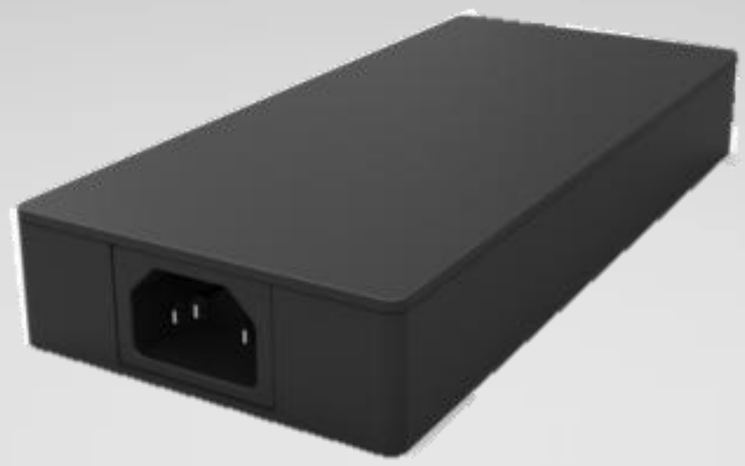
TECHNICAL
DATA SHEET

AA240U-200A-R

PHIHONG

DESCRIPTION

The AA240U-200A-R GaN Series is a high-efficiency desktop power supply designed for multiple applications, delivering a reliable 240W single output with advanced GaN technology for compact performance. Ideal for powering high-demand gaming systems etc with reduced heat and improved energy conversion.



FEATURES

- Power Rated: 240W
- Input Voltage: 90-264V
- Peak Load: 200%-225%
- Input AC Plug: IEC C14 Type
- Dimension: L165 x W75 x H25.4 mm
- Weight: <600 g

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240-watt GaN Series Desktop Adapter

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AC Input

AC input voltage range	90Vrms to 264Vrms
AC input nominal rating	100Vrms ~ 240Vrms
AC input nominal frequency	50Hz - 60 Hz
AC input frequency	47Hz - 63 Hz
AC input current	2.8A Max at 100Vac with full load
Leakage current	250uA Max. at 240Vac / 50Hz
Inrush current	The inrush current of the power supply shall be less than the rating of its critical components (include bridge diode, surge limiting device) for all condition of line voltage of [AC input voltage range] The I^2t shall less than 22% of the fuse, surge limiting device and bridge diode rating.
Power factor	0.9 min @ full load at input AC power 230Vac. *With active PFC function to meet EN61000-3-2 harmonic current requirement.*
Primary Aluminum Capacitor	450Vdc (min.)

Output

Test at 100-240Vac

Output voltage	20Vdc
Output Voltage Regulation	+/- 5%
Minimum load current	0A
Maximum load current	12A
Ripple and noise	< 200mV (pk-pk) at max load @25℃ *Note:* *1) Measurements shall be made with an oscilloscope with 20MHz Bandwidth.* *2) Outputs should be bypassed at a connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor (Low ESR)* *3) After 30 minutes of warm up*

Overall Performance

Output Power	240 Watt Max
Efficiency	115Vac/230Vac > 89% Average efficiency ; 230Vac > 79% ; 10% Load *Test at 115Vac/60Hz & 230Vac/50Hz, and the power supply shall meet DOE VI / COC V5 Tier 2 spec measuring at the cable end.*
AC Turn on Delay Time	< 3 sec (Test at 100-240Vac & Full Load)

Dynamic Load

1) Measurements shall be made with an oscilloscope with 20MHz Bandwidth.
2) Outputs should be bypassed at a connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor (Low ESR)

