Specification

ZR/YC-0087-01 A3

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RoHS COMPLIANT

Content

RoHS COMPLIANT

Basics

- Conform to JASO D622, ISO8820-8, UL 248-1/13, IEC 60269-7, GB/T31465, ACE-Q200 and UL94-V0
- Rated Voltage: DC 850V (40A), DC 800V (50A)
- Rated Current: 40A, 50A
- Protection Category: EV
- Breaking Capacity: 20kA(Time Constant: 2±0.5ms)
- RoHS, REACH Compliant

This EV fuse series is specifically designed and manufactured under IATF 16949 quality system for automobile application. Features in compact, HRC, excellent withstand to current shock, wide temperature applicationrange, strong resistance totemperature shock, corrosion resistance, high reliable DC breaking capacity and othertechnical performance, suitable forroad vehicle industry. It can be used as short-circuit protection and backup protectionfor EV air-conditioning systems,wires and other vehicle devices and equipment.

Note: All test data are measured in a DC environment, test parameters and wiring with reference to ISO8820, GB/T31465.

	Part Number	Size	Current (A)	I²t (A^2s)		Loss W		Weight g	Min Package (pcs)	Max Package (pcs)	Mounting
				Prear	Clear	$0.5I_n$	I_n				
1	EV321-3EM-40A	3EM	40	1050	4200	1.5	6.5	11.7±1	36	576	Bolt M5 Torque 4.5±1Nm
2	EV321-3EM-50A		50	1550	6490	2	10				
3	EV321-3EL-40A	3EL	40	1050	4200	1.5	6.5	10.2±1	36	576	
4	EV321-3EL-50A		50	1550	6490	2	10				
5	EV321-3ELB-40A	3ELB	40	1050	4200	1.5	6.5	14.5±1	36	576	
6	EV321-3ELB-50A		50	1550	6490	2	10				
7	EV321-3EC-40A	3EC	40	1050	4200	1.5	6.5	7.0±1	160	960	Maching with base
8	EV321-3EC-50A		50	1550	6490	2	10				
9	EV321-3EH-40A	3EH	40	1050	4200	1.5	6.5	7.8±1.5	144	288	Single pin plug-in type
10	EV321-3EH-50A		50	1550	6490	2	10				

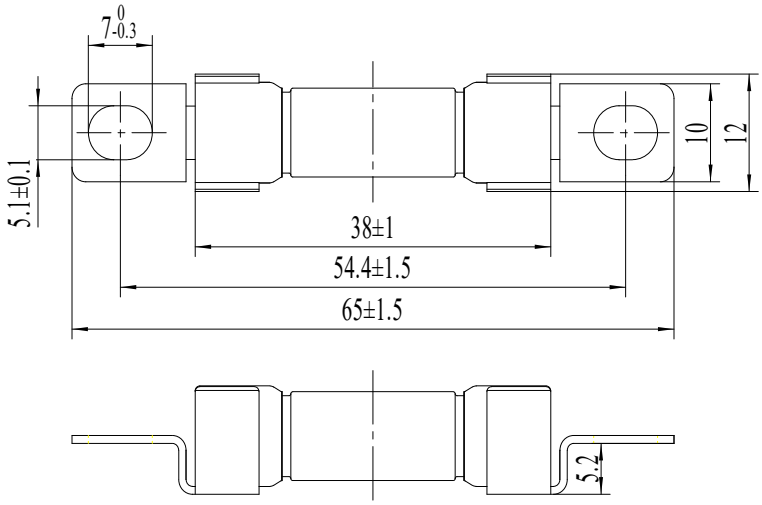
Note: 1, I²t for 40A are typical data measured under the standard test environment (voltage DC855V, 21kA, time constant 2.25ms);

2, I²t for 50A typical data measured under standard test environment (voltage DC801V, 20.7kA, time constant 1.51ms);

50A: 1.1I_n test conditions 6mm²*550mm.

