Dear Customers

Jan 1.2021

Hinode Electric co., ltd

Engineering Department

About the use of fuses for Battery protection

When using a fuse as battery protection, it has been confirmed that when installed in a situation where it is close to the battery and small inductance, abnormalities such as cylinder cracking and ejection at a voltage lower than the rated voltage occur.

1. Target fuse

All of our fuses, except for some non-applicable fuses

2. Events and cause

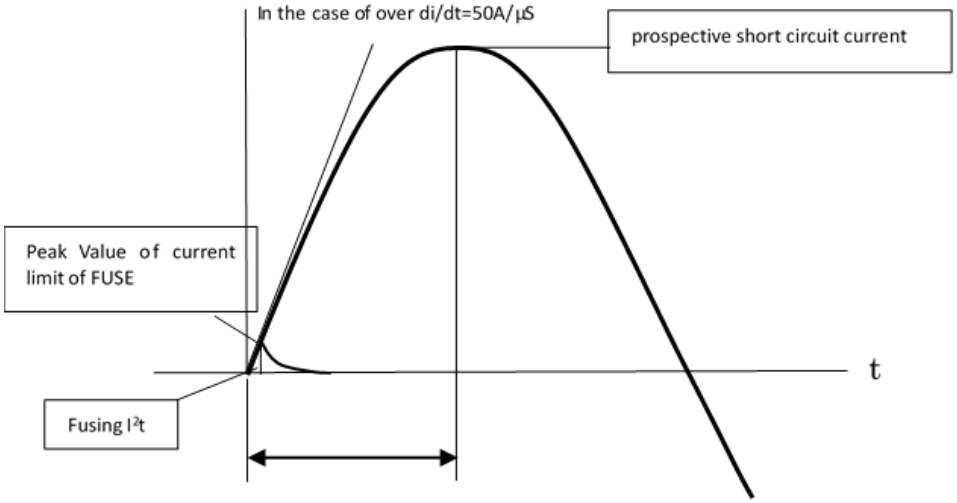
When the fuse is blown at a short circuit at a voltage lower than the rated voltage, the cylinder may cause to crack or the terminals may melt and blow out.

It may occur when the circuit inductance is small and the short-circuit current rises sharply.

3. Possible circuits and voltage reduction

When it is directly connected to the battery, the route from the battery to the fuse is short, and the circuit inductance is small, Care must be taken when the short-circuit current di / dt is larger than 50 [A / μ s].

If the short-circuit current di / dt is larger than 50 [A / μ s], Please make sure use it at 70% or less of the rated voltage in the GH series, FH series, SPF series, CF series, KH series, and KHK series.



* If the voltage exceeds the above, or if the di / dt is even larger, perform the test and confirm that there are no problems before using.

* SF series, SFK series, and VSK series are not applicable.

* Not applicable if there is a fuse behind the inverter or DCDC converter instead of directly on the battery.

4. Testing at our company

We carry out various tests in accordance with the JEM, IEC, UL, and CCC test standards. However, there are not test items with extremely small inductance like as the occurrence of this event, and the test equipment itself. Due to the inductance caused by the wiring, we could not confirm the event and the experiment with the steep rising state of the current.

This guideline is based on the experimental results of a steep current rise in a test circuit using a resistor with a small inductance.

If you have any questions, please contact us.