

## LF-GVC0200A4V6A

### LED Display Power Supply

#### Production Description

This product was designed for small-pitch LED display, rental LED display, creative shaped LED display and other indoor and outdoor LED displays. It has features of super wide range of input voltage, compact size, high efficiency, high reliability, high adaptability, cost effective and long lifetime, etc. Also, it has all-round protections for input under-voltage, output short circuit, output over-current, output over-voltage and over temperature. And multiple certifications including UL, TUV, CE, CCC and CB are available.

#### Features

- Compact size; thin; light
- Conversion efficiency > 91%
- Super wide range of input voltage: 90-305VAC
- PF>0.95
- Passed Class B of EMC
- All-round protection for input under-voltage, output over-voltage, over-current, short circuit and over temperature, etc.

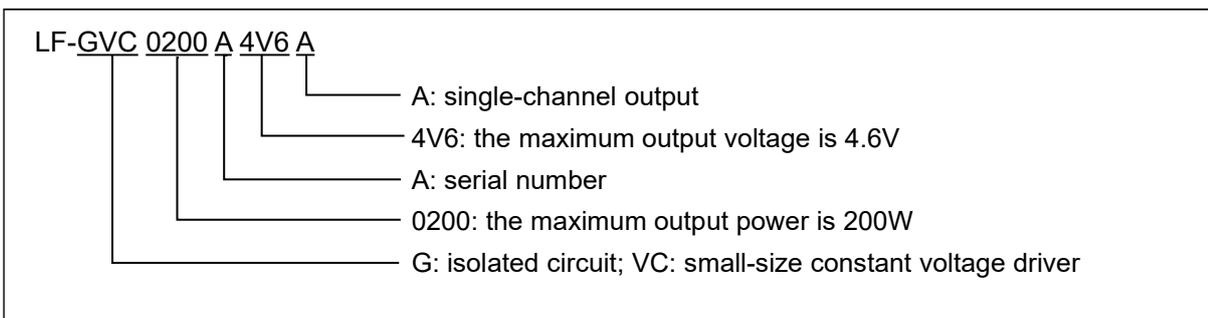
#### Applications

Indoor and outdoor LED displays such as

- Small-pitch LED display
- Transparent LED display
- Rental LED display
- Creative shaped LED display



#### Product Naming



**Electrical Characteristics**

Environment					
Parameter	Min.	Typical	Max.	Unit	Remark
Working Temperature	-40		70	°C	For the working temperature over 50°C, refer to the load derating curve in the latter part of this data sheet. And the heat dissipation methods are illustrated in the heat dissipation statement in the latter part of this data sheet.
Ambient Temperature for Storage	-40		85	°C	
Relative Working Humidity	20		95	%	No condensation
Relative Storage Humidity	5		95	%	No condensation
Altitude			5000	m	
Atmospheric Pressure	70		106	KPa	

Input Characteristics					
Parameter	Min.	Typical	Max.	Unit	Remark
AC Input Voltage Range	100	110/220	277	VAC	Input voltage limit: 90-305V
AC Input Voltage Frequency	47	50/60	63	Hz	
Input Current			3	A	
Power Factor	0.95				220Vac full load
Inrush Current			60&780us	A	220Vac full load, cold state

Output Characteristics					
Parameter	Min.	Typical	Max.	Unit	Remark
Output Voltage Range	4.2		4.6	VDC	Adjustable from 4.2V to 4.6V
Output Current Range	0		40	A	
Load Regulation			±2	%	Rated voltage inputs. All loads change.
Constant Voltage Tolerance			±3	%	Full input voltage range
Noise & Ripple (Peak-to-Peak Value)			200	mV	Test under the conditions of full load output and rated 220Vac input. Before the test, connect a 0.1uF metalized-film capacitor and a 10uF electrolytic capacitor in parallel at the output. The bandwidth of the oscilloscope is 20MHz. Conduct the noise and ripple test after the product have been working stably at -40℃ for half an hour. The result is less than 300mVp-p.
Output Power			184	W	
Output Efficiency	90	91		%	220Vac input, 70% load output
Temperature Coefficient			±0.05	%/℃	Rated output voltage and output current; full range of working temperature
Start-up Output Delay			3	s	220Vac, full load
Rise Time of Output Voltage			100	ms	Rated input, rated output

Protection					
Parameter	Min.	Typical	Max.	Unit	Remark
Output Current Limiting Protection	44		64	A	Hiccup mode; auto-recovery.
Output Short-Circuit Protection					Hiccup mode; Long-term short-circuit status will not damage this product. And after the short circuit status is eliminated, this power supply can automatically recover.
Output Over-voltage Protection	5.2		6.5	V	Test under the conditions of normal temperature and full load. The protection mode is hiccuping.
Over-Temperature Protection	90	95	105	°C	Auto-recovery. The referred temperature is the temperature of the upper casing.

