Product Name	GAOTek Ultra Small Power Module
Product SKU	GAOTek-IDK-307
Product URL	https://gaotek.com/product/gaotek-ultra-small-power-module/

Contents

GAOTek Ultra Small Power Module

1. Output features (3.3V/1000mA)

Items	Technical Parameters	Units	Notes
No-load rated output voltage	3.3±0.1	Vdc	
Full-load rated output voltage	3.3±0.2	Vdc	
Short time maximum output current	≥1100	mA	
Rated output current	1000	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac, Output full load ≥72	%	
Input high voltage efficiency	Vin=230Vac, Output full load ≥72	%	
Output ripple and noise (mVp-p)	≤100 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance test.	mV	
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load) ≤ 5	%VO	
Output over-current protection	Output maximum load 110-150%	A	

Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

1.1. Output features (5V/600mA)

Items	Technical Parameters	Units	Notes
No-load rated output voltage	5.0±0.1	Vdc	
Full-load rated output voltage	5.0±0.2	Vdc	
Short time maximum output current	≥700	mA	
Rated output current	600	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac, Output full load ≥73	%	
Input high voltage efficiency	Vin=230Vac, Output full load ≥73	%	
Output ripple and noise (mVp-p)	≤100 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance test.	mV	
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load) ≤ 5	%VO	
Output over-current protection	Output maximum load 110-150%	A	

Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

1.2. Output features (9V/330mA)

Items	Technical Parameters	Units	Notes
No-load rated output voltage	9.0±0.1	Vdc	
Full-load rated output voltage	9.0±0.2	Vdc	
Short time maximum output current	≥430	mA	
Rated output current	330	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac, Output full load ≥73	%	
Input high voltage efficiency	Vin=230Vac, Output full load ≥73	%	
Output ripple and noise (mVp-p)	≤120 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance test.	mV	
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load)≤ 5	%VO	

Output over-current protection	Output maximum load 110-150%	A	
Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

1.3. Output features (12V/250mA)

Items	Technical Parameters	Units	Notes
No-load rated output voltage	12.0±0.1	Vdc	
Full-load rated output voltage	12.0±0.2	Vdc	
Short time maximum output current	≥350	mA	
Rated output current	250	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac, Output full load ≥73	%	
Input high voltage efficiency	Vin=230Vac, Output full load ≥73	%	
Output ripple and noise (mVp-p)	≤120 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance test.	mV	
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load) ≤ 5	%VO	

Output over-current protection	Output maximum load 110-150%	A	
Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

1.4. Output features (15V/200mA)

Items	Technical Parameters	Units	Notes
No-load rated output voltage	15±0.1	Vdc	
Full-load rated output voltage	15±0.2	Vdc	
Short time maximum output current	≥300	mA	
Rated output current	200	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac, Output full load ≥73	%	
Input high voltage efficiency	Vin=230Vac, Output full load ≥73	%	
Output ripple and noise (mVp-p)	≤150 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance	mV	

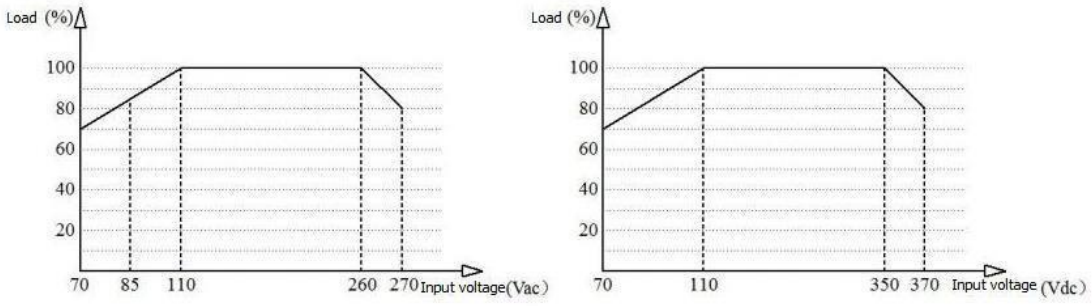
	test.		
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load) ≤ 5	%VO	
Output over-current protection	Output maximum load 110-130%	A	
Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