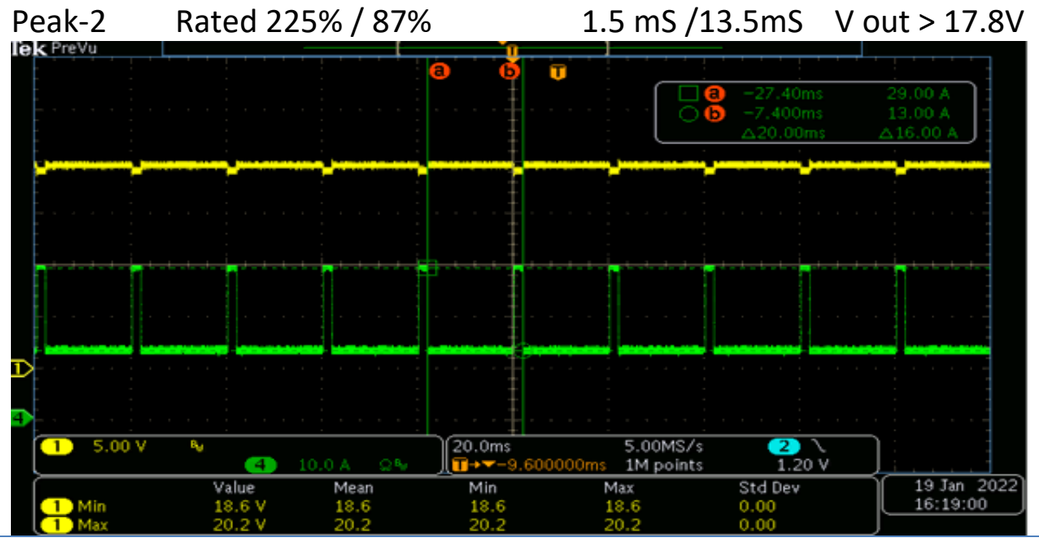
Output voltage	*Input voltage*	*Slew rate*	*Test load*	*Spec*
20	100Vac/240Vac	2.5A/us	On /off =100Hz~10K Hz, 50% duty Dynamic Load.1: 0.05A ~ 6 A Dynamic Load.2: 6A ~ 12 A	18.5 V~21V

Capacitive Load	The system load capacitance is 1000uF. Input = 100Vac to 240Vac. shall not trigger any protections or cause the adapter to shut down.
Rise Time	< 40ms, measure 10%-90% of output voltage (Test at 90Vac & Full Load).
Hold up time	> 16ms (Test at 100Vac & Full Load)

Peak Load

Test at 100-240Vac/50Hz, Continuous work in room temp. S/R=1A/us; with loading distribution in below.

	Current	*Duration*	*Requirement*
Peak-1	Rated 200% / 90%	2 m / 18mS	V out > 18V
Peak-2	Rated 225% / 87%	1.5 mS /13.5mS	V out > 17.8V



Protection

Note.1 : Test at 90-264Vac.
Note.2 : No Damaged when PSU auto recover occur.

Protection	*OCP*	*SCP*	*OVP*	*OTP*
Requirement	>15A	Yes	< 27V	Case < 105℃
Protection mode		Latch off		

No Load Power Consumption	Maximum no load power consumption is less than 0.25W at 115Vac/60Hz and 230Vac/50Hz
Hot Plugging	Plugging a live AC adapter into the system with 1000uF capacitance shall not trigger any protections or cause the adapter to shut down.

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Other Specifications

Environmental Requirements *Note for Humidity: The condition is non-condensing Operation Altitude: 5000 M*	Operation Temperature	0℃ to 40℃
	Storage Temperature	-30℃ to 80℃
	Operating Relative Humidity	5% - 90% RH
	Storage Relative Humidity	5% - 95% RH
Reliabilities	MTBF (MIL-HDBK-217F)： >150K hours at 100Vac / 240Vac, full load, Ambient 25℃ at 90% confidence – level while operating under the following condition E-Cap lifetime: 3 years E-Cap (26280hours) lifetimes at 100/240Vac, Ambient Temperature 25℃ with 80% Load Burn In: Burn-in shall be at 80% load, nominal input voltage. and burn-in for 4 hours with 35℃. Acoustic Noise: Max.:25dB (50cm) *Input Condition: Vin: 90Vac~264Vac ; Frequency : 47Hz to 63 Hz* *Load Condition: Dynamic Load : Follow Phihong Transient Load Current Spec;* *Static Load : From 0A to Full Load , 0.5A per step*	