Dimensions (mm)

EV321-3EM



Note: levelness of terminal blades max. 0.5

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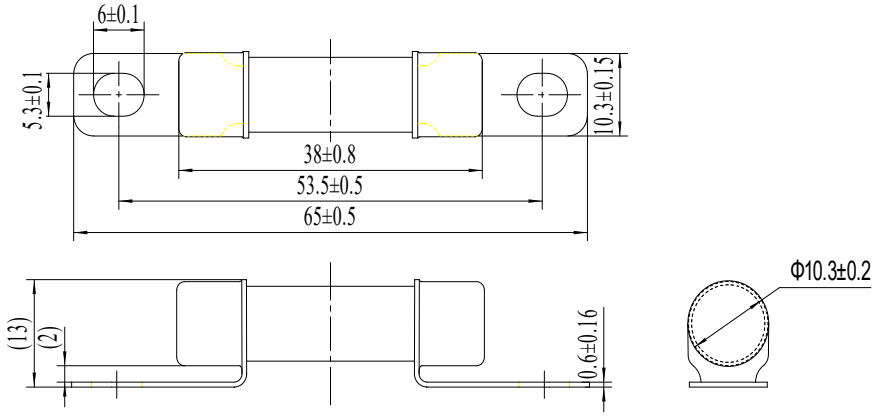
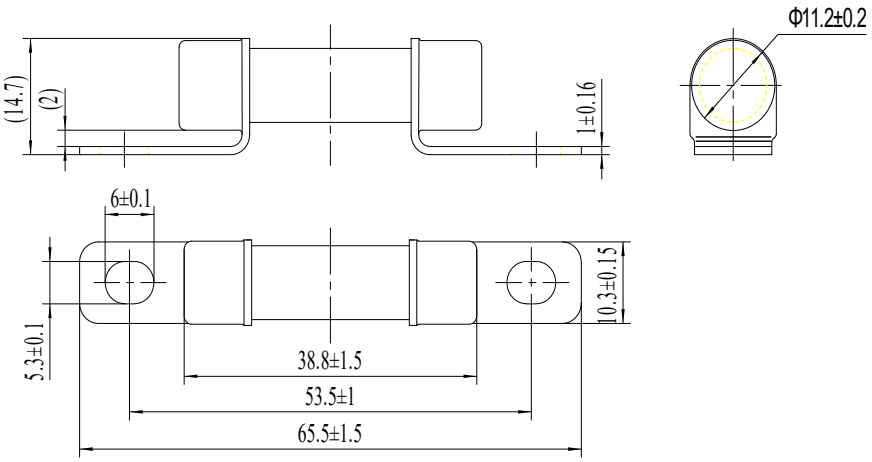
EV321-3EL



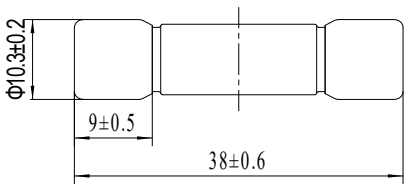
Note: levelness of terminal blades max. 0.5

EV321-3ELB



Note: levelness of terminal blades max. 0.5

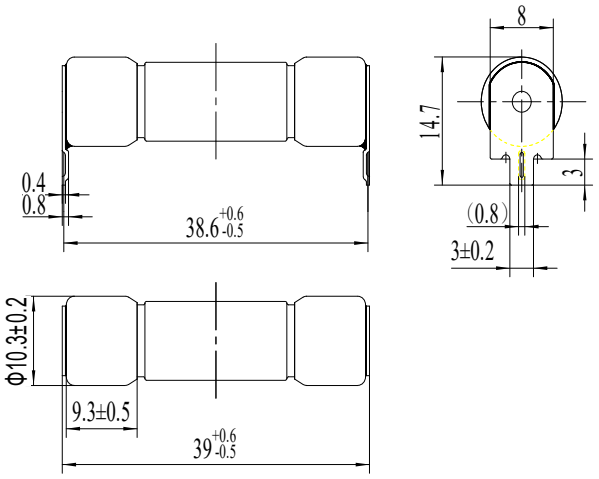
EV321-3EC



Note: To be matched with the base.

