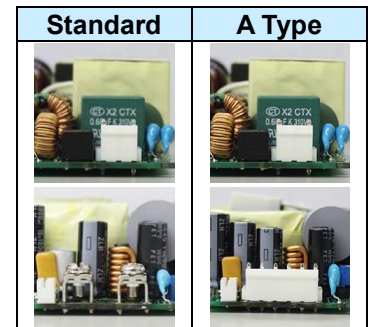


## KEY FEATURES

- Universal Input 90-264Vac
- 240 Watt with 8CFM Forced Air
- 180W with Conduction Cooling
- 160 Watt with Natural Convection
- High Efficiency up to 94%
- Safety Approval to UL / IEC / EN 62368-1
- No Load Power Consumption < 0.5W
- Built-in 12V / 0.5A Fan Supply
- -30°C to +80°C Wide Range Operation Temperature
- Operating Altitude 5000M
- Active PFC Function
- I/O Isolation 4000VAC
- Meet 4000VAC Input to Output 2MOPP Insulation
- EMI for Both Class I (with PE) and Class II (without PE) Configuration
- 3-Year Product Warranty



Please refer to the types of terminal block; the pictures shown are for illustration purpose only, actual product may vary.



## ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No.		VPRF2400-12S	VPRF2400-24S	VPRF2400-48S
Max Output Wattage (with 8CFM FAN) (W)		240 W		
Max Output Wattage (Conduction Cooling) (W) (Note 12)		180 W		
Max Output Wattage (Natural Convection) (W)		160 W		
Input	Voltage (Note 4)	90-264 VAC		
	Frequency (Hz)	47-63 Hz		
	Current (Full load)	< 3.0 A max. (115 VAC) / < 1.5 A max. (230 VAC)		
	Inrush Current (<2ms)	< 45 A max. (115 VAC) / < 90 A max. (230 VAC)		
	Power Factor	PF>0.9 at Full Load		
	No Load	< 0.5W (115 / 230 VAC)		
Output	Voltage (V.DC.)	12V	24V	48V
	Voltage Adj Range (V.DC.)	±5% Output Voltage		
	Voltage Accuracy	±2%		
	Current (with 8CFM FAN) (A) (max.)	20	10	5
	Current (Conduction Cooling) (A) (max.)	15	7.5	3.75
	Current (Natural Convection) (A) (max.)	13.33	6.66	3.33
	Line Regulation	±1%		
	Load Regulation (0-100%)	±1%		
	Minimum Load	0%		
	Maximum Capacitive Load	8000µF	3000µF	470µF
	Ripple & Noise (max.) (Note 1)	1% Vout		
	Efficiency (at 230VAC) (Note 6)	92.5%	93%	94%
	Hold-up Time (at 115 VAC) (Note 2)	10 ms min.		
Protection	Over Power Protection	Auto recovery, Hiccup mode		
	Over Voltage Protection	Auto recovery		
	Overt Temperature Protection	Auto recovery		
	Short Circuit Protection	Protection level 1 (nominal) : Continuous, Auto recovery		
Protection level 2 (instantaneous high current) : Latch				
Isolation	Input-Output (Note 5)	4000VAC or 5656VDC		
	Input-PE (Note 5)	2000VAC or 2828VDC		
	Output-PE (Note 5)	1500VAC or 2121VDC		

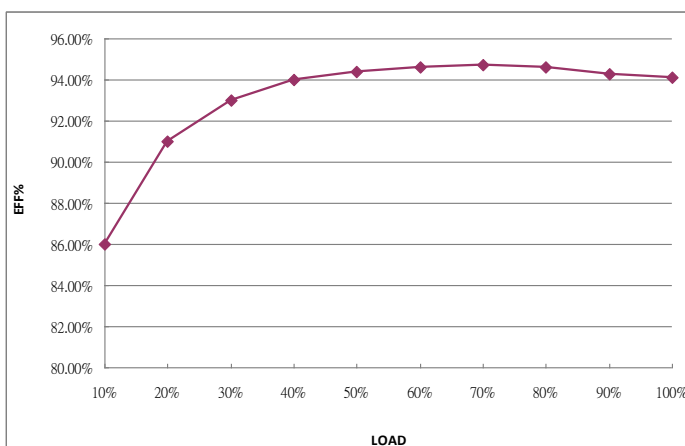
## ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No.	VPRF2400-12S	VPRF2400-24S	VPRF2400-48S
Environment	Operating Temperature	-30°C...+80°C (with derating)	
	Storage Temperature	-30°C...+80°C	
	Temperature Coefficient	±0.05%/°C	
	Altitude During Operation	5000m	
	Humidity	20~90% RH	
	MTBF	>250,000 h @ 25°C (MIL-HDBK-217F, Notice 1)	
	Vibration	IEC60068-2-6 (10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes)	
	Shock	IEC60068-2-27	
Physical	Dimensions (L x W x H)	4.02 x 2.05 x 1.09 Inches ( 101.9 x 52.1 x 27.6 mm ) Tolerance ±0.5 mm	
	Weight	220 g	
	Cooling Method	Natural Convection / Conduction Cooling / 8CFM FAN	
Safety	Approval	UL 60950 UL / IEC / EN 62368 ( In Progress ) (Meet) Medical EN60601	
EMC	Conducted EMI (Note 6)	EN55032 Class B	
	Radiated EMI (Note 6)	EN55032 Class I Class B / Class II Class A	
	EMS	EN55035	

