



ES0GF-RAZ&QAZ Series Fuse

Specification

ZR/YC-0758 S0

97 Jinye 2nd Road, Xi'an Shaanxi 710119 China
Tel: +86 029—68590655 68590656 68590678 (sales)
Fax: +86 029--68590676
info@sinofuse.com
<http://www.sinofuse.com>

DC1500V 250A-1400A



Content

Basics	1
Outline and Dimensions	1
Characteristic Curves	3
Transport and Storage	3
Usage Conditions	3

DC1500V 250A-1400A

Basics:

- Conform to: IEC 60269 UL248
- Rated Voltage: DC1500V
- Rated Current: 250A ~ 1400A
- Utilization Category: aBat
- Breaking Capacity: 250kA (time constant: 1 ~ 3ms)
- RoHS,CE,TUV,UL certified

This product is a category fuse designed for protection of ESS battery cluster with high breaking capacity. Suitable for short circuit protection of ESS battery cluster and other systems.

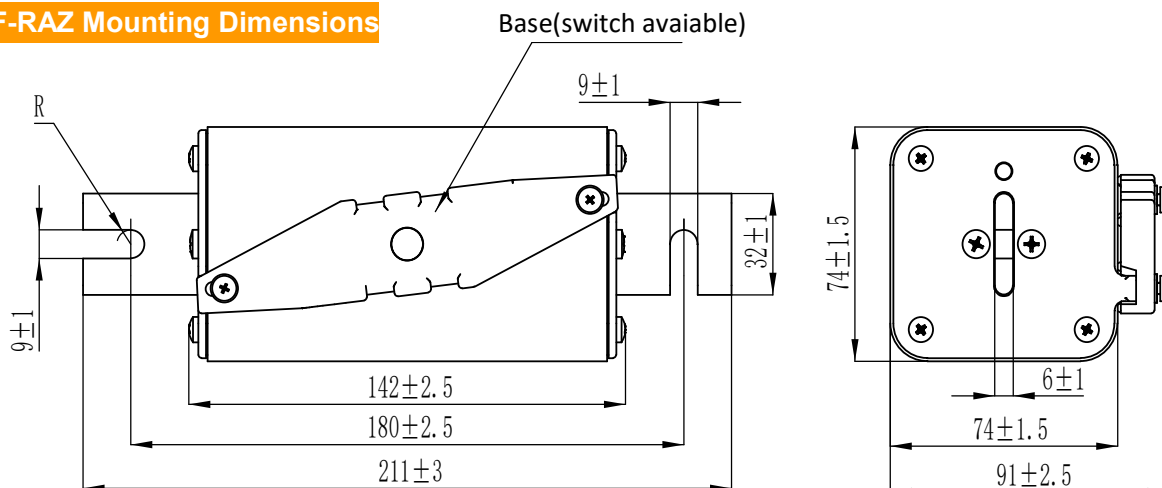
All test parameters are measured under IEC 60269-7 standard testing conditions.

No.	Part Number	Size	Rated Current A	$I^2t (A^2s) 1500V DC$		Loss(W) In	weight g	Max Package	Mounting
				Prearc	Clearing				
1	ES0GF-RAZ 250A	3	250	19500	56200	98	2280±10%	6	Bolt M8 Torque 12±1N·m
2	ES0GF-RAZ 315A		315	36500	105000	116			
3	ES0GF-RAZ 350A		350	51800	149000	121			
4	ES0GF-RAZ 400A		400	73800	213000	135			
5	ES0GF-RAZ 450A		450	104000	300000	146			
6	ES0GF-RAZ 500A		500	149000	430000	153			
7	ES0GF-RAZ 550A		550	194000	559000	165			
8	ES0GF-RAZ 630A		630	293000	845000	180			
9	ES0GF-RAZ 700A		700	405000	1170000	192			
10	ES0GF-RAZ 800A		800	614000	1770000	210			
11	ES0GF-RAZ 900A		900	865000	2490000	236			
12	ES0GF-RAZ 1000A		1000	1160000	3350000	253			
13	ES0GF-RAZ 1100A		1100	1560000	4500000	270			
14	ES0GF-RAZ 1250A		1250	2020000	5830000	317			
15	ES0GF-RAZ 1400A		1400	2230000	6430000	393			

Note: 1. Power consumption value test individual for RAZ structure, I^2t test data based on I1 ,I2 test results;
 2. If no indicatOR, add -N to the p/n, e.g.: ES0GF-RAZ-N XXA (without visual indicator and base).