RoHS COMPLIANT

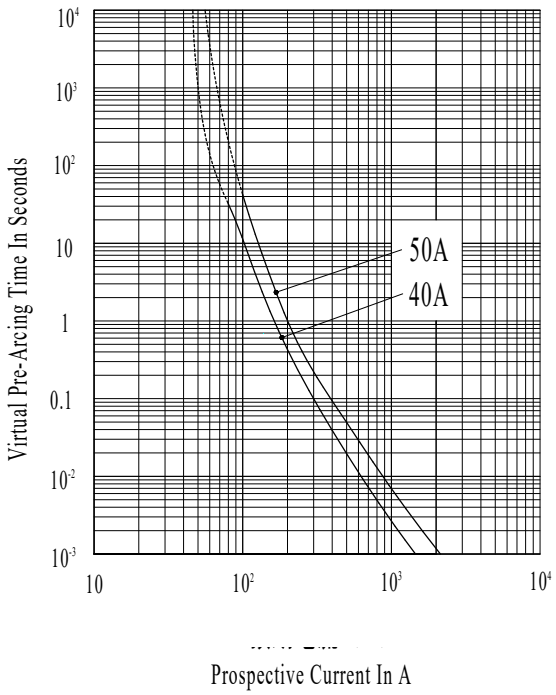
EV321-3EH



Note: levelness of terminal blades max. 0.5

Characteristic Curves

Time Current Curves



Note: 1) Curves: current tolerance ±10%;

2) Min. breaking current at least $2I_n$;

Transport and Storage

Transport

Avoid rain/snow or mechanical damage during transportation.

Storage

Storage temp: -40°C ~ 70°C, Maximum 70% RH at 40°C;
Maximum 80% RH at 30°C; Maximum 90% RH at 20°C;
Package and Storage temp: -40°C～70°C, Maximum 90% RH, no dewing.

Avoid fire, water and liquid water into packing.

Avoid sharp objects piercing into and damaging packing.

when loading and unloading, falling height not exceeding 0.5m (impact on surface) .

Avoid impact on packing corners or edges. Avoid corrosive substances or gases.

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.

Rated current must exceed load current, comply with principles as below:

e.g. load current must not exceed 50% of rated current under room temperature, depending on actual conditions.

Consider the impact of various factors on the load current for suitable specification and conductor

1. Continuous or pulsed load current
2. Whether large surge current appears when switch on
3. Load current will exist for short-term or long-term

Ambient Temperature

Normal condition
-5°C～40 °C
Tolerable Range
-40°C～125°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

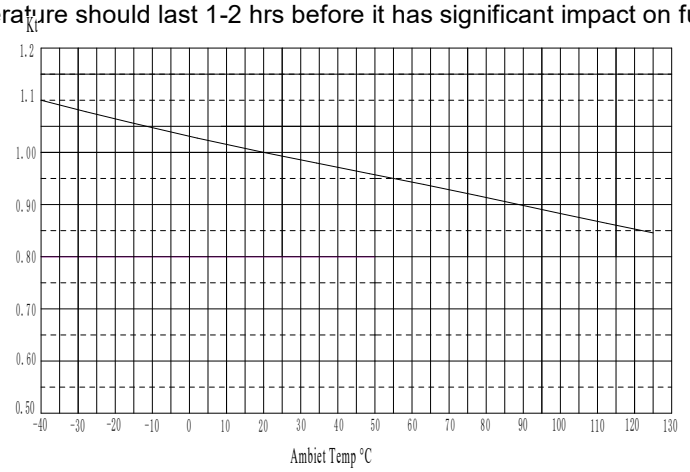
Unless ambient temperature is always below -5°C, it is not recommended to increase rated current

When rated current tested,Installed in open air without any ventilation. No heat source within 1m except for conductors

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.
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 Condition

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 satisfy ISO16750-3 vehicle usage condition.
For severe vibration application, please consult our team for evaluation and testing.

Pollution class

Grade 3 pollution withstand

Mounting 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 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 permissive (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.