## NOTE

1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. Hold-up Time measured at 90% Vout.
3. Fan Supply=12V/0.5A (max) for driving a fan..
4. Please check the derating curve for more details.
5. Strongly recommend to conduct this test with DC Voltage. If customer wishes to test with AC Voltage, please disconnect all Y-Capacitors.
6. Vin at 230 VAC & 48 Vout



(After 30 minutes of burn-in)

**NOTE**

7. The FAN supply is designed to serve as the source of the additive external fan for the cooling of the power supply, enabling the full load delivery and assuring the best life span of the product. Please do not use this FAN supply to drive other devices.

For 12S, 24S, 48S			
Main Output Power	FAN Voltage (at 0.1A)	FAN Voltage (at 0.25A)	FAN Voltage (at 0.5A)
25%	12.1V	11.8V	11.5V
50%	12.2V	11.9V	11.7V
75%	12.3V	12.0V	11.8V
100%	12.5V	12.2V	11.9V

8. Please secure the power supply unit to your metal case by using the four screw holes in the corners for either Class I or Class II equipment.

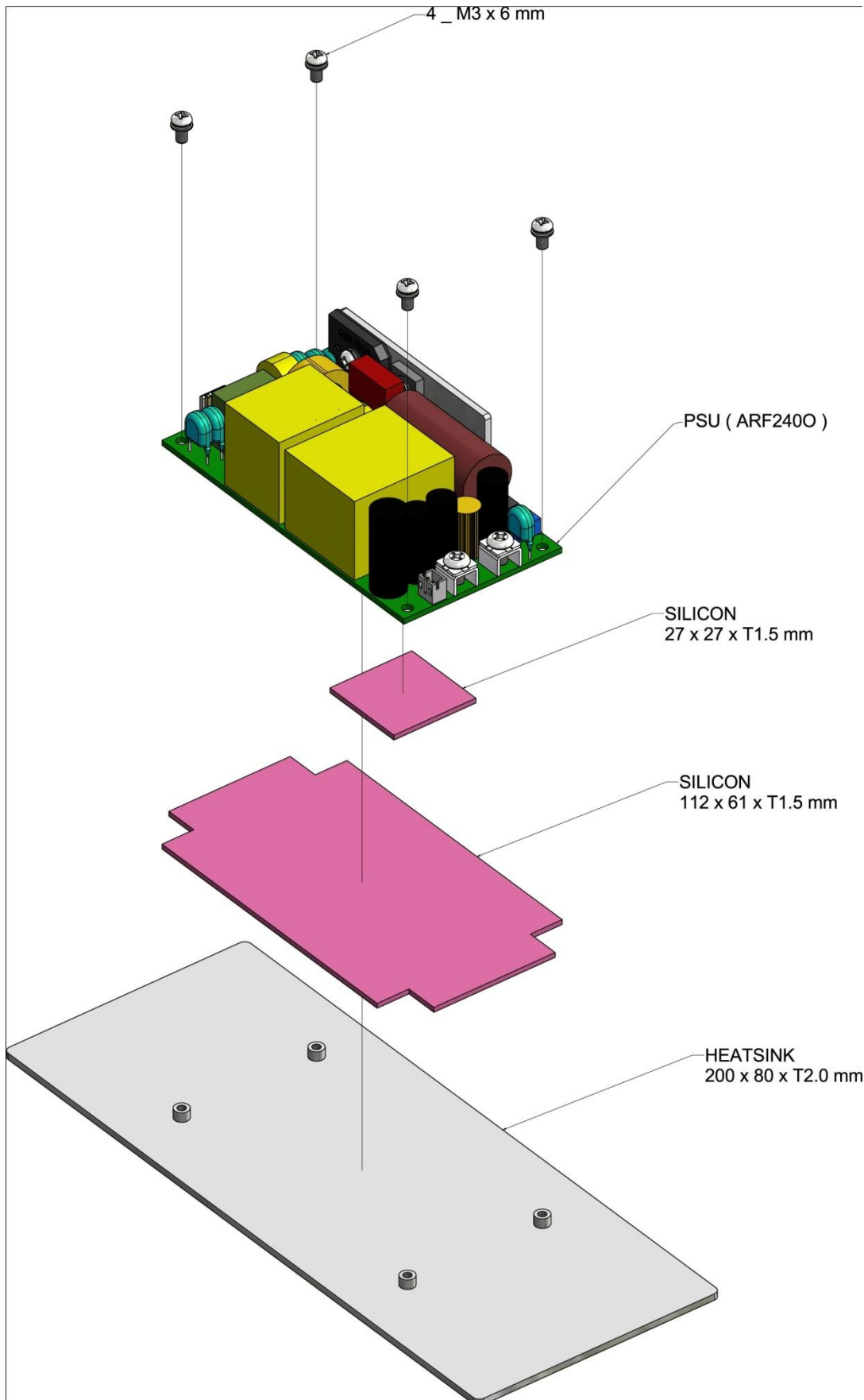
9. The ambient temperature derating of 3.5 /1000m with fanless models and of 5 /1000m with fan models for operating altitude higher than 2000m(6500ft).

10. At least 15mm insulation distance on the bottom of the unit should be kept and a Mylar film should be added between the unit and the system.

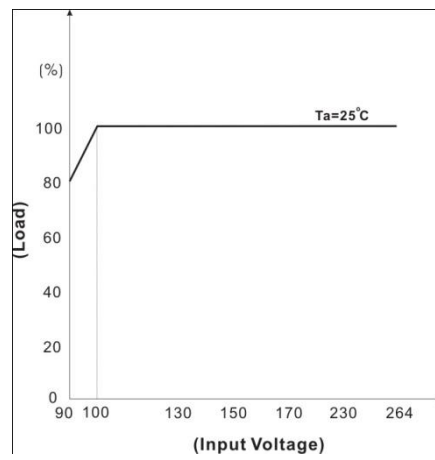
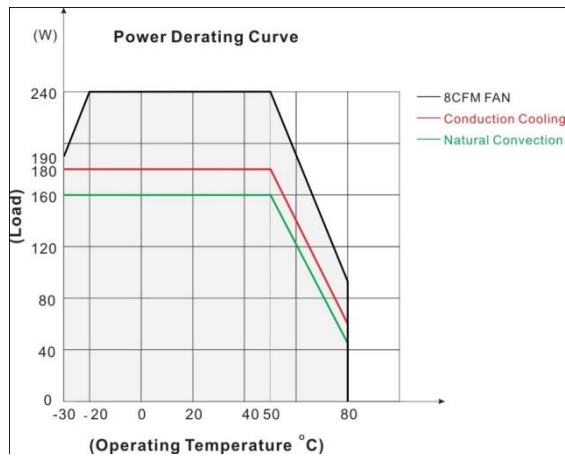
11. **CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.**

**NOTE**

12.