EMC Characteristics		
Item	Index	Standard
Electrostatic Discharge Susceptibility (ESD)	Air discharging ±8KV	EN 55024 IEC 61000-4-2 (Criterion A)
	Touch discharging ±4KV	IEC 61000-4-2 (Criterion A)
Radiated Susceptibility (RS)	Test frequency: 80MHz-2GHz; Electric field intensity: 3V/m; Amplitude modulation: 80%AM (1kHz)	EN 55024 IEC 61000-4-3 (Criterion A)
Conducted Susceptibility (CS)	Test frequency: 0.15 MHz-80 MHz; Test intensity: 3V; Amplitude modulation: 80%AM(1kHz)	IEC 61000-4-6 (Criterion A)
Electrical Fast Transient/Burst (EFT/B)	± 2kV, repeated frequency: 5KHz & 100KHz	EN 55024 IEC 61000-4-4 (Criterion A)
Surge	AC power supply: L-N ±1kV (inner resistance: 2Ω) L/N-GND ±2kV (inner resistance: 12Ω)	EN 55024 IEC 61000-4-5 (Criterion B)

Voltage Dip and Short Interruption (DIP)	Dip to 0%Ut; last for 10ms	EN 55024 IEC 61000-4-11 Ut=220Vac, typical load condition, Criterion B
	Dip to 40%Ut; last for 200ms	Ut=220Vac, typical load condition: Criterion C
	Dip to 70%Ut; last for 500ms	IEC 61000-4-11 Ut=220Vac, typical load condition, Criterion C
	Dip to 0%Ut; last for 5000ms	IEC 61000-4-11 Ut=220Vac, typical load condition, Criterion C
Conducted Emission (CE)	CLASS B (note 2)	FCC Part15 EN55032 GB9254
Radiated Emission (RE)	CLASS B (note 2)	
Harmonic (HE)	CLASS A	EN 61000-3-2

Note 1: The FCC test is under the conditions of rated input voltage 120Vac and 277Vac. Other EMC tests, unless otherwise specified, are conducted under the conditions of rated input voltage 220V, rated output voltage and typical output current .

Note 2: For the conduction and radiation tests, it's necessary to install the power supply to the heat sink and connect with cement load. Refer to the heat dissipation statement in the latter part of this data sheet for placing the heat sink.

Note 3: Criteria interpretation

The test results shall be classified according to the function loss or performance degradation of the EUT in the test. The relevant performance level shall be determined by the product manufacturer or the commissioning party of the test, or by both parties of the product manufacturer and the purchase after their negotiation. The recommended classifications are as follows:

- A. The performance is normal within the limits specified by the manufacturer, the commissioning party or the purchaser;
- B. The function temporarily loses or performance temporarily degrades, but it can automatically recover after the cessation of disturbance, without operator's intervention;
- C. The function temporarily loses or performance temporarily degrades, and it needs the operator's intervention to recover;
- D. Irrecoverable function loss or performance degradation due to damage to the hardware or software of the device, or loss of data.

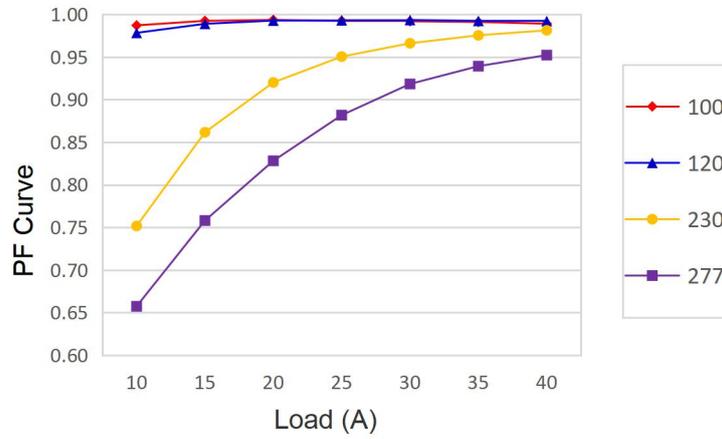
Safety Standard & Insulation Parameter		
Parameter	Standards	Remark
Input - Output	3000Vac / 10mA // 1min	No arc striking; no breakdown
Input - Ground	1500Vac / 10mA // 1min	
Output - Ground	500Vdc / 10mA // 1min	
Insulation Resistance	≥10MΩ	It's the insulation resistance of input-output, input-ground and output-ground under conditions of normal atmosphere, relative humidity less than 90% and test voltage of 500Vdc.
Touch Current	<1mA	220VAC input; L - GND & N - GND
Safety Standard	IEC 62368, UL/CUL62368, EN 62368-1:2014/A11:2017, GB17625.1-2012, GB4943.1-2011	

