



RS309-MM Stud Mounted High Speed Fuse

Compact, Low I^2t , HRC

Specification

ZR/YC-0030 A0

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AC/DC1000V 5A-800A

Basics

- Rated Voltage: AC/DC1000V
- Rated Current: 5A~800A
- Protection: aR
- Breaking Capacity: AC100kA, DC50kA(time constant $\leq 15\text{ms}$)
- Conform to IEC60269, safety and environmental reliability conform to ISO8820
- CE certified, RoHS compliant

This fuse family adopts excellent anti-vibration and corrosion design that is suitable for various industries. It can be used for EV traction system, power converter, energy storage, charger and other applications as short-circuit, overload and back-up protection.

Note: all data in this specification are obtained under DC current condition at Current $I \geq 20\text{kA}$: time constant 10-Current $I < 20\text{kA}$, time constant : $0.5 \cdot I^{0.3}$) with circuitry as per IEC60269/UL248.

No	Model	Size	Current A	I ² t (A ² s)		Loss W	Mounting
				Prearc	Clear		
1	RS309-MM-5A	2YA	5	18	110	1.5	Bolt M6 Torque 6±1N.m
2	RS309-MM-10A		10	29	160	2	
3	RS309-MM-15A		15	46	215	3	
4	RS309-MM-20A		20	69	350	3.5	
5	RS309-MM-25A		25	81	500	4	
6	RS309-MM-30A		30	105	810	5	
7	RS309-MM-35A	4RC	35	190	1280	6.5	Bolt M8 Torque 12±1N.m
8	RS309-MM-40A		40	300	1690	8	
9	RS309-MM-50A		50	450	2500	10	
10	RS309-MM-60A		60	710	4350	15	
11	RS309-MM-70A		70	850	5600	14	
12	RS309-MM-80A		80	1100	6670	16	
13	RS309-MM-90A	5RB	90	1850	11000	17	Bolt M10 Torque 21±1N.m
14	RS309-MM-100A		100	2360	12700	18	
15	RS309-MM-125A		125	3500	21500	20	
16	RS309-MM-150A		150	5020	26600	28	
17	RS309-MM-175A	6RB	175	9300	41000	30	
18	RS309-MM-200A		200	16100	61500	32	
19	RS309-MM-225A		225	20100	107000	41	
20	RS309-MM-250A		250	25300	115000	48	
21	RS309-MM-300A		300	27100	165000	53	
22	RS309-MM-350A	7HA	350	43000	232000	60	
23	RS309-MM-400A		400	72000	323000	65	
24	RS309-MM-450A		450	79000	310000	80	
25	RS309-MM-500A		500	106000	365000	95	
26	RS309-MM-600A	8HA	600	165000	532000	105	Bolt M13 Torque 35±1N.m
27	RS309-MM-700A		700	326000	700000	152.5	
28	RS309-MM-800A		800	423000	890000	183	

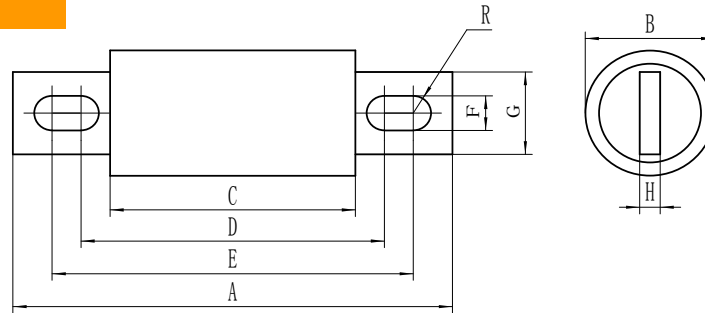
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Dimension (mm)