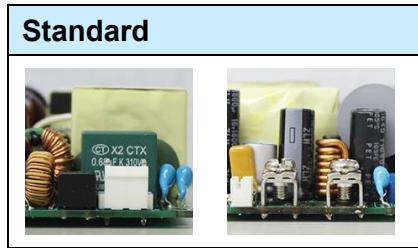
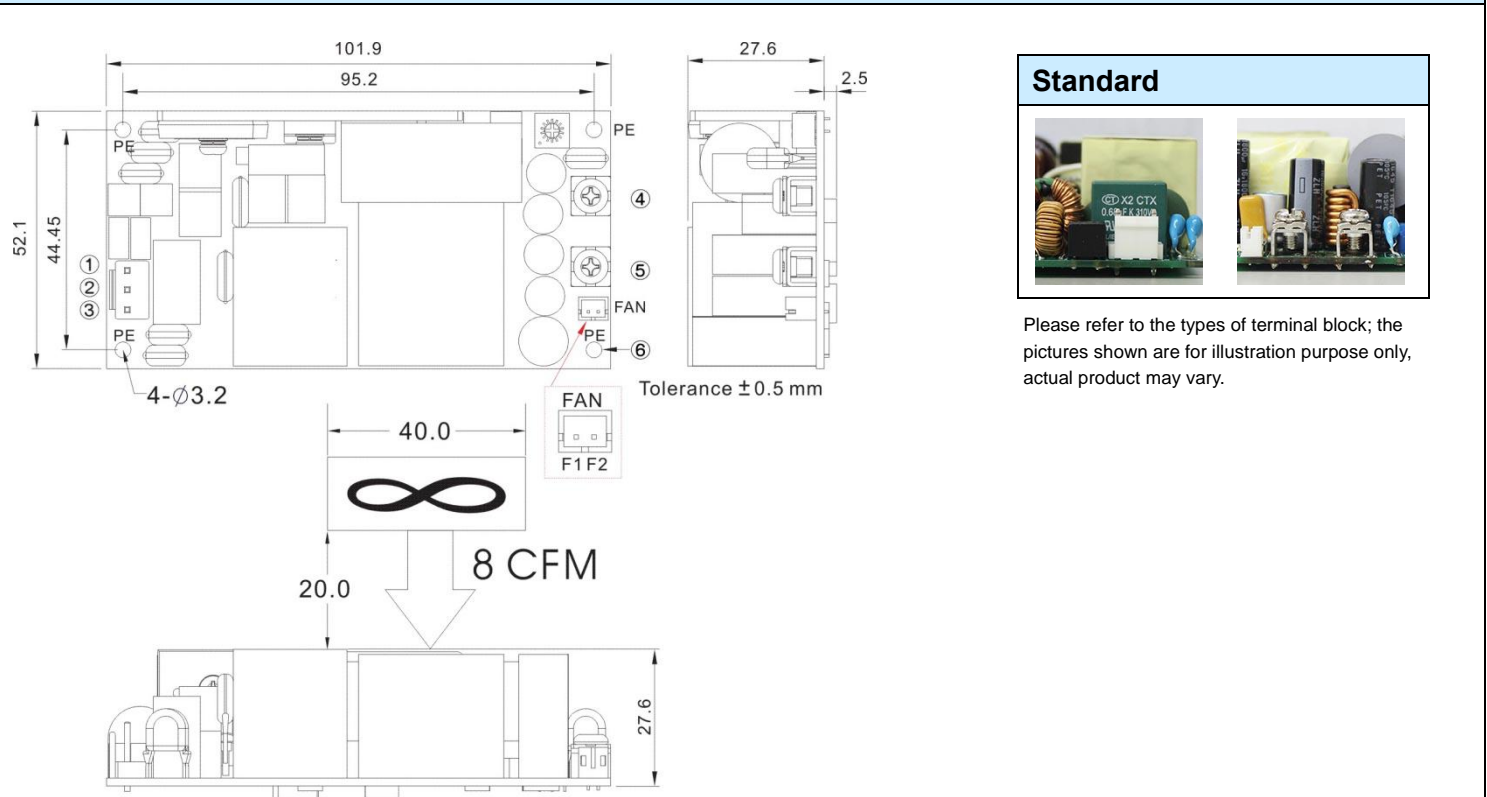


