

High voltage explosion-proof inverter installation





Overview

What happens if a high power inverter module fails?

As the application of high power inverters in the MW level is typical for railway traction industry, the failure of module can cause fractures sprayed. The extreme consequences may involve main busbar short-circuit, damage the gate control circuitry and others.

What is a high power module explosion?

One of failures is module explosion during the operation in the field or even at test bench. The high power module explosion can cause direct damages and huge influences to surrounding systems or even cause safety problems depending on its application scenario [1-3]. 1. Introduction.

Do high power IGBT modules have anti-explosion capability?

The anti-explosion capability or minimise-damage capability of high power IGBT modules is key consideration element to decide on the converter or inverter equipment reliability in the extreme scenario. Test methods and experimental results on case rupture capability have been introduced in several papers [2-5].

How to drive the explosion test?

To drive the explosion test, high DC voltage is applied with charging energy into DC capacitors fixed in the red box as shown in Figure 2, then gate drive control circuit to start the short-circuit test mode and discharge the stored energy from DC capacitor into the tested modules at $\sim 10\text{kJ}$ level as stated in other reference . Figure 3.



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5000 Series Integrated High Voltage Inverter-Wolong Nanyang explosion

The inverter system adopts voltage source multi-level topology, and the power units are equipped with dry metalized film capacitors. With high efficiency, high power factor, no special ...

Explosion proof housings for IGBT module based high power inverters ...

Explosion proof housings for IGBT module based high power inverters in HVDC transmission application Markus Billmann 1) Dirk Malipaard 2) Dr. Herbert Gambach 3) 1) Fraunhofer ...



[Explosion proof housings for IGBT module based high power](#)

Parts from exploded IGBTs as well as conductive plasma clouds must not reach neighbourhood mul-tilevel stages, because otherwise the whole inverter leg might be damaged due to high ...



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[Explosion Mechanism Investigation of High Power IGBT...](#)

Dec 26, 2023 · 1. Introduction The anti-explosion capability or minimise-damage capability of high power IGBT modules is key consideration element to decide on the converter or inverter ...



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The FD5000 series high voltage inverter is high-voltage device, which is controlled by DSP, with the SVPWM and cell in series multi-level technology to guarantee the inverter suits ...



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