Terminal-type optocoupler



Overview

ANO007 | Understanding Phototransistor OptocouplersAn optocoupler, also known as photocoupler or opto-isolator, is a device which can transfer an electrica.

Key Takeaways

A terminal-type optocoupler is an opto-isolator with defined electrical leads or pins that connect the input LED and output photodetector to external circuits, enabling signal transfer while maintaining electrical isolation.

Structure and Operation

A terminal-type optocoupler typically consists of an infrared LED on the input side and a photodetector (commonly a phototransistor) on the output side, both enclosed in a single package with multiple terminals or pins for electrical connection.

The LE

D converts an electrical input signal into light, which travels through an optical medium inside the package. The photodetector receives this light and converts it back into an electrical signal, allowing signal transfer across galvanically isolated circuits. The terminals are usually arranged as follows: Input terminals: Connect to the LED, typically labeled as anode and cathode.

Output terminals: Connect to the photodetector, such as collector and emitter for a phototransistor output. Some packages may include additional terminals for base access or for improved mechanical stability. Types of Terminal ConfigurationsTerminal-type optocouplers come in various package styles to suit different applications: 4-pin dual in-line packages (DIP): Common for through-hole mounting, with two pins for the LED and two for the phototransistor.

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Surface-mount packages (SMD): Compact designs for automated PCB assembly. Co-planar or side-by-side structures: Provide high-voltage isolation while keeping a low-profile form factor.

Key Parameters

When selecting a terminal-type optocoupler, consider: Current Transfer Ratio (CTR): Ratio of output current to input LED current, indicating efficiency of signal transfer.

Collector-

Emitter Voltage (VCE) and Collector Current (IC): Define the output transistor's operating limits. Switching speed and parasitic capacitance: Affect performance in high-frequency applications. Isolation voltage: Maximum voltage the device can safely isolate between input and output terminals.

ApplicationsTerminal-type optocouplers are widely used in: Isolated power supplies: To transfer feedback signals without direct electrical connection. Microcontroller interfaces: Protecting low-voltage logic circuits from high-voltage spikes. Industrial control systems: Ensuring safe signal transmission between high-voltage and low-voltage sections.

In summary, a terminal-type optocoupler provides a mechanically and electrically defined interface for connecting isolated circuits, with terminals designed for both input and output connections, making it versatile for a wide range of electronic applications.

Article Content

ANO007 | Understanding Phototransistor Optocouplers

An optocoupler, also known as photocoupler or opto-isolator, is a device which can transfer an electrical signal across two galvanically-isolated circuits by way of optical coupling.

Optocouplers / Photocouplers – Mouser

Types: Common optocoupler types include phototransistor, photodiode, phototriac, and logic gate optocouplers, as well as high-speed and high-voltage variants tailored for specific isolation and

Optocouplers, Optoisolators | Isolators | DigiKey

Optocouplers are ideal when electrical isolation is required between control and power stages. For example, in industrial environments where PLCs or microcontrollers interface with high-voltage

Optocoupler Tutorial and Optocoupler Application

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This type of optocoupler configuration forms the basis of a very simple Solid State Relay application. It can be used to control any AC mains

Optocoupler Circuits, Working, Characteristics, Interfacing

The above figure shows a dissected view of a typical six pin dual-in-line (DIP) optocoupler chip. When the terminals connected with the IR LED is supplied with an appropriate

Using Opto Couplers

The main purpose of an optocoupler interface is to completely isolate the input circuit from the output circuit, which normally means there will be two completely

High Speed Optocouplers – Mouser

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Optocouplers, Part 1: Principles and usefulness FAQ

This FAQ will look at the operation principles, key parameters, and applications of this widely used component. Q: In simplest terms, what is an optocoupler? A: It is an electro-optical

OPTOCOUPLER DEVICES AND APPLICATION

OPTOCOUPLER DEVICES AND APPLICATION An optocoupler (or an optoelectronic coupler) is basically an interface between two circuits which operate at (usually) different voltage levels. The key

Optocouplers Guide: Understanding Types, Applications, and ...

Learn how optocouplers ensure electrical isolation and signal transfer in circuits. This guide covers their components, working principles, and applications.

Understