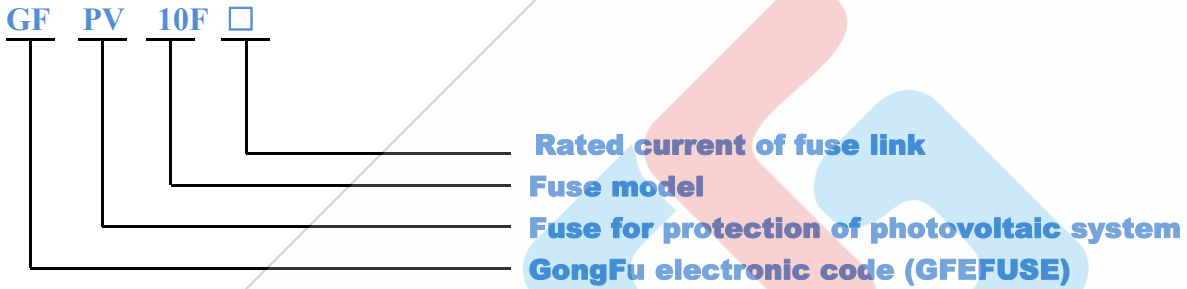
Dongguan GongFu Electronics Co.Ltd. GFEFUSE® Focus: fuse holder and fuse
TEL:0769-82391938 81100206 FAX:0769-82391939 http://www.gfefuse.com

# Specification for GFPV10F solar energy, combiner box, photovoltaic protection fuse

- **Product Name: combiner box, solar photovoltaic system protection fuse**
- **base material: PA66**
- **model of fuse link: GFPV10F**
- **fuse model explanation**




**Executive standard: IEC 60269-6:2010; GB / T13539.6:2013**

**Main uses:**

**It is applicable to the circuit with rated voltage to DC1000V, rated current of 1a-30a and rated breaking capacity to 10kA. It is mainly used in the combiner box of solar photovoltaic system as the short-circuit and overload protection of photovoltaic generator and other semiconductor equipment.**

- **technical parameters**
- **electrical characteristics**

**Rated working voltage UN: DC1000V**

**Rated current of fuse link in: 2A, 3A, 4A, 5A, 6A, 8A, 10A, 12A, 15A, 20A, 25A,30A**

**Rated breaking capacity I1: 20kA**

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| Specification | | | | | | | |
|---|---|---|---|---|---|---|---|
| Part No. | Rated Voltage | Rated Current | Breaking Capacity (A) | Energy Integrals I2t (A2S) | | Power Loss | |
| | | | | Pre - Arcing | Total at 1000V | 0.8In | 1.0In |
| | DC | | DC | | | | |
| GFPV10F2A | | 2A | | 1.2 | 3.3 | 0.68 | 1.36 |
| GFPV10F3A | | 3A | | 3.9 | 11 | 0.75 | 1.42 |
| GFPV10F4A | | 4A | | 10 | 27 | 0.94 | 1.58 |
| GFPV10F5A | | 5A | | 18 | 48 | 0.98 | 1.83 |
| GFPV10F6A | | 6A | 20kA, Time Constant <1ms | 31 | 89 | 1.1 | 1.84 |
| GFPV10F8A | | 8A | | 3.1 | 31 | 1.13 | 1.86 |
| GFPV10F10A | | 10A | | 7.2 | 68 | 1.21 | 2.08 |
| GFPV10F12A | | 12A | | 16 | 136 | 1.38 | 2.62 |
| GFPV10F15A | | 15A | | 24 | 215 | 1.67 | 2.95 |
| GFPV10F20A | | 20A | | 38 | 392 | 1.92 | 3.12 |
| GFPV10F25A | | 25A | 20kA, Time Constant <1ms | 71 | 508 | 2.1 | 3.46 |
| GFPV10F30A | | 30A | | 102 | 812 | 2.3 | 3.78 |

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## ■ breaking range and use category

"gPV" refers to the fuse link with full range DC breaking capacity for photovoltaic power system

## ■ normal working and installation conditions.

Altitude: ≤ 2000m

Atmospheric condition

Temperature: the relative humidity of the air at the installation site shall not exceed 50% when the maximum temperature is + 60 ℃; higher relative humidity is allowed under the lowest temperature, and the monthly average minimum temperature of the wettest month shall not exceed - 25 ℃, and the monthly average maximum relative humidity of the month shall not exceed 90%. Measures must be taken in case of condensation on the product due to temperature change.

Pollution level: Level 3.