1.5. Output features (24V/125mA)

Items	Technical Parameters	Units	Notes
No-load rated output voltage	24.0±0.1	Vdc	
Full-load rated output voltage	24.0±0.3	Vdc	
Short time maximum output current	≥220	mA	
Rated output current	125	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac, Output full load ≥73	%	

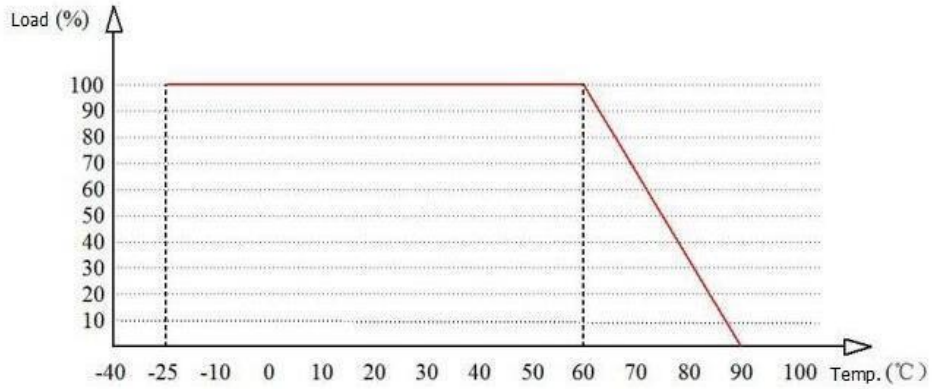
Input high voltage efficiency	Vin=230Vac, Output full load ≥73	%	
Output ripple and noise (mVp-p)	≤150 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance test.	mV	
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load) ≤ 5	%VO	
Output over-current protection	Output maximum load 110-130%	A	
Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

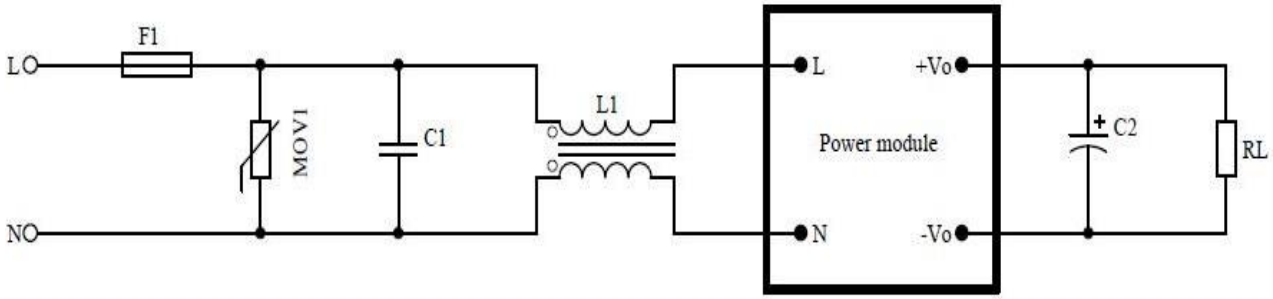
2. Input voltage and load characteristics



Input voltage and load characteristic curve

3. Working environment temperature and load characteristics

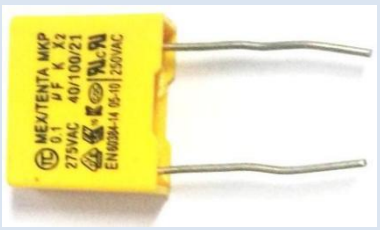




4. Typical application circuit

4.1 Input parts

Component number / recommended device	Functions	Recommended value
F1/ Fuse	Protect the circuit from damage when the module is working wrong	1A/250Vac, Slow fuse
MOV1/Varistor	The cumulative surge is to protect the module from damage	10D561K
C1/ X Safety capacitance	Filtering, safety protection (EMC certification)	0.1uF/275Vac
L1/Common-mode inductance	EMI filtering	Sensible value: 10-30mH Test requirements: 1KHZ / 0.3V current: 100-500mA

 Safety capacitance	 Common-mode inductance

Notes：

- Fuse and varistor are basic protective circuits (must be connected).
- If you need to pass the authentication/certification, the Safety capacitance and common-mode inductance could not be omitted.