**Others**

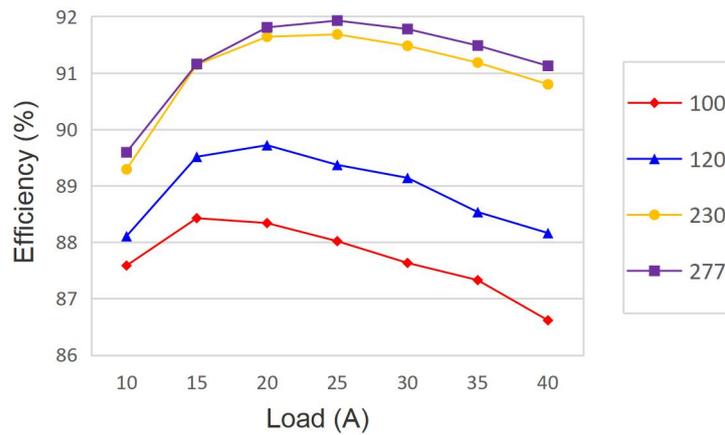
<b>Warranty Condition</b>	3 years
<b>Noise Rating</b>	≤45dBA (Tested in a soundproof room. The noise collector is 50cm away from the power supply.)
<b>Testing Condition</b>	Unless otherwise stated, the parameters of the power factor, harmonic and efficiency are the test results under the ambient temperature of 25°C and humidity of 50%, input voltage of 220V and 100% load.
<b>Remark</b>	<ol style="list-style-type: none"> <li>1. It is recommended that customer should install and overvoltage and undervoltage protection devices and surge protection devices in the power supply circuits of the LED displays to ensure safety before connecting to electricity.</li> <li>2. As an accessory of an LED display, the power supply is not the only factor determining the EMC performance of the LED display. The structure and the wiring of the display are also relevant. Thus it's strongly recommended the LED display manufacturer should re-confirm the EMC of the whole equipment.</li> </ol>

