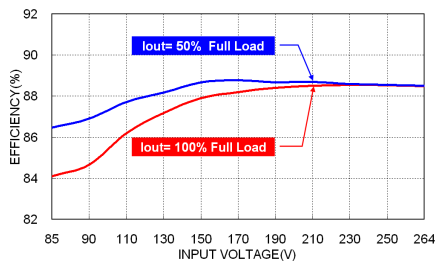
Derating Curve vs. Ambient Temperature
VP D65UT



Derating Curve vs. Input Voltage
VP D65



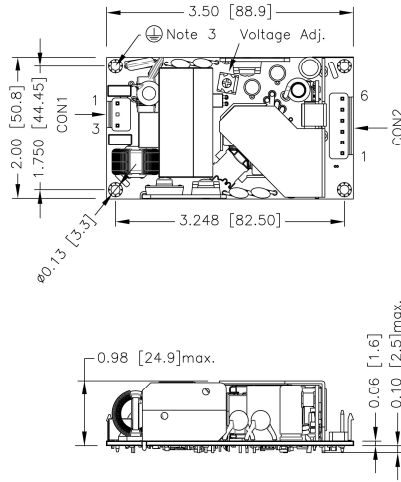
Efficiency v. s. Output Load
VP D65UT63M6B



Efficiency vs. Input Voltage
VP D65UT63M6B

MECHANICAL DRAWING

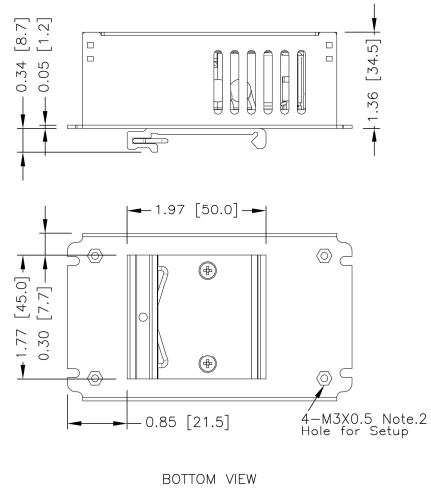
VPAD Open type



FRONT 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.

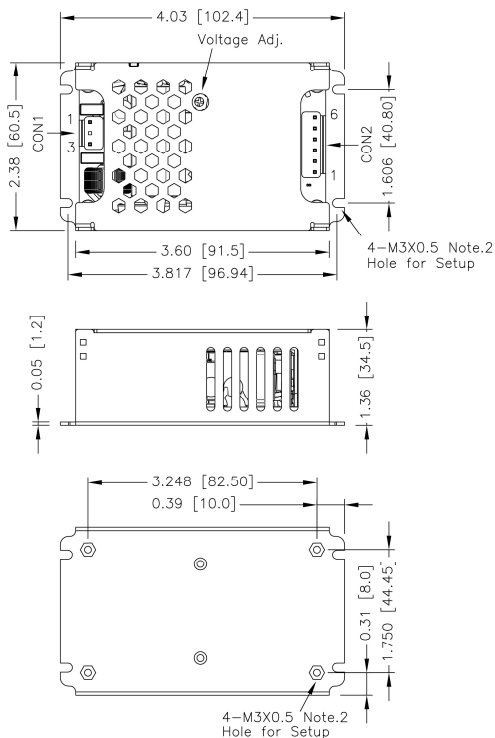
VPDD Din rail typ e



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

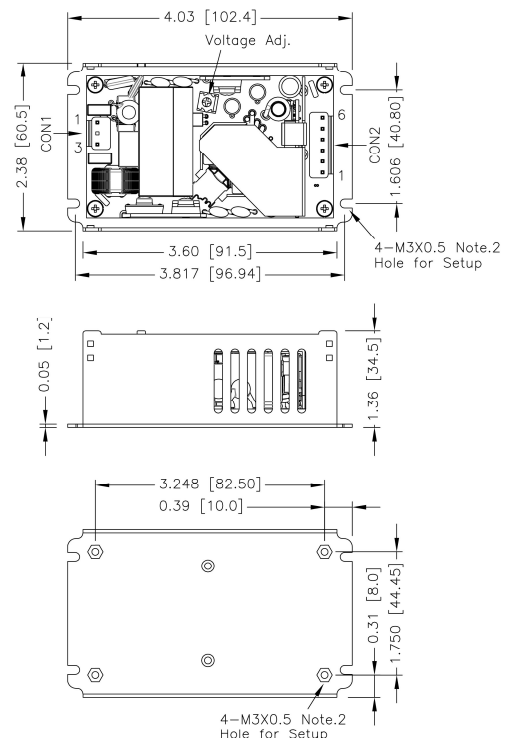
VPED Enclo sed type



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 chassi s 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

CONNECTOR CONNECTIONS

CON1 – Input Connector

Pin Number	AC Input	DC Input	
		VP D65UD XXC \ VP D65UDXXD	VP D65UTXXC \ VP D65UTXXD
Pin 1	Line	DC+	
Pin 3	Neutral	DC-	

CON2 – Output Connector

Pin 1	Vout3
Pin 2,3	Com
Pin 4,5	Vout2
Pin 6	Vout1

*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-6N



Crimp terminals

CON1: SVH-21T-P1.1

CON2: SVH-21T-P1.1

-M

Molex Type

Mates with housing

CON1: 09-50-8031

CON2: 09-50-8061



Crimp terminals

CON1: SD-2478

CON2: SD-2478

-T

Terminal Block

Screw locked torque
MAX 2Kgf.cm/0.2N.m



Wire dimension range
26 ~ 16AWG