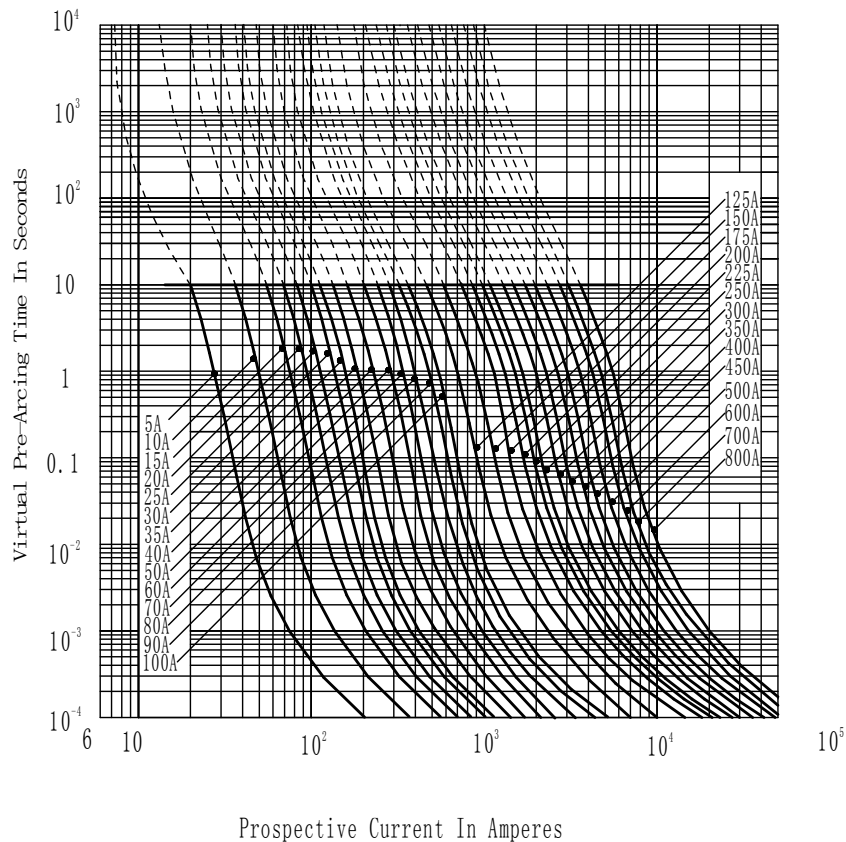
Mounting Size



Size	A±2	B±0.5	C±1	D±1.5	E±1.5	F±1	G±1	H±0.2
2YA	73.5	14.3	47.6	60.5	63.5	6.5	10.3	1.6
4RC	124	24	78	95	109	9	18	3.2
5RB	124	31	78	95	109	9	22	5
6RB	144	37	82	105	122	10.5	25	6
7HA	144	49	88	105	122	10.5	38	6
8HA	183	62	88	119.5	152	13.5	50	10

Characteristic Curves

Time-Current Curves



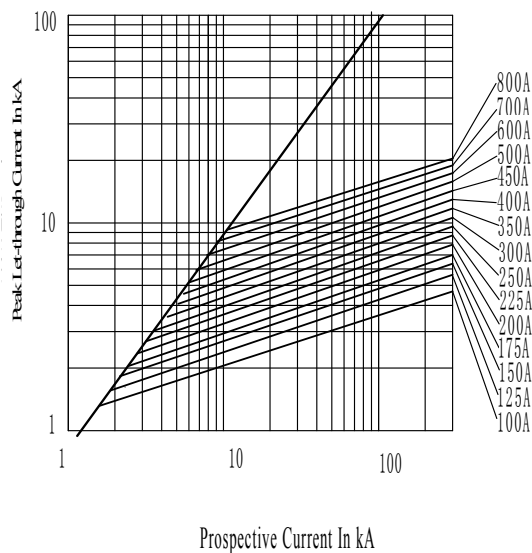
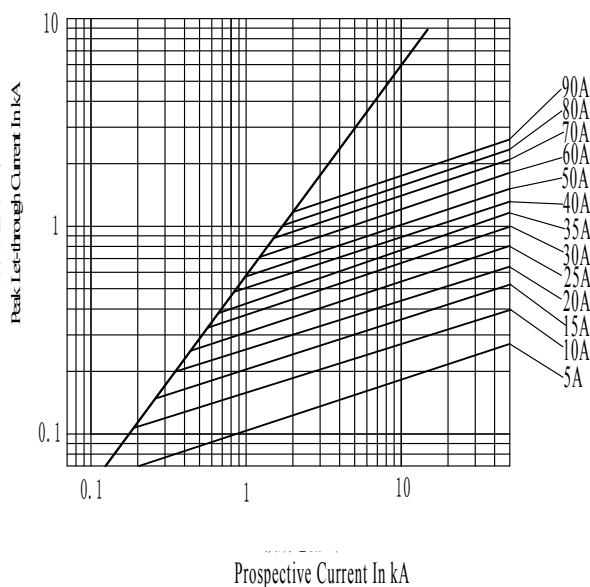
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Peak Let-Through



Transport and Storage

Transport

Avoid rain/snow or mechanical damage during transporation.

