

FPS08-15K Data Sheet

Abstract

The FPS08-15K is a high-insulation DC/DC power supply for 3.3kV, 4.5kV and 6.5kV IGBT gate driver units. The output voltage is +15V and -10V, and the maximum power is 8W. The FPS08-15K can provide power supply for the HV plug and play gate driver HV1027P, or other gate drivers with the same voltage.



Fig1. FPS08-15K

Highlights

- ✓ Electrical insulation up to 15KV_{RMS}
- ✓ Creepage distance 60mm
- ✓ 8W maximum output power ($T_A \leq 65^\circ\text{C}$)
- ✓ 14~25V wide range of input voltage
- ✓ Overload protection
- ✓ The coupling capacitor between the primary and secondary sides: 5pF

Application

- ✓ Rail Transit
- ✓ Power transmission
- ✓ Motor drives

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Mechanical dimensions

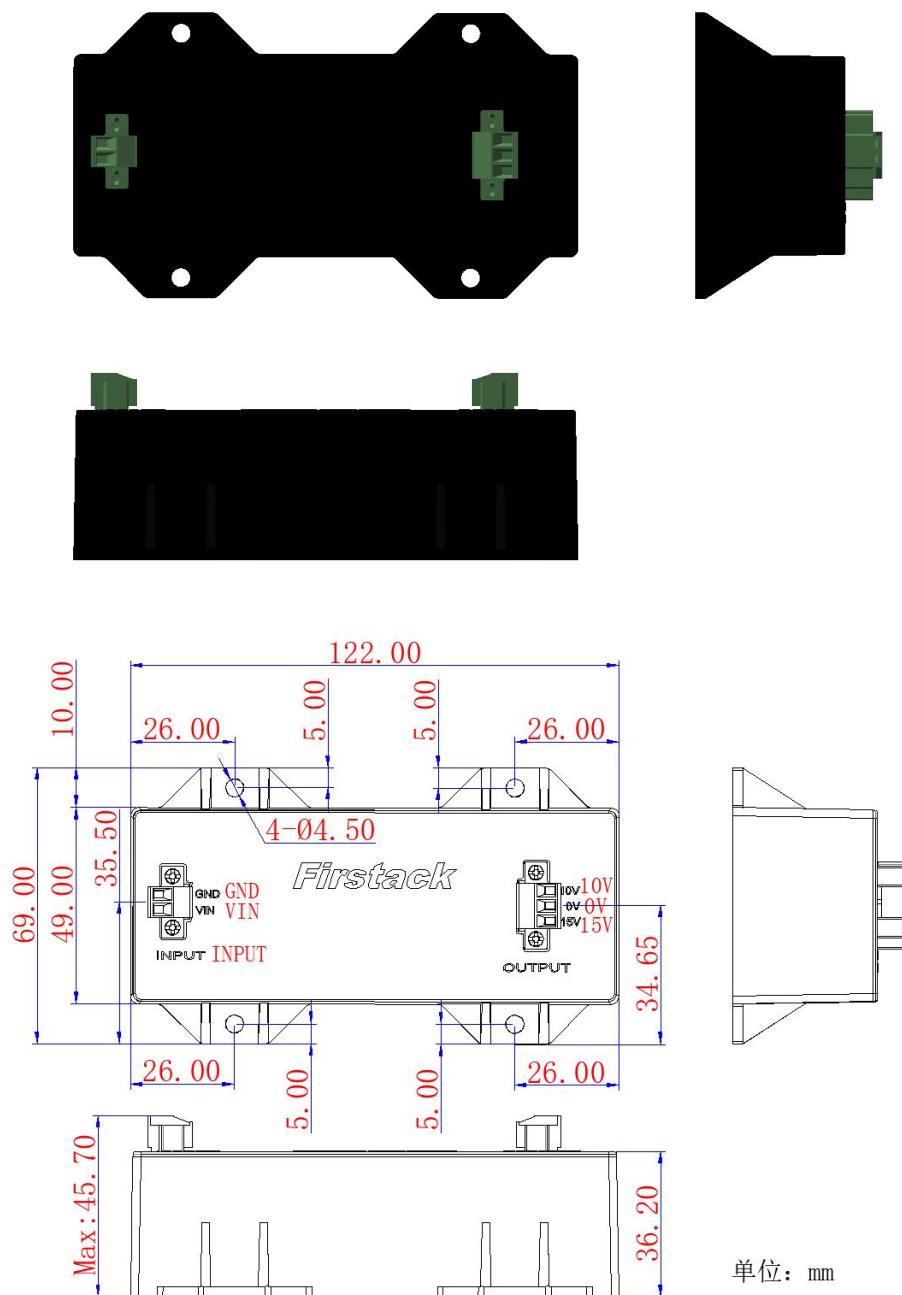


Fig.2 Mechanical dimensions(Unit: mm)

Note: 1. The thickness tolerance of the board is $\pm 10\%$;

2. Other dimensional tolerances refer to GB/T1804-m.

Pin functional description

J1 is the DC input terminal

J1-1=GND J1-2=VIN

J2 is the DC output terminal

J2-1=-10V J2-2=GND J2-3=+15V



Fig.3 I/O terminal diagram

Connector Manufacturer and Part Number

Number	Ref	Manufacturer	Part Number	Recommended Matching Terminal
1	J1	DEGSON	15EDGVM-3.81-02P-14-00Z(H)	15EDGKM-3.81-02P-14-00A(H)
2	J2	DEGSON	15EDGVM-3.81-03P-14-00Z(H)	15EDGKM-3.81-03P-14-00A(H)

Notes:

1. Installation Precautions

- 1) Side A of the power supply must be kept away from high-current interference (e.g., output load lines), with a minimum distance of 3cm maintained.
- 2) Sides B, C, D, and E of the power supply must be kept away from high-current interference (e.g., output load lines), with a minimum distance of 1cm maintained.

2. Precautions for Input and Output Harnesses

- 1) The input and output harnesses of the power supply must be kept away from high-current interference (e.g., output load lines), with a minimum distance of 3cm maintained.
- 2) It is not recommended to use shielded input and output harnesses for the power supply, as incorrect

grounding may instead introduce interference and safety regulation issues. For example, if the shielding layer of an output harness is connected to a cabinet or motor housing, safety regulation insulation issues will arise.

3) The input harnesses of the power supply require twisted-pair processing, and the output harnesses require twisted-pair or triple-twist processing (depending on the specific application of the output terminal), which can effectively enhance the anti-interference capability of the harnesses.

