

## ContainerPower Energy Solutions

# Unilateral inverter reverse voltage



## Overview

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What is input reverse voltage protection?

In the case of C1, the protection device allows current to flow back to the supply. In circuit C2, the protection device blocks the current flow. Input reverse voltage protection can be implemented using a simple diode or a MOSFET (with some external control) as the blocking component.

How to implement reverse voltage protection in a circuit?

Inserting a blocking diode into the circuit is the simplest solution for input reverse voltage protection to implement, as it consists of only one component.

What is input reverse voltage protection in circuit C2?

In circuit C2, the protection device blocks the current flow. Input reverse voltage protection can be implemented using a simple diode or a MOSFET (with some external control) as the blocking component. We will take a closer look at these solutions and discuss their advantages and disadvantages from an engineering point of view.

Which reverse voltage protection method is most efficient?

The nMOS is the most efficient solution of all input reverse voltage protection methods outlined thus far. Due to the lower power dissipation, the nMOS will have a much lower temperature increase than a diode or a pMOS of a similar footprint.

Why is my inverter aiming a potential between unconventional points?

Having done a bit of research and speaking to a friend, it could be possible that the inverter is trying to synchronise with the supply/faulted supply, therefore aiming a potential between unconventional points. I may also try disconnecting the cpc from the supply to the inverter for testing purposes and see how that affects the potential.

What happens if a reverse voltage is detected across the NMOS?

If a reverse voltage greater than 10mV is detected across the nMOS, the gate pin is internally connected to the anode pin, turning the nMOS OFF. This prevents reverse currents from flowing under the conditions shown in Figure 1, circuits B and C2.

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