TECHNICAL DATA SHEET

AA280U-200B-R

DESCRIPTION

The AA280U-200B-R GaN Series is a high-efficiency desktop power supply designed for multiple applications, delivering a reliable 280W single output with advanced GaN technology for compact performance. Ideal for powering high-demand gaming systems etc with reduced heat and improved energy conversion.





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Power Rated: 280W

Input Voltage: 90–264V

Peak Load: 200%-225%



Dimension: L180 x W82 x H25.4 mm

Weight: <700 g



Contact Us for more info





+510-445-0100



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Input

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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	3.2A Max at 100Vac with full load
Leakage current	< 250uA. at 240Vac / 50Hz
Inrush current	The I^2t shall less than 22% of the fuse, surge limiting device and bridge diode rating.
	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]
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.)
Ta = 25°C (Unlass Otherwise Specified)	

Ta = 25°C (Unless Otherwise Specified)

Output

Output voltage	20Vdc		
Output Voltage Regulation	± 5%		
Minimum load current	0A		
Maximum load current	14A		
Ripple and noise	< 200mV (pk-pk) at max load @25°C		
	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	280 Watt Max					
Efficiency	115Vac/230Vac >	115Vac/230Vac > 89% Average efficiency				
	230Vac > 79%; 10	230Vac > 79%; 10% Load				
	Test at 115Vac/60H	Iz & 230Vac/50Hz, and	the power supply	shall meet DOE VI ,	COC V5 Tier 2 spec mea	suring at the
	cable end.					
AC Turn on Delay Time	< 3 sec (Test at 1	< 3 sec (Test at 100-240Vac & Full Load)				
Dynamic Load	Output voltage	Input voltage	Slew rate	Test load		Spec
	20	100Vac/240Vac	2.5A/us	On /off =100H	Iz~10KHz, 50% duty	18.5 V~21V
				Dynamic Load	l.1 : 0.05A ~ 7 A	
				Dynamic Load	l.2 : 7A ~ 14 A	
	Note					
	1) Measurements s	1) Measurements shall be made with an oscilloscope with 20MHz Bandwidth.				
	2) Outputs should i	be bypassed at a conne	ctor with a 0.1uF c	eramic capacitor a	nd a 10uF electrolytic ca	pacitor (Low ESR)
Capacitive Load The system load capacitance is 1000uF. Input = 100Vac to 240Vac.						
	shall not trigger a	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 1	> 16ms (Test at 100Vac & Full Load).				
Peak Load		Current	Duration	Requiremen	t	
	Peak-1 F	Rated 200% / 90%	2 m / 18mS	V out > 18V		
	Peak-2 F	Rated 225% / 87%	1.5 mS /13.5r	mS V out > 17.8	V	
	Test at 100-240Vac/50Hz, Continuous work in room temp.S/R=1A/us; with loading distribution in below.					
Protection	Protection	ОСР	SCP	OVP	ОТР	
	Requirement	>16.8A	Yes	< 27V	Case < 105°C	
	Protection mode	Protection mode Latch off				
	Note.	Note.				
1) Test at 90-264Vac.						
	2) No Damaged wh	en PSU auto recover oc	curs.			
No Load Power Consumption Maximum no load power consum			on is less than 0.	15W at 115Vac/	60Hz and 230Vac/50H	lz
	(The UUT shall be o	perated for at least 30	minutes before co	nducting no-load n	neasurements)	
Hot Plugging	Plugging a live A	Plugging a live AC adapter into the system with 1000uF capacitance shall not trigger any protections or				
	cause the adapte	er to shut down.				

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Other Specifications

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Environmental Requirements	Operation Temperature	0°C to 35°C		
	Storage Temperature	-30°C to 80°C		
	Operating Relative Humidity	5% - 90% RH		
	Storage Relative Humidity	5% - 95% RH		
	Note for Humidity: The condition is non-condensing			
	Operation Altitude:5000 M			
Reliabilities	MTBF (MIL-HDBK-217F)	>100K hrs @ 115VAC, max. load @40°C		
E-Cap lifetime	Min: 3 years (26280hours) ,Mea	surement at 100Vac Full load /Amb 35°C		
Burn In	Burn-in shall be at 80% load, nominal input voltage. and burn-in for			
	4 hours with 35°C.			
Acoustic Noise	Max.:25dB (50cm)			
	1. Input Condition: Vin: 90Vac~264Vac; Frequency: 47Hz to 63 Hz			
	2. 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 62368-1 3rd, UL/cUL,CE NRCAN Mark			
EMC	EMI :FCC part 15, Class B. EN55032, Class B. CISPR32, Class B			
	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 \pm 1K Criterion A; Common Mode: ±2KV Criterion A			
	Conducted Disturba	nces: IEC 61000-4-6 (CS) Criterion A		
	Power Frequency Magnetic Field Immunity: IEC 61000-4-8 (PFMF) Criterion A			
	Voltage Dips and int	erruptions: 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		
	Condition.1 (Pri> Sec.)	4000 Vdc Minimum		
	Condition.2 (Pri> FG.)	2500 Vac Minimum		

	DWELL Time	1 minute Minimum
	Test condition: 100% test in pr	oduct line
Insulation Resistance	Pri. to Sec. > 30 M ohm 500Vdc. (Between primary Live, Neutral and secondary.)	

Mechanical

Dimensions	Length =180mm; Width = 82mm; 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,90° 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: 1. Height: 76cm; 2. Material: Concrete; 3. Orientation: Drop the unit one time for each		
	face (6 faces), 1 cycle		
	Acceptance criteria: 1. Hi-Pot pass; 2. Allow small crack needed pass by test finger		

AA280U-200B-R 280-watt GaN Series Desktop Adapter Adapter



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Weight:
Total weight : <626g ±10%
Unit: 532g +/-10% + cable: 94g +/- 5%
Outline: 180 x 82 x 25.4mm

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Outline Drawing











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