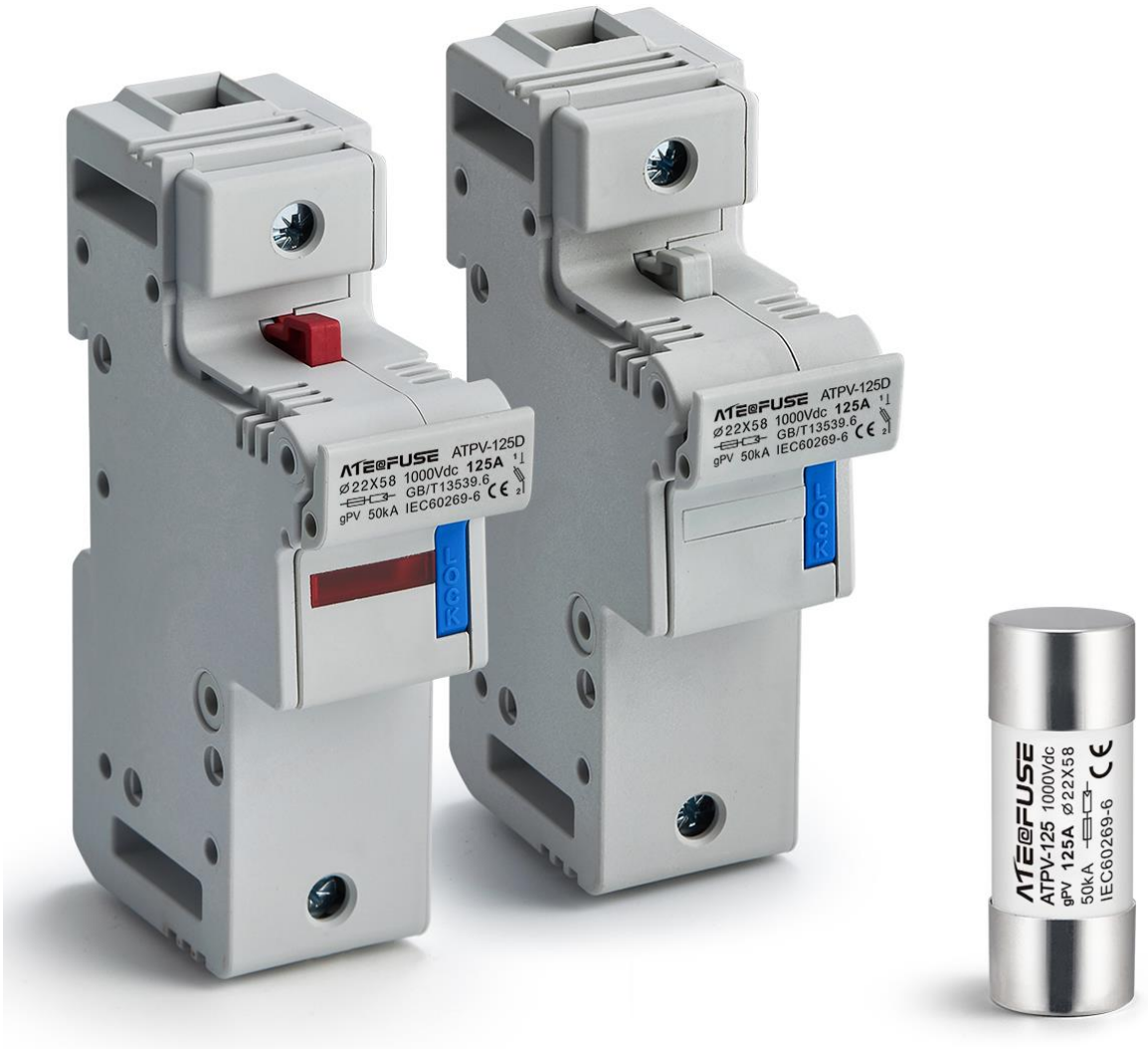
DC Fuse For Overcurrent Protection

Of solar photovoltaic system



1, Application

The ATPV type fuses are suitable for lines with rated DC voltage up to 1000V and rated current up to 125A.

It's provide short-circuit protection for

* connected in series and parallel with photovoltaic panels and batteries

* the charging and converter system

* photovoltaic power plants, inverter and rectifier systems

* photovoltaic power generation system surge current

rated breaking capacity up to 50kA.

It's comply with China national standard GB/T13539.6, IEC60269-6，the International Electrotechnical Commission standard IEC60269-6, and UL248-19

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2.Normal working conditions

2.1 The effect of current

The upper limit of ambient air temperature should not exceed 90℃; the lower limit of ambient air temperature should not be lower than -50℃; the altitude of the installation site should not exceed 2000m (if you want to exceed this 2000m, you need to indicate the requirements, and the company can design and develop according to customer requirements).