## DERATING



**MECHANICAL DIMENSIONS ( Top View )**

**Standard**



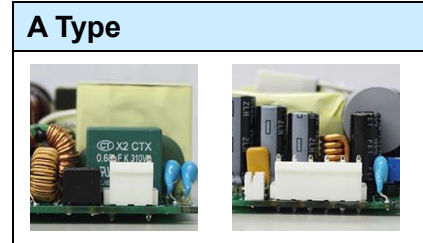
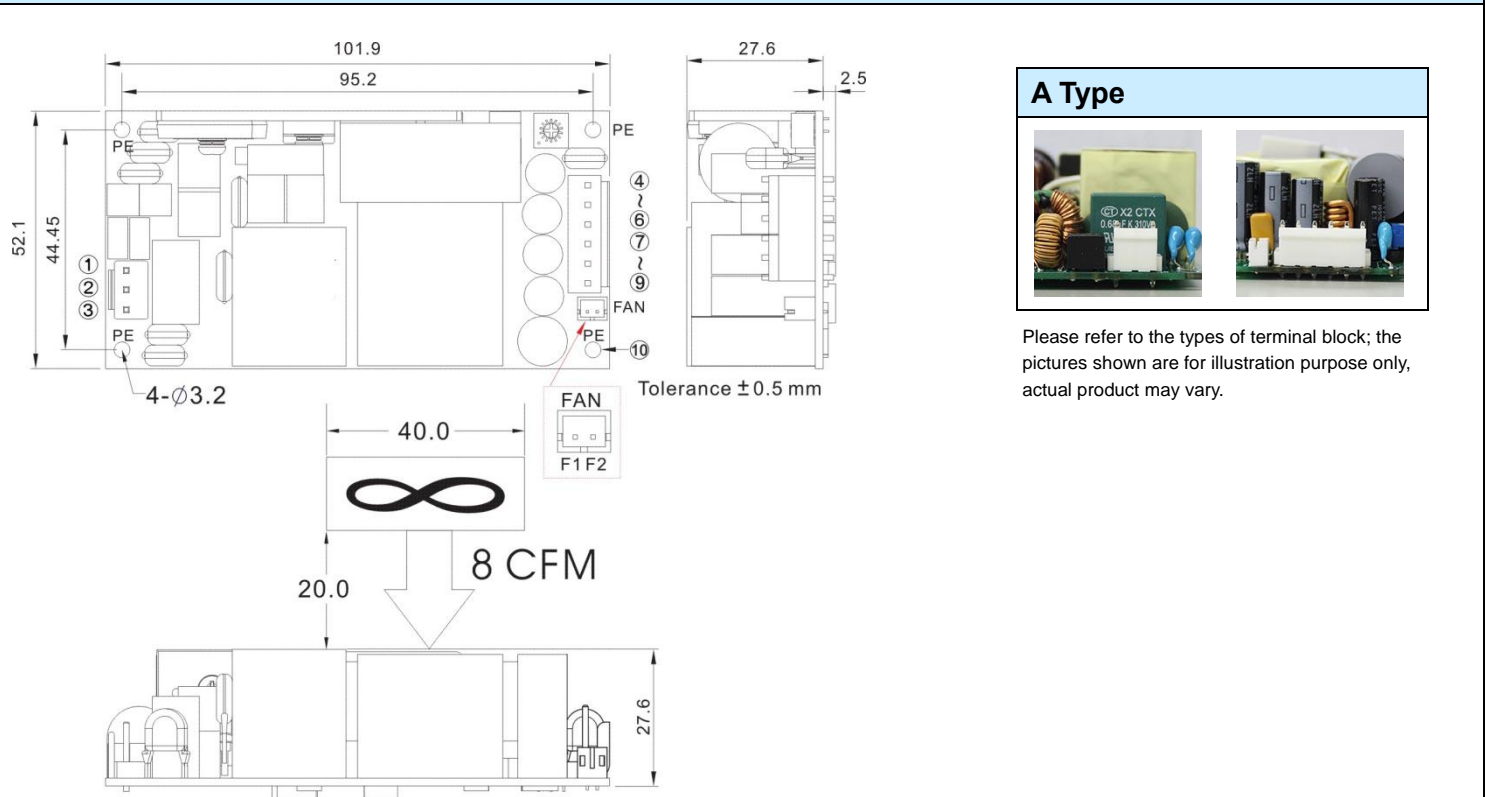
Please refer to the types of terminal block; the pictures shown are for illustration purpose only, actual product may vary.

Brands		Alex		JST	
PIN#	Single	Mating Housing	Terminal	Mating Housing	Terminal
1	AC IN (N)	9396-3	96T series	VHR-3N	SVH-41T-P1.1
2	NO PIN				
3	AC IN (L)				
4	+DC OUT	Terminal : M3.5 Pan HD screw in 2 positions Torque to 8 lbs-in(90 cNm) max.			
5	-DC OUT				
6	PE	—	—	—	—

Connector Pin (FAN)					
Brands		Cherng Weei		JST	
PIN#	Single	Mating Housing	Terminal	Mating Housing	Terminal
F1	+AUX OUT	CX-H20-02	CP-T20B	PHR-2	SPH-002T-P0.5L
F2	-AUX OUT				

**MECHANICAL DIMENSIONS ( Top View )**

**A Type**



Please refer to the types of terminal block; the pictures shown are for illustration purpose only, actual product may vary.

Brands		Alex		JST	
PIN#	Single	Mating Housing	Terminal	Mating Housing	Terminal
1	AC IN (N)	9396-3	96T series	VHR-3N	SVH-41T-P1.1
2	NO PIN				
3	AC IN (L)				
4-6	+DC OUT	9396-6	96T series	VHR-6N	SVH-41T-P1.1
7-9	-DC OUT				
10	PE	—	—	—	—

Connector Pin (FAN)					
Brands		Cherng Weei		JST	
PIN#	Single	Mating Housing	Terminal	Mating Housing	Terminal
F1	+AUX OUT	CX-H20-02	CP-T20B	PHR-2	SPH-002T-P0.5L
F2	-AUX OUT				

We reserve the right to make alterations in the product materials and specifications without prior notification and consent to improve reliability, function or design or otherwise.