Safety and EMC

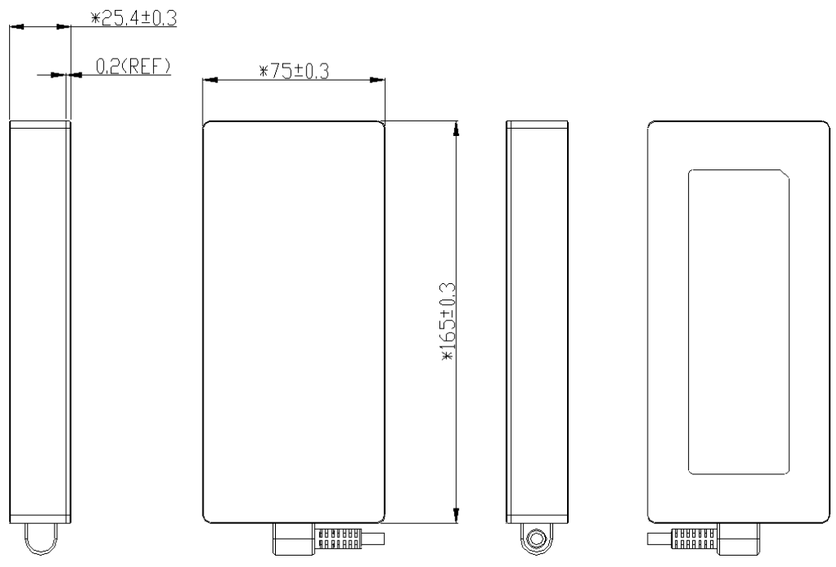
Safety	All requirements under IEC/EN 60950-1,62368-1 3rd, UL/cUL, CE, NRCAN Mark
EMC	EMI: FCC part 15, Class B. EN55032, Class B. CISPR32, Class B. Adapter unit: Margin more than 6dB EMS: EN55035 ESD: IEC61000-4-2, Contact discharges: +-8KV Criterion A Air discharges: +-15KV Criterion A Radiated Immunity: IEC 61000-4-3 (RS); 80-1000MHz, 3V/m, 80% AM(1KHz), Criterion A Electrical Fast Transients: IEC 61000-4-4 (EFT),1KV, 5/50Tr/Th ns, 100 kHz, Criterion A Surge: IEC 61000-4-5 (Surge), Differential Mode ：±1KV Criterion A, Common Mode: ±2KV Criterion A Conducted Disturbances: IEC 61000-4-6 (CS) Criterion A Power Frequency Magnetic Field Immunity: IEC61000-4-8(PFMF) Criterion A Voltage Dips and interruptions: IEC 61000-4-11 (DIP) Criterion B
Harmonic	EN61000-3-2, Class D
Voltage Fluctuations and Flicker:	EN61000-3-3

HI-POT test	*Parameters*	*Setting*	*Test condition*
	Condition.1 (Pri. -> Sec.)	4000Vdc Minimum	100% test in product line
	Condition.2 (Pri. -> FG.)	2500 Vdc Minimum	
	DWELL Time	1 minute Minimum	

Insulation Resistance	Pri. to Sec. > 30 M ohm 500Vdc

Mechanical

Dimensions	Length =165mm; Width = 75mm; Height = 25.4mm
AC Inlet	IEC C14
DC output cord	1.2M (Will be referred to Phihong ID design, EMI Core would be preferred)
Mechanical Requirements	Bending test: 200g weight,60° angle to each side(Total angle 120°),1000 cycles of arbitrary direction 40 cycles/min. Disconnection rate <= 10% between case to S/R; Disconnection rate <= 30% between plug to coil. Without damage to the insulations
Drop test	Test condition: Height: 76cm, Material: Concrete, Orientation: Drop the unit one time for each face (6 faces), 1 cycle Acceptance criteria: Hi-Pot pass; Allow small crack needed pass by test finger
Ball Impact Test	(without precondition) Height: 130cm; Ball Weight : 500 g; Ball Diameter : 50 mm; Direction : Four face as below figure.(drop on main body center)