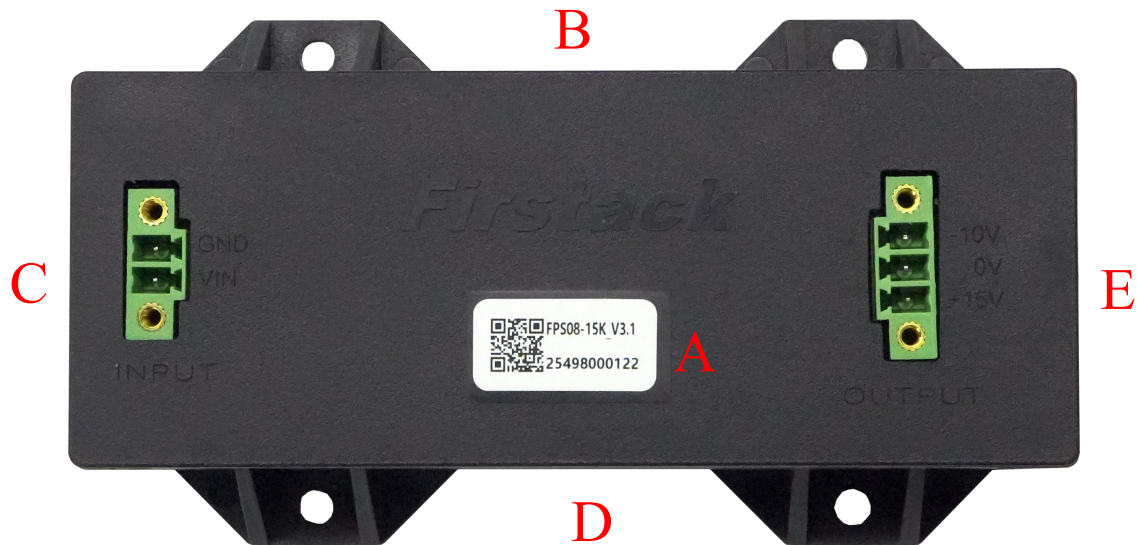


Fig.4 Markings on each surface of the power supply

Driving parameters

Absolute Maximum Ratings

Parameter	Ref	Min.	Typ.	Max.	Unit	Note
Input voltage		0		27	V	Input VCC to input GND
Input current				850	mA	13V input
Power supply output power				8	W	$T_A \leq 65^\circ\text{C}$
Operating temperature	T_{op}	-40		+85	$^\circ\text{C}$	See temperature derating curve
Storage temperature	T_{stg}	-40		+85	$^\circ\text{C}$	

Electrical Characteristics

Output Characteristics	Min.	Typ.	Max.	Unit	Note
Output voltage +15V	14.6	15.5	16	V	Without load, Note 1
		15.3		V	Load=0.35A, Note 1
Output voltage -10V	-10.4	-9.8	-9.2	V	Without load, Note 1
		-9.6		V	Load=0.25A, Note 1
Output overcurrent value (Note 2)		0.5		A	15V input (DC+, 25 $^\circ\text{C}$)
		0.55		A	15V input (DC-, 25 $^\circ\text{C}$)
		0.65		A	24V input (DC+, 25 $^\circ\text{C}$)
		0.7		A	24V input (DC-, 25 $^\circ\text{C}$)
Input Characteristics	Min.	Typ.	Max.	Unit	Note
Input voltage	14	15/24	25	V	Input VCC to input GND
Supply current		0.07		A	Without load (15V input)
		0.32		A	3W Load (15V input)
		0.23		A	3W Load (24V input)
Turn-on threshold		13		V	Note 3
Electrical Isolation	Min.	Typ.	Max.	Unit	Note
Dielectric test voltage			15	kV _{RMS}	Primary to secondary side, AC/1min

Operating voltage	6.5	kV _{peak}	Primary to secondary side
Creepage distance	60	mm	Primary to secondary side, Note 4
Clearance distance	50	mm	Primary VS secondary side, Note 5
Coupling capacitance	5	pF	Primary to secondary side

Notes:

1. The output voltage has a deviation under no-load and loaded conditions.
2. During the test, maintain the load current of the other channel at 0.2A.
3. When the input voltage is over 13V, the power supply starts to work.
4. The minimum distance between input and output pins along the surface.
5. The minimum straight-line distance between input and output pins.