Installation category: Class III

The fuse is in the place without obvious shaking and impact vibration.

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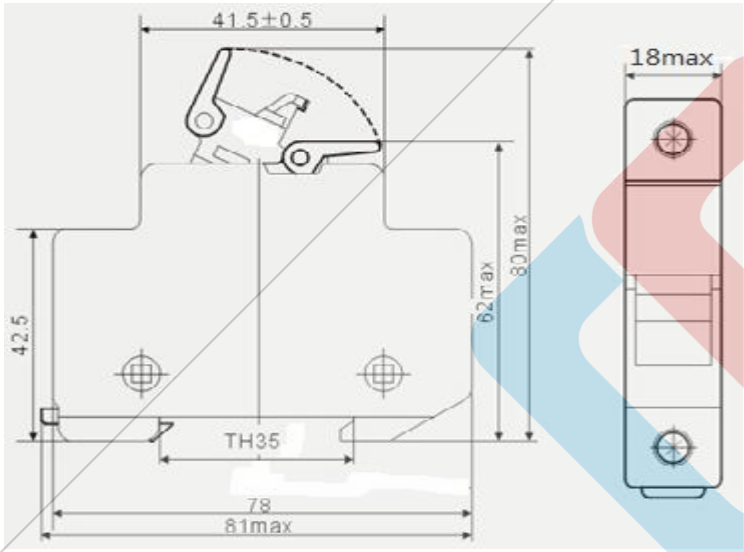
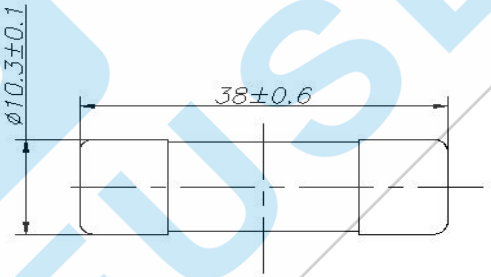
Ambient temperature: - 25 ℃ ~ + 60 ℃

■ boundary dimension (A: **GFPV10F** fuse holder) (B: **GFPV10F** fuse size)




## Current correction value under different ambient temperature

At the ambient temperature of 20 ℃, we recommend that the actual working current of the fuse link should not exceed the rated current value. When selecting the fuse link, the environment and working conditions shall be taken into consideration, such as the change of sealing degree, air flow, connecting cable size (length, section), instantaneous peak value, etc.; the current carrying capacity test of the fuse link is carried out under the ambient temperature of 20 ℃, and the actual use is affected by the change of the ambient temperature. The higher the ambient temperature, the higher the working temperature of the fuse link, and the shorter its service life. On the contrary, operation at lower temperature will prolong the life of fuse link.

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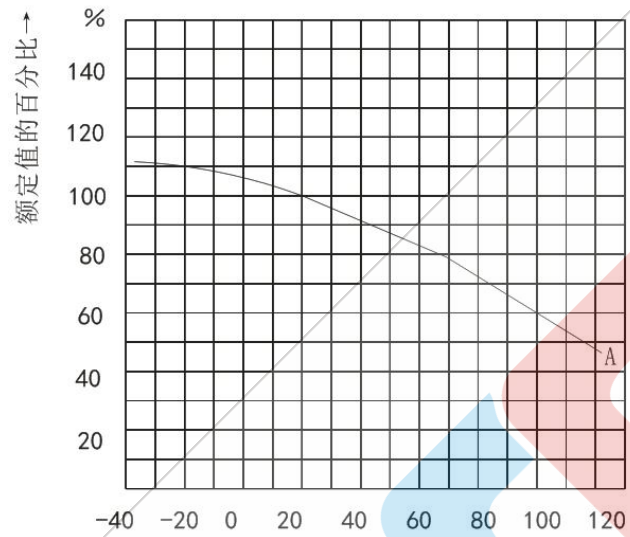


Typical effect of ambient temperature on current carrying capacity

For example, when the ambient temperature of a certain application is 20 ℃, the rated current of the "gPV" fuse link is selected as in = 16A. Now, when the above fuse link is used in the high temperature environment of 70 ℃, the working current must be reduced additionally. The curve a above shows that the percentage of the rated value of the operation at 70 ℃ is 0.78. To ensure that the fuse link does not misoperate, the rated current value of the fuse link should be re selected. : in = 16A / 0.78 = 20.512a; select in = 20A according to the standard current level of fuse link.

Note: the curve line is the "gPV" fuse link curve for protection.

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## ■■ current correction factors used at different altitudes

| Altitude | ≤2000m | 2000m~3000m | ≥3000m | Explain |
|---|---|---|---|---|
| Current correction factor | 1 | 0.9 | 0.8 | The rated current of the product with rated current of 10A is 0.9 × 10 = 9A after its capacity reduction and use at an altitude of 2500m. |

## ■ material introduction

Basic information:

★ mainly used in combiner box of solar photovoltaic system;
★ the fuse link has high breaking capacity - safe and reliable;
★ th35 guide rail installation method - simple and fast;
★ applicable conductor specification: 0.8mm2 ~ 6.0mm2, copper conductor with temperature resistance of 60 ℃ / 75 ℃.
★ installation torque: 2.3n. M (20in. Lbs)

▲ transportation and storage:

1. It shall not be affected by rain during transportation and storage;
2. The product shall be stored without rain and snow invasion, air circulation, monthly average relative humidity of no more than 90%, ambient air temperature of no more than + 40 ℃ at (20 ± 5) ℃, average value measured within 24 hours of no more than 35 ℃, average value measured within one year is lower than this value; minimum value of ambient air temperature is - 5 ℃. Ensure that there is no acid, alkaline or other corrosive gas in the surrounding air.
3. Wiring capacity: 6mm2 and below

## Fuse characteristic curve

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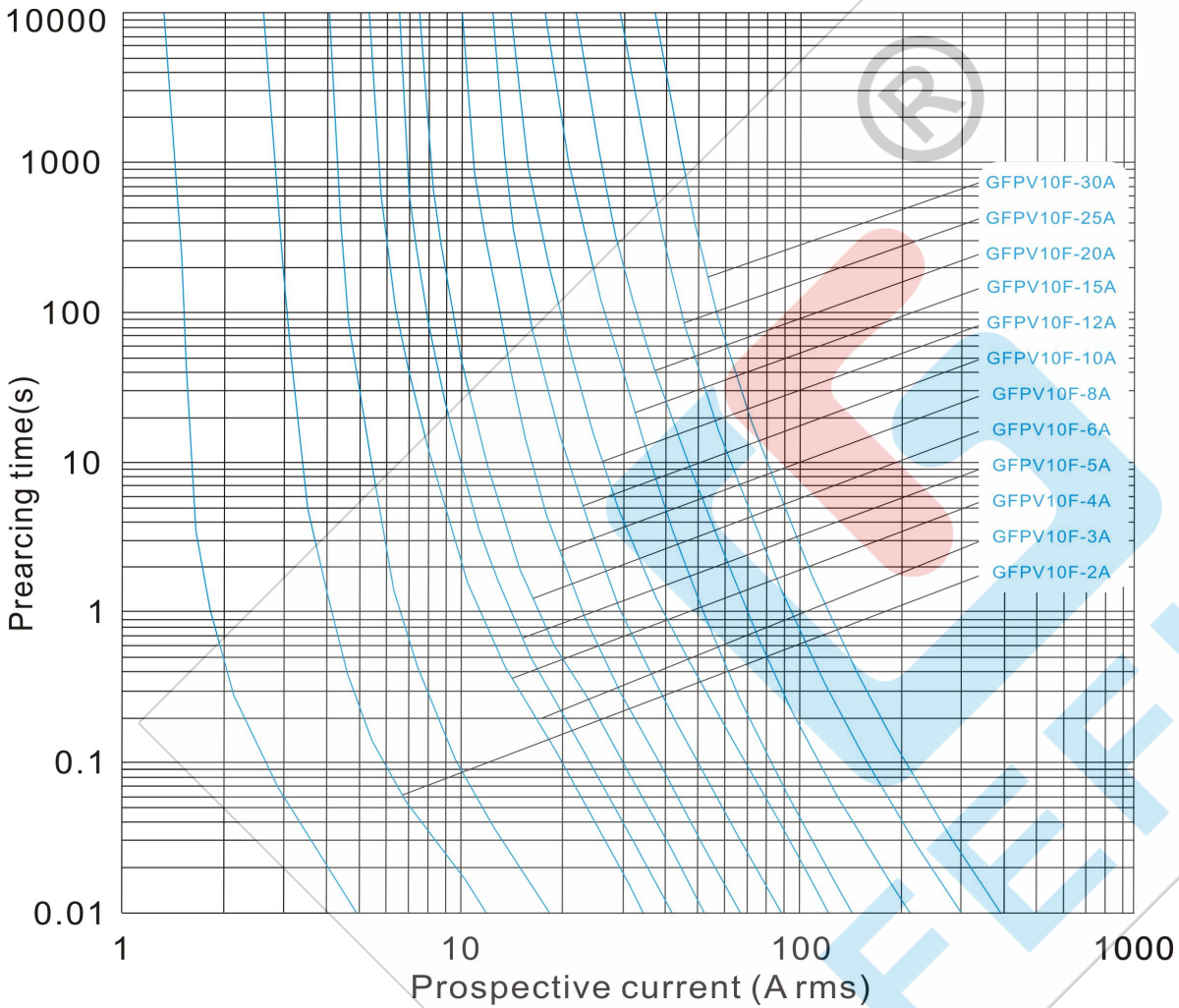


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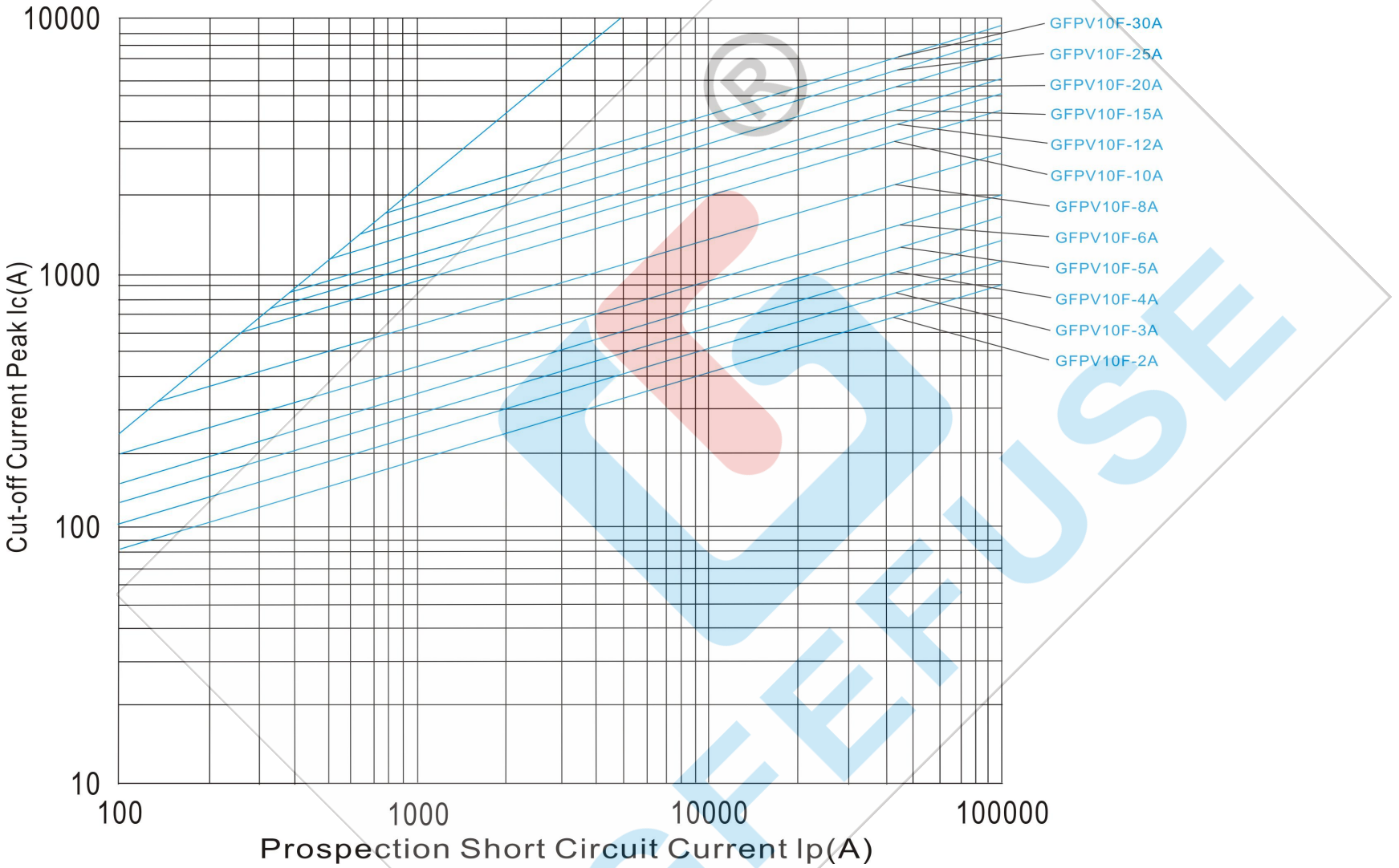


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