PV fuse link derating table for installation

Installation altitude（m）	Percentage of current derating （A）	Percentage of Insulation performance derating（V）
2000	100%	100%
3000	95%	90%
4000	90%	80%
5000	85%	70%

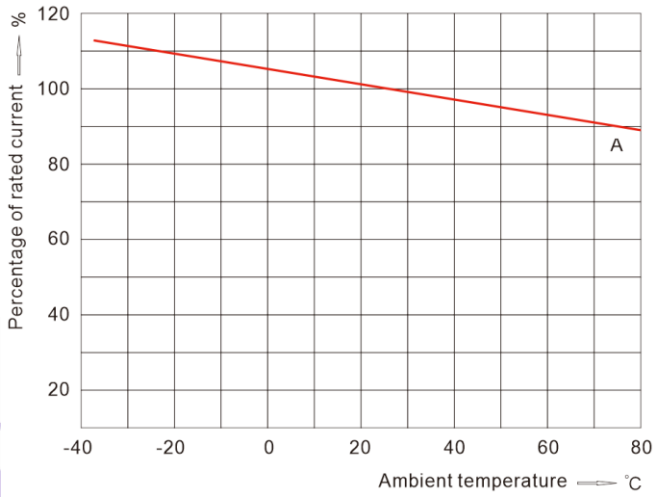
For example: the rated current is 18A and the installation site altitude is 5000m, the actual selection is 18*85%≈15.3A.

2.2 The effect of Voltage

The rated voltage of photovoltaic fuses does not need to be derated for installation altitudes not exceeding 5000m, but it is affected by air pressure on the power frequency withstand voltage and insulation performance to a certain extent. The test voltage of DC 1001-1000V is 3820V, and Our products reach at least 6000V, so here is no need to consider.

2.3 The effect of temperature

The following figure shows a typical curve of the influence of ambient temperature on current carrying capacity:

T (℃)	A	Ambient temperature-bearing capacity curve
-20	1.09	
-10	1.07	
0	1.06	
10	1.04	
20	1.02	
30	0.99	
40	0.97	
50	0.96	
60	0.93	
70	0.92	
80	0.89	

Curve A: photovoltaic fuse link curve

For example: In some applications, the ambient temperature is 25°C, and the rated current of the photovoltaic (gPV type) fuse is selected as 25A. Now, the above-mentioned fuse is often used in a high temperature environment of 50 ℃, then the fuse must be derated. The environmental bearing capacity curve A in the figure shows that the percentage of the rated operating value at 25°C is 0.96, that is to say, the rated current value of the fuse should be reselected:

$$I'_N = \frac{25A}{0.96} = 26.04$$

If you need derating capacity , please contact us to customized the fuse.

3.Use category

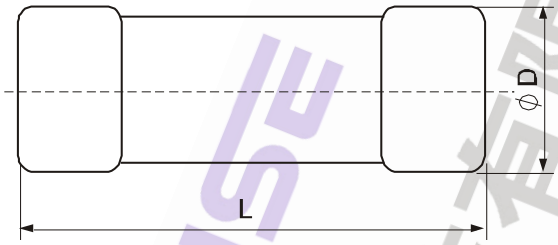
"gPV" refers to a DC fuse with a full range of breaking capacity for overcurrent protection of solar photovoltaic systems.

4.Structural features

The variable cross-section melt made of silver flakes is encapsulated in a high-strength melt tube. The melt tube is filled with chemically treated high-purity quartz sand and special treatment chemicals as the arc extinguishing medium. The welding and the contacts are firmly electrically connected.