Storage

Storage temp: -40 °C ~ 120°C. Maximum 90% RH at 40°C;

Package storage: -40°C ~ 70°C, Maximum 90% RH, no dewing

Normal Operation

Correction is not requiried under normal conditions

For other conditions, if they are within tolerable range, certain correction measures may be required.

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

Long term operation current is recommended to be 80% of rated current.

Ambient Temperature

Normal Condition

-5°C ~ 40°C

Tolerable Range

-40°C ~ 85°C

Ambient temperature correction: operating below -5°C, resulting longer pre-arc time under small overcurrent and slightly increased rated current. In this case, often there is no need to enlarge rated current

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

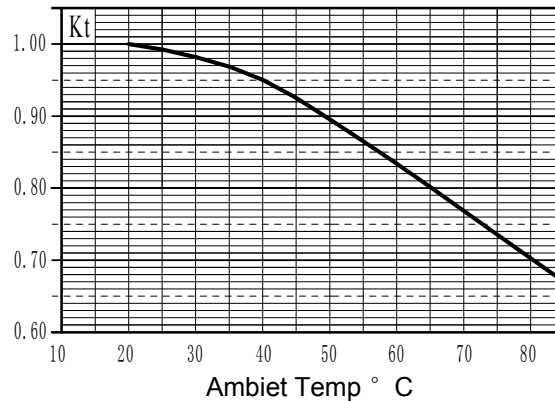
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Note 1: Kt value has considered safety margin of rated current during normal operation

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


Altitude

Normal Condition

Below 2000m

Tolerable Condition

2000-4500m

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 exceed 40°C, fuse should be degraded. For every 1000m, rated current should be degraded 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, insulation drops 12-15% for every 1000m. insulation decreases by 12-15% for every 1000m as per GB/T16935.1. Thus adjust clearing space.
- b) Space between fuse terminals is often much larger than specified value in standard.
- c) User should consider altitude impact on spacing between fuse and other electric component, earthing etc.

Atmosphere

Normal Condition

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 Withstand

This fuse family has superior vibration performance per GB2423.10-2008 4.1.2.6 and QC/T 413-2002 standard

Conform to rail transport vibration grade II

This family of fuses satisfy vehicle usage condition

For severe vibration application, please consult our team for evaluation and testing.

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Pollution Class

Grade 3 pollution withstand

Mounting Condition

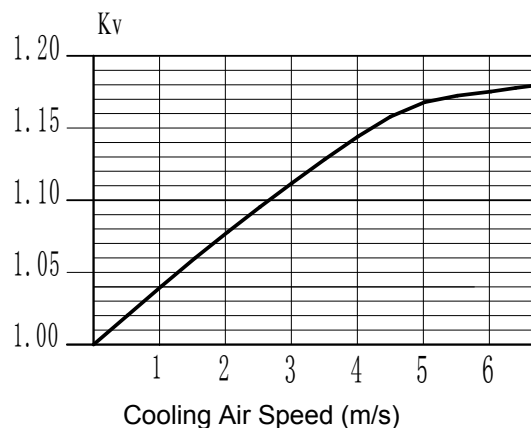
Normal Condition

- a) Installed in open air without any ventilation. No heat source within 1m except for conducting wires.
- 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 used to enhance heat dissipation thus increasing rated current.

Correction factor for air speed versus rated current -Kv


Safety and Maintenance

- a) Make sure sufficient clearance between installed fuses. Install insulation if necessary. This is to avoid possible inter-phase short circuit while replacing fuse.
- b) Periodic maintenance per electric equipment. Remove oxidation, dusts on contacting part.
- c) It is compulsory to replace all mechanically damaged fuses.
- d) Unless permissive (fused load-switch), do not replace fuses while energized.

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