

Do solar power converters need isolation?

In a solar power converter, high-voltage and low-voltage circuits co-exist. Isolations are required between the high-voltage and low-voltage circuits for both functional and safety purposes. Fundamental isolation concepts and terminology are presented in references [3-4]. Digital isolators can be used to address the isolation requirements.

What is the difference between an isolated and a non-isolated converter?

In an isolated converter, the input and output stage have separate grounds whereas in a non-isolated converter, current is able to flow directly between the two sides as they share a common ground. Isolation is usually created by incorporating a transformer in the circuit so that power is transferred using electromagnetic energy.

What isolation options are available for solar power conversion applications?

In response to these needs, Texas Instruments offers several isolation offerings for solar power conversion applications. These include isolated IGBT gate drivers, digital isolators, isolated delta-sigma ADCs and amplifiers, and isolated communication links such as isolated RS-485 and isolated CAN.

What are the different types of isolators used in solar power conversion?

In a solar power conversion system, different types of isolators are adopted to serve various functions. Isolated gate drivers are used to drive insulated gate bipolar transistors (IGBTs) or metal-oxide semiconductor field-effect transistors (MOSFETs) in the high-voltage power stage.

Understanding the IEC 62109-1 safety standard for solar power converters enables you to pick the right isolation solutions for solar power conversion applications.

Although isolated solar grid connected inverters can achieve electrical isolation, it is inevitable to use isolation transformers. However, the disadvantages of isolation transformers, such ...

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This article looks at how iCoupler™; isolation technology can reduce cost, increase smart grid integration, and improve safety of solar PV inverters.

The variable step conductance incremental control algorithm is applied to the new NPC photovoltaic grid connected inverter system with two-stage non-isolation transformer in this paper, ...

The produced voltage of photovoltaic (PV) system is largely affected by environmental variables, such as light intensity and temperature. The PV power conditioning system is required to ...

With system voltages of 1,000 VRMS and 5 V microcontrollers (MCUs) coexisting in solar-inverter systems, isolation between the high- and low-voltage sides is a given. The engineer's ...

Benefits of Non-Isolated While there are many benefits to isolation, there are also reasons to use a non-isolated converter including cost, size, and performance. Cost Savings Isolated ...

There is a huge number of DC/DC converters available these days - some provide isolation while others are non-isolated. In this blog we take a look at what this means to designers ...

Advanced Digital Isolation Technologies Boost Solar Power Inverter Reliability Fossil-fueled electric power facilities have proven to be robust and reliable sources of energy for more than ...

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