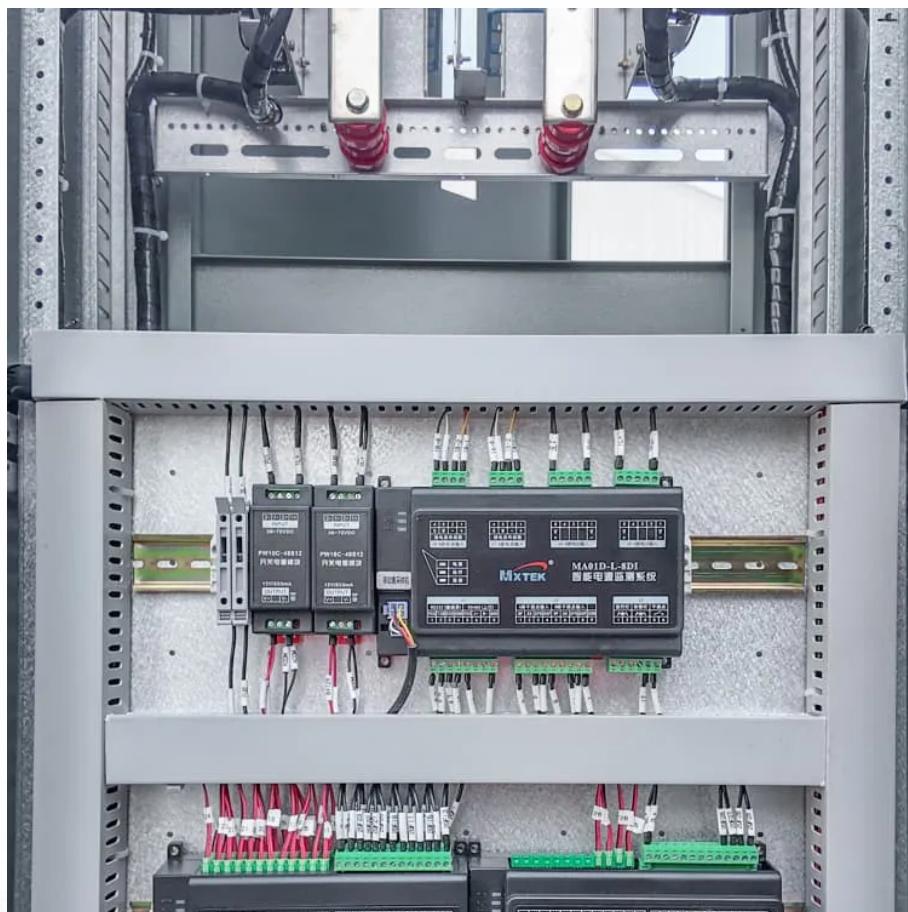




ŁOTWA SYSTEM

Inverter front stage and power relationship





Overview

What is an inverter stage?

The inverter stage is a basic building block for digital logic circuits and memory cells. A generic inverter stage is illustrated below on the left. It consists of two devices.

What are the features of a given inverter design?

We can identify six features of a given inverter design which we can use to evaluate it and compare it to other designs. They are: The logic levels are found by insisting that VHI and VLO are such that VHI applied to the input of an inverter results in an output of VLO, and that VLO applied to the input of an inverter results in an output of VHI.

What is a generic inverter stage?

A generic inverter stage is illustrated below on the left. It consists of two devices, pull-up device, which is typically either a bipolar junction transistor or an enhancement mode field effect transistor, and a pull-down device, which might be another transistor, or a resistor, current source, diode, etc.

How to choose a suitable inverter?

With the thermal impedance information of the thermal system design, the proper device rating can be selected. The 1200-V/75-mΩ SiC MOSFET and 650-V/60-mΩ SiC MOSFET is a good tradeoff among thermal, efficiency and cost. The primary source of lost efficiency in any inverter is going to be a result of the losses incurred in the switching devices.



Inverter front stage and power relationship

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