Characteristic curve

1. Output U-I curve

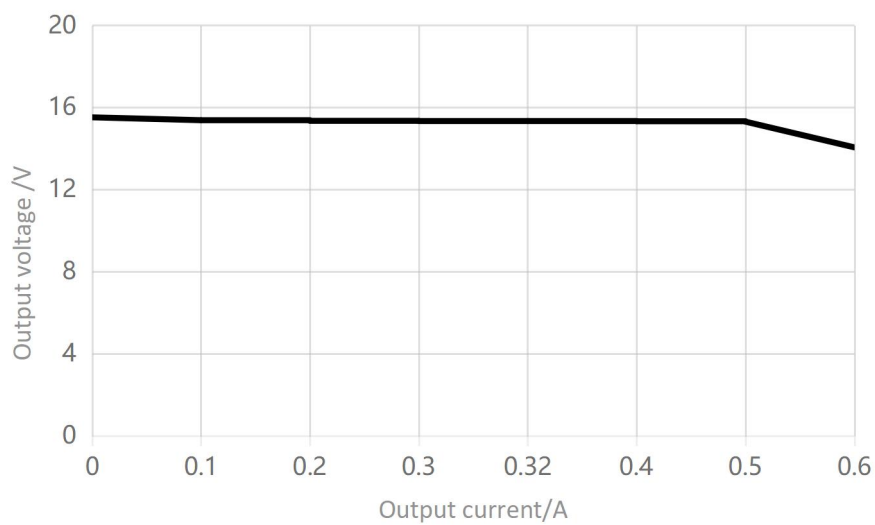


Fig.5 Positive output U-I curve

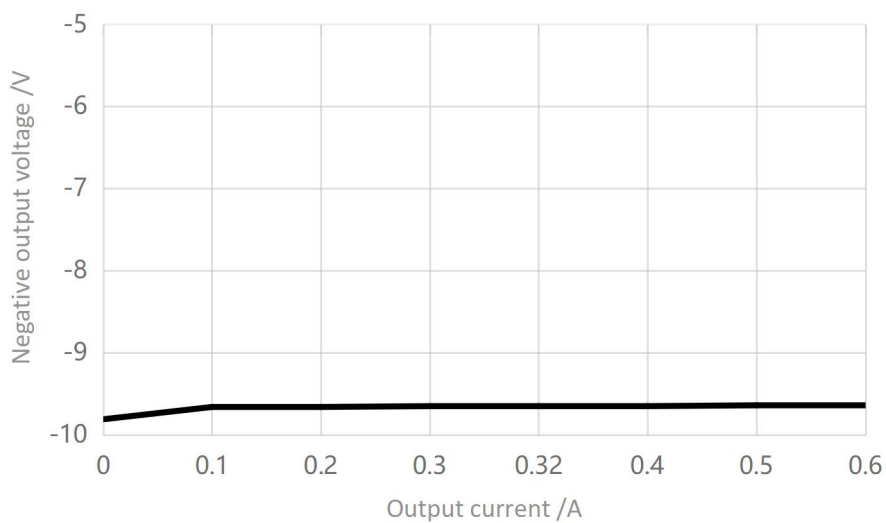


Fig.6 Negative output U-I curve

2. Derating curve

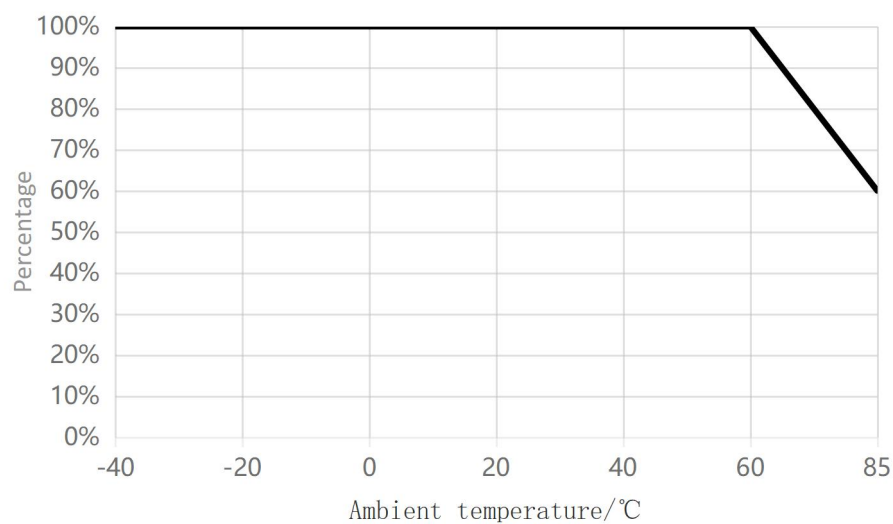


Fig.7 Derating curve

Change Record

Date	Updated Content
2025-9-19	Update the connector brand and model, along with relevant torque and insertion/ Removal force specifications
2026-06-22	Modify the physical diagram; Part number: FPS08-15K_V3.1

Technical support

Firstack's professional team will provide you with business consultation, technical support, product selection, price, lead time and other related information, and guarantee to answer your questions within 48 hours.

Legal disclaimer

This manual gives a detailed introduction to the product, but cannot promise to provide specific parameters for the delivery, performance or applicability of the product. This article does not provide any express or implied warranties or guarantees.

Firstack reserves the right to modify technical data and product specifications at any time without prior notice. Firstack's general terms and conditions of delivery apply.

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