4.2 Output parts

Component number / recommended device	Functions	Recommended value
C2/filter capacitor	output ripple can be controlled in 30mV after adding this capacitor	Aluminum electrolytic capacitance, capacity 100-220 UF, voltage reduction greater than 75%
RL/Load	Load	

5. Safety characteristic

5.1 Certification

Product design meets UL and CE safety certification requirements. (The UL and CE certifications are made by the customer and need to be designed according to the reference circuit.)

5.2 Safety and electromagnetic compatibility

- The input design adopts UL listed 1A fuse
- The PCB board is made of double-sided copper clad foil, and the material fire resistance

grade is 94-V0 grade

- Safety standard meets UL1012, EN60950, UL60950

- Insulation voltage I/P-O/P:2500Vac
- Insulation resistance I/P-O/P>100M Ohms/500Vdc 25°C 70% RH
- Conduction and radiation meet EN55011, EN55022 (CISPR22)
- Electrostatic discharge IEC/EN 61000-4-2 level 4 8kV/15kV
- Radio frequency radiation immunity IEC/EN 61000-4-3

6. Marking, packaging, transportation, storage

6.1 Marking

6.1.1 Product marking

The product's unique bar code mark is attached to the appropriate location of the product to ensure trace ability of the date of manufacture, product batch, etc. of each product. Its content meets the requirements of national standards and industry standards.

6.1.2 Packing marking

Product box marked with the name of the manufacturer, site, zip code, product model, factory year, month, day; Marked with "up", "moisture-proof" and "carefree" and other transport signs, all signs are in line with the provisions of GB 191.

6.2 Packaging

Products using special plastic boxes separated packaging, with anti-vibration function, and in line with the provisions of GB 3873.

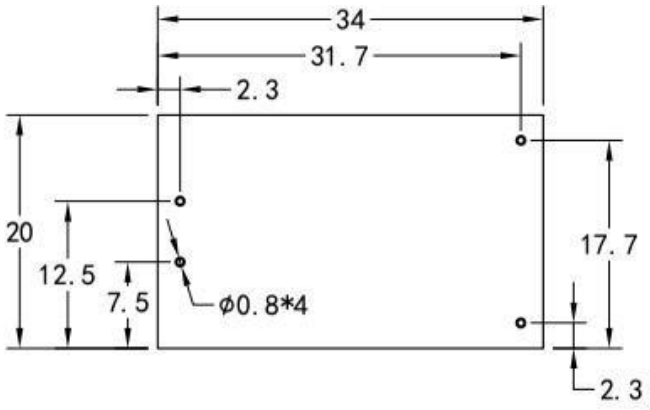
6.3 Transportation

Packaged products can be transported by any means of transportation, should be awning in transit, there should be no violent vibration, impact, etc.

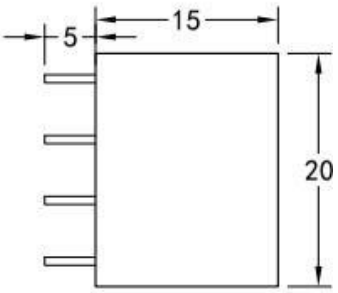
6.4 Storage

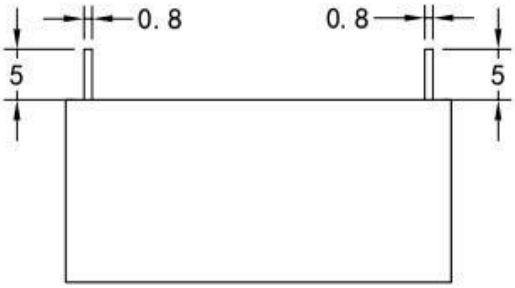
Product storage must meet the requirements of GB3873.

7. Dimensions and weight



Pin Function	
1	AC
2	AC
3	-V0
4	+V0
Weight：20±2g	





Dimensional error:

1. Length, width, height and pin pitch error ± 8%

2. Pin length error ± 1mm

3. Pin diameter error +-0.2mm

Unit: mm