Outline and Dimensions (mm)

ES0GF-RAZ Mounting Dimensions

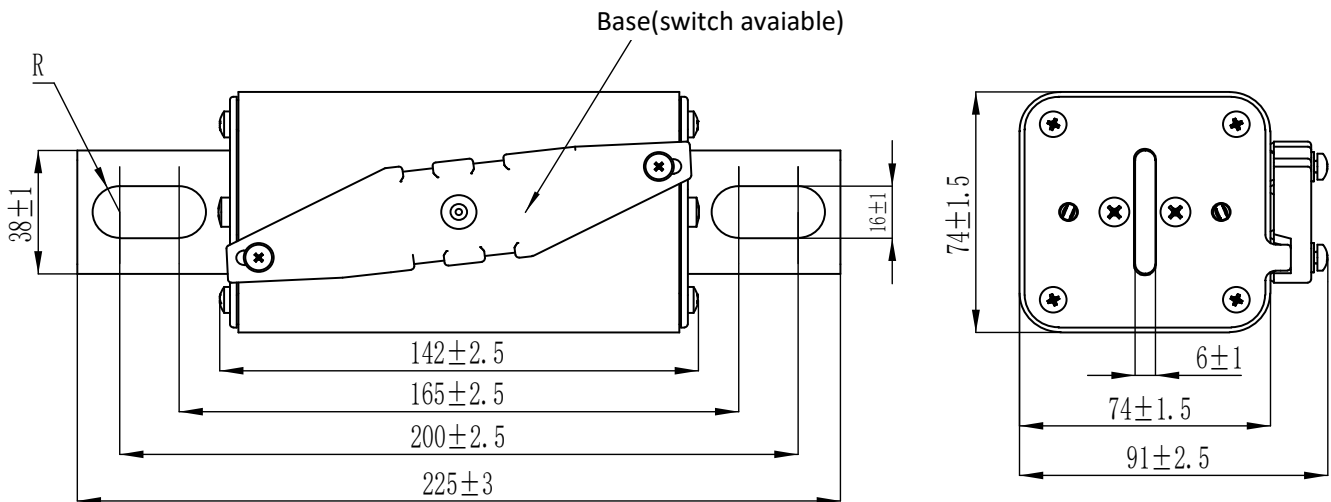


Note: levelness of terminal blades : 0.8

DC1500V 250A-1400A


No.	Part Number	Size Code	Rated Current A	$I^2t (A^2s) 1500V DC$		Loss (W) In	Weight g	Max Package	Mounting
				Prearc	Clearing				
1	ES0GF-QAZ 250A	3	250	19500	56200	98	2280±10%	6	Bolt M12 Torque 38±1N·m
2	ES0GF-QAZ 315A		315	36500	105000	116			
3	ES0GF-QAZ 350A		350	51800	149000	121			
4	ES0GF-QAZ 400A		400	73800	213000	135			
5	ES0GF-QAZ 450A		450	104000	300000	146			
6	ES0GF-QAZ 500A		500	149000	430000	153			
7	ES0GF-QAZ 550A		550	194000	559000	165			
8	ES0GF-QAZ 630A		630	293000	845000	180			
9	ES0GF-QAZ 700A		700	405000	1170000	192			
10	ES0GF-QAZ 800A		800	614000	1770000	210			
11	ES0GF-QAZ 900A		900	865000	2490000	236			
12	ES0GF-QAZ 1000A		1000	1160000	3350000	253			
13	ES0GF-QAZ 1100A		1100	1560000	4500000	270			
14	ES0GF-QAZ 1250A		1250	2020000	5830000	317			
15	ES0GF-QAZ 1400A		1400	2230000	6430000	393			

Note: 1. Power consumption value test individual for RAZ structure, I^2t test data based on I1 ,I2 test results;
 2. If no indicator, add -N to the P/N, e.g.: ES0GF-RAZ-N XXA (without visual indicator and base).