**Product Characteristic Curves**

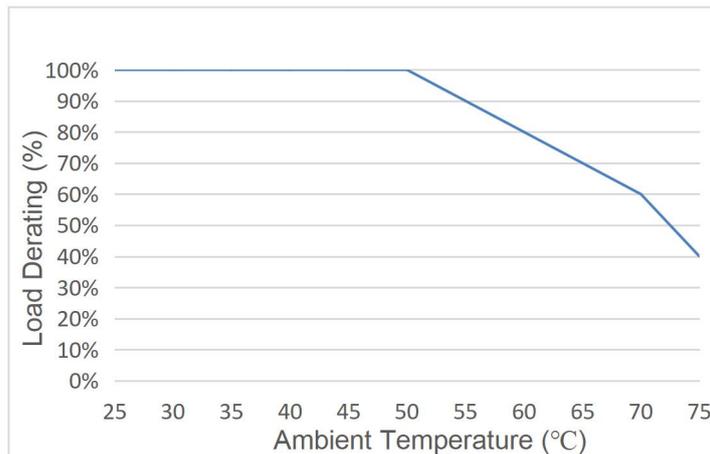
■ **PF Curve**



■ **Efficiency Curve**



■ **Load Derating Curve**



**Terminals**

**INPUT**

⊕	Protective grounding
N	AC neutral wire input
L	AC live wire input

**OUTPUT**

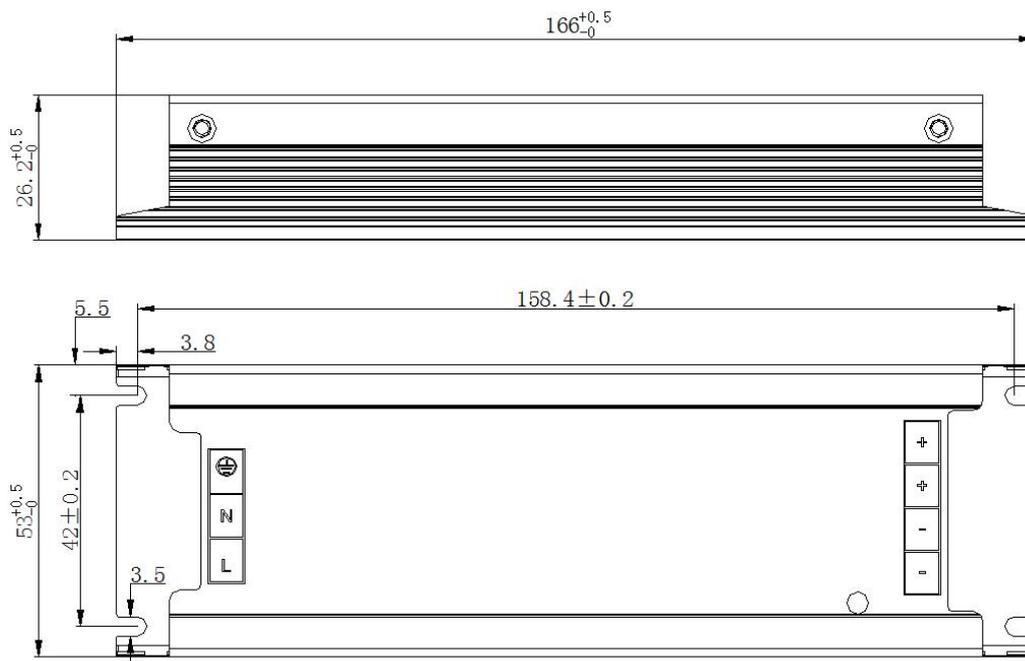
+	The driver's positive electrode output
+	The driver's positive electrode output
-	The driver's negative electrode output
-	The driver's negative electrode output
VADJ	Adjustable terminal of the output voltage

**Label**



Remark: Before shipment, the actual order number, production date, serial number and output voltage will be added on the label.

**Structure & Dimensions (Unit: mm)**



## Packaging Specifications

Model	LF-GVC0200A4V6A
Packaging Dimensions	430*300*210 mm (L*W*H)
Quantities	7 pcs/layer; 4 layers/ctn; 28 pcs/ctn
Weights	325 g/pc; 10 kg/ctn

## Transportation & Storage

### ■ Transportation

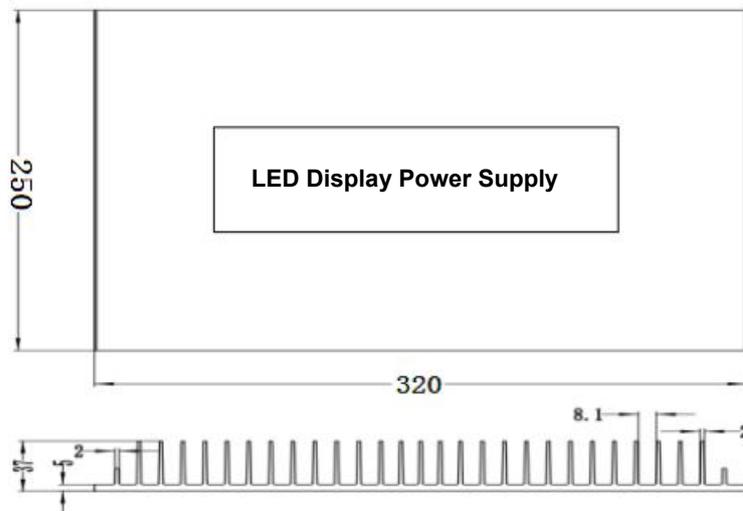
- Suitable transportation means: vehicles, boats and aircraft.
- During transportation, there should be awnings for sun protection. Civilized loading and unloading are required. There should be no severe vibration or impact.

### ■ Storage

- Storage in accordance with the provisions of Class I environment. For products which have been stored for more than six months, they mustn't be used until they pass the re-inspection.

## Heat Dissipation Statement

During normal application process, the LF-GVC0200A4V6A must be installed on an aluminum heat sink or on an LED display's casing. The contact surface between the heat sink and the power supply needs to be coated with heat-dissipating silicone grease. The temperature, electrical performance and EMC tests in this data sheet are conducted on the heat sink with a size of 300\*250\*37mm (as shown below), and the screw for fixing the power supply is M3\*8.



**Attention**

- Please use this product according to its specifications otherwise there may be malfunction.
- Use un-certified wires or connectors may cause fire or other hazards.
- It's suggested that the user should use a slotted screwdriver or a Philips screwdriver to adjust the output voltage in case the potentiometer is damaged. The screwdriver with a 2mm slot head is recommended. The torque is not higher than 0.1NM.
- Man-made damage is not covered by warranty.

Remark: The final interpretation right of the contents of this data sheet belongs to Lifud Technology Co., Ltd.