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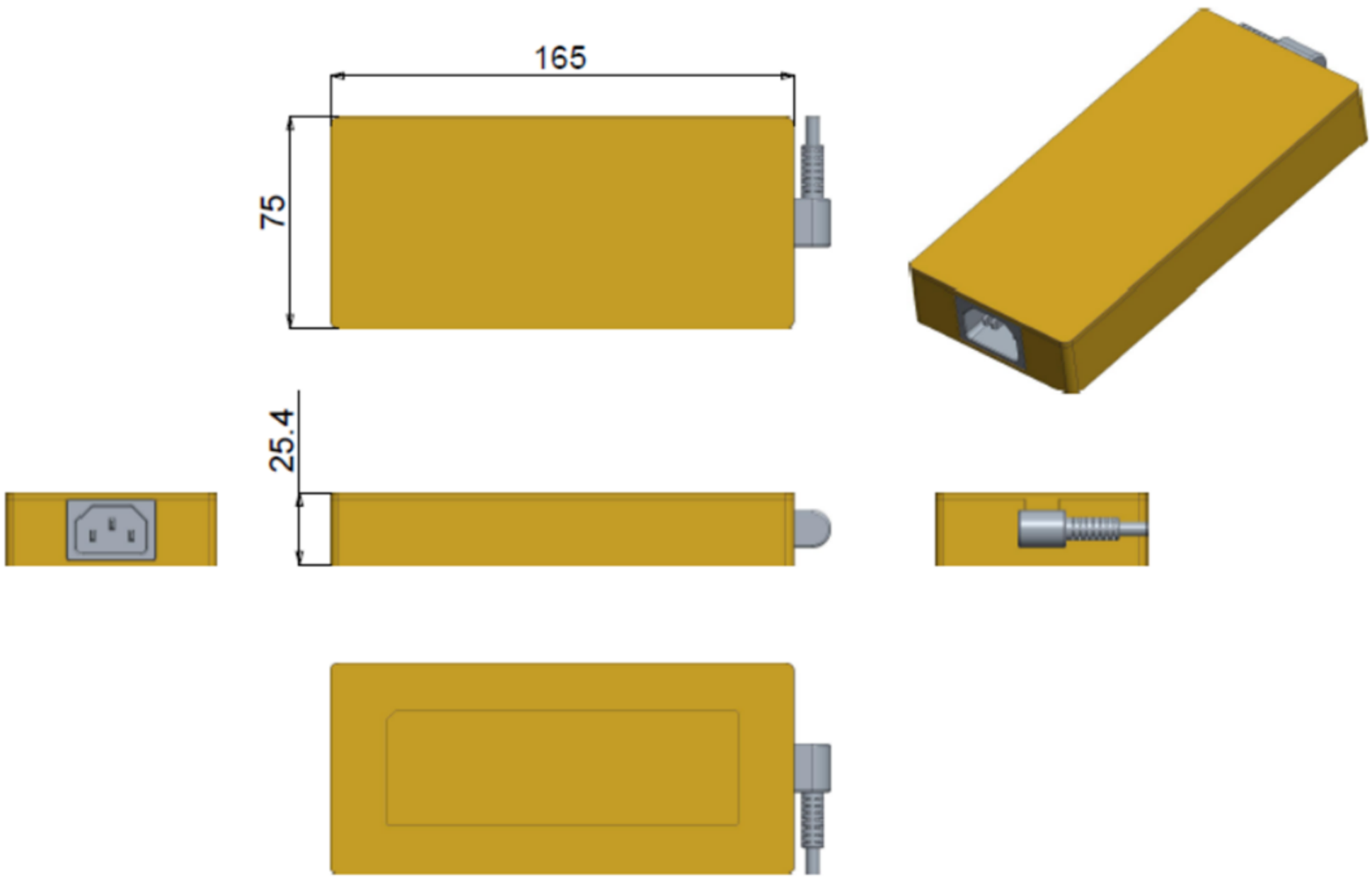
Weight	< 600g +/- 10%
Outline	165 x 75 x 25.4mm

[Outline]

Outline dimensions:165mmx75mmx25.4mm



PHIHONG 50 YEARS OF HISTORY IN THE POWER SUPPLIES INDUSTRY

Since its founding in 1972, Phihong has emerged as a prominent power supply company, serving as a key supplier of solutions for consumer, mobile/portable, enterprise, telecom, datacom, and industrial applications.