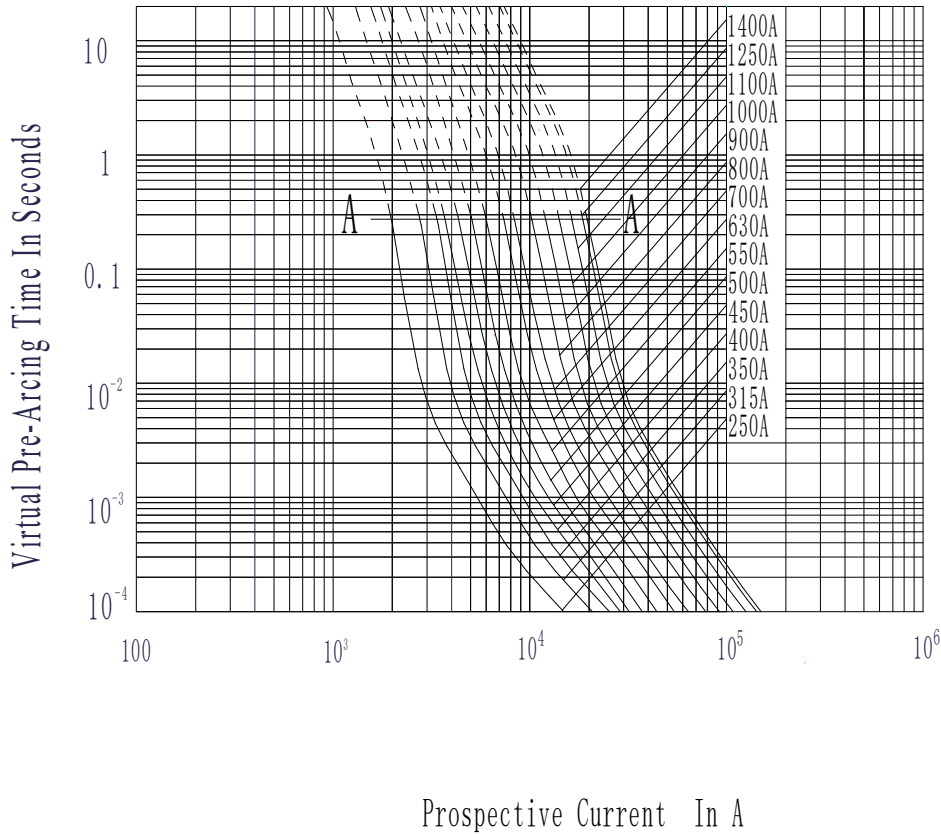
Outline and Dimensions (mm)
ES0GF-QAZ Mounting Dimensions


Note: levelness of terminal blades : 0.8

DC1500V 250A-1400A

Characteristic Curves

Time-Current Curves



Note: 1. The current curve tolerance: $\pm 15\%$
2. Min breaking current $\geq 15I_n$.

Transport Storage

Transport

Avoid rain/snow or mechanical damage during transportation.

Storage

Storage temp: $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$, Maximum 70% RH at 40°C ;

Maximum 80% RH at 30°C ; Maximum 90% RH at 20°C ;

Package and Storage temp: $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$; Maximum 90% RH, no dewing.

Usage Conditions

Normal Condition

Correction is not required under normal condition.

In other tolerable conditions, certain corrections may be required.

If conditions are beyond tolerable range, please consult our team for evaluation and testing.