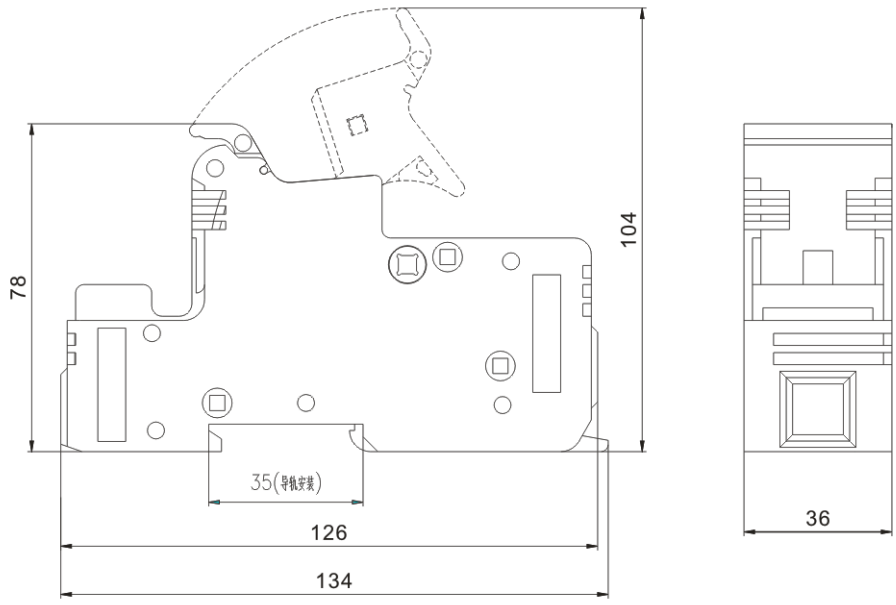
5.The main technical parameters

figure 1



Fuse type	Rated Voltage (V)	Rated Current (A)	Dimensions/Size（mm）		Dissipated power(W)
gPV			Figure No.	D×L	
ATPV-125	DC1000V	20、25、32、35、40、45、50、55、60、63、65、70、75、80、100、125	1	22×58	≤18

figure 2



Fuse base model No.	Equipped with fuse size	Rated Voltage	Rated Current	Figure no.	Dimensions/Size（mm）	Dissipated power(W)
ATPV-125D	22×58	1000 Vdc	125A	2	See figure 2	⩾18W

ATPV-125D with indicator or without indicator can be choose

6.Fuse cold resistance and power dissipation

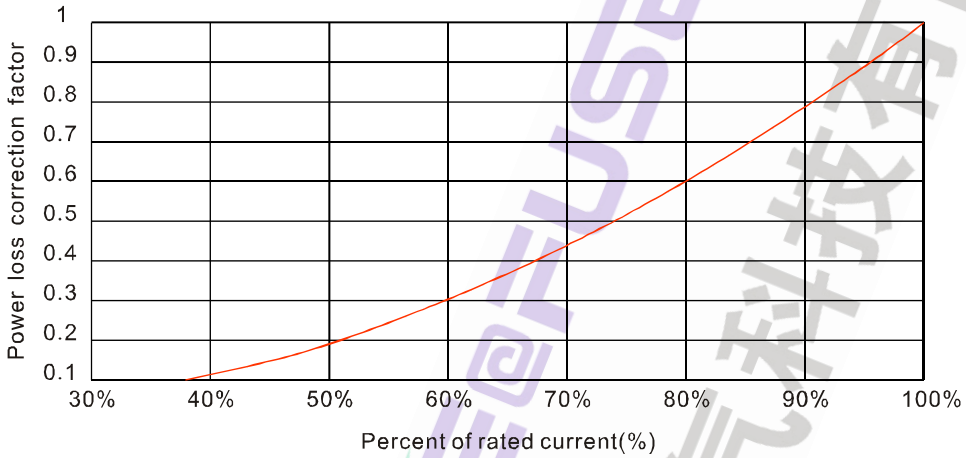
Serial number	Rated current（A）	Pre-arcing I^2t	Total I^2t	1In（W）
1	32	325	2370	6.2
2	35	390	2844	7.5
3	40	450	3300	7.9
4	45	510	3700	8.2
5	50	570	4200	9.0
6	55	630	4600	10.0
7	60	690	5100	10.0
8	63	710	5200	11.0
9	65	720	5300	12.0
10	70	800	5900	12.0
11	75	850	6500	12.0
12	80	950	6720	12.0
13	100	1190	8500	15.0
14	125	1350	12100	17.0

7.the power loss as per percentage load of 50 % ,60%,80%,90% 100%

Serial number	Rated current（A）	0.5In（W）	0.6In（W）	0.8In（W）	0.9In（W）	1In（W）
1	32	1.55	2.24	3.97	5.03	6.2
2	35	1.88	2.40	4.80	6.08	7.5
3	40	1.98	2.50	5.06	6.40	7.9
4	45	2.05	2.55	5.25	6.65	8.2
5	50	2.25	2.60	5.76	7.29	9.0
6	55	2.50	3.60	6.40	8.10	10.0

7	60	2.65	3.72	6.55	8.32	10.0
8	63	2.75	3.96	7.04	8.91	11.0
9	65	2.80	4.05	7.15	9.05	12.0
10	70	2.90	4.15	7.35	9.25	12.0
11	75	2.95	4.20	7.55	9.45	12.0
12	80	3.00	4.32	7.68	9.72	12.0
13	100	3.75	5.40	9.60	12.15	15
14	125	4.25	6.12	10.88	13.77	17

8.Power Loss Correction Factor Curve



9.Test method

Assigned time, Assigned current

"gPV"Fuse assigned time with current

"gPV"Fuse rated current A	Assigned time h	Assigned Current	
		Inf	If
I_n≤63	1	1.05In	1.35In
63＜I_n≤160	2	1.13In	1.45In
160＜I_n≤400	3		
I_n＞400	4		

10.Melting characteristic curve

Time-Current Characteristics