Recommended long-term current should not exceed 80% I_n

DC1500V 250A-1400A



Ambient Temperature

Normal condition

-5°C ~ 40°C

Tolerable Range

-40°C ~ 85°C

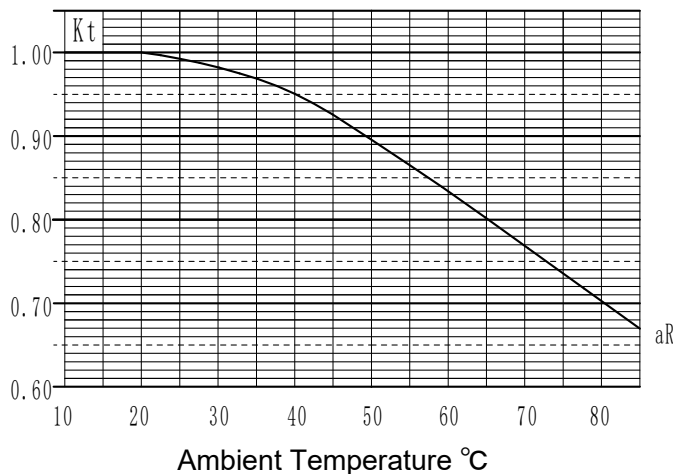
Ambient temperature correction: When operating below -5°C, pre-arcing time at small over-current will be prolonged and rated current of fuse will be enlarged slightly

Unless ambient temperature is always below -5°C, it is not recommended to increase rated current

If above 40°C, rated current is corrected as per factor -Kt

Note 1: Kt value has considered safety margin during normal operation

Note 2: ambient temperature should last 1-2 hrs before it has significant impact on fuse



Altitude

Normal Condition

Below 2000m

Tolerable Condition

Below 4500m

Correction: higher altitude would affect insulation and dissipation, also changes air pressure.

a) For every 100m higher, fuse temperature rise increases by 0.1-0.5k

b) For every 100m higher, ambient temperature drops by 0.5k approximately

c) Normally for fuses in open environment, altitude condition is negligible

d) For closed environment, if ambient temperature inside remains almost stable under different altitude. If above 40°C, fuse should be derated. For every 1000m, rated current should be derated by 2%-5%

Note: for any series, larger rated fuse should use higher degrade %, and lower degrade % for smaller one.

Air Insulation Strength (Breakdown)

a) Air insulation reduces with higher altitude. For 2000-4500m, decreases by 12-15% for every 1000m, as per GB/T16935.1. Thus adjust clearing space.

DC1500V 250A-1400A

- b) Space between fuse terminals is often much larger than specified value in standard (GB/T16935.1).
- c) User should consider altitude impact on spacing between fuse and other component, earthing etc.

Atmosphere

Normal Conditions

- Clean atmosphere, maximum 50% RH at 40°C.
- Higher RH is allowed when temperature is low, e.g. maximum 90% at 20 °C.
- Moderate dewing may occur under temperature changes.

Tolerable Conditions

- If dewing is minor, RH could be up to 95%.

Vibration

This series of fuse has great withstand of vibration and shock and satisfies ISO16750-3 vehicle usage condition. For severe vibration application, please consult our team for evaluation and testing.

Pollution class

Grade 3 pollution withstand

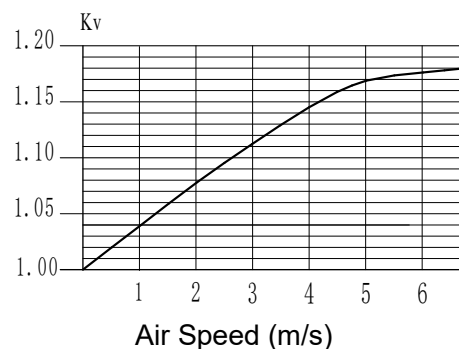
Usage Condition

Normal Conditions

- a) Fuse and fuse-holder should be mounted properly with specified torque and stress.
- b) Contact of fuses must be securely connected. Contact resistance should not affect operation.
- c) Fuse can be mounted in any orientation. If spring compression is adopted, make sure it is properly mounted to avoid harmful effect due to gravity or vibration.

Forced Air Cooling

Forced air cooling can be implemented to improve current carrying capacity of fuse.



Safety and Maintenance

- a) Sufficient space must be ensured between installed fuses. Install insulation if necessary. This is to avoid possible inter-phase short circuit while replacing fuse.
- b) Periodic maintenance of fuses includes removal of oxidation layer and dusts.
- c) It is compulsory to replace all mechanically damaged fuses.
- d) Unless permissible (e.g. fused load-switch), do not replace fuses while energized.
- e) While servicing, fuse will not generate gas, dust, noise or others that may harm the environment.
- f) Metallic part of fuse can be recycled. Non-metal part can be crushed and treated as normal industry waste. It will not cause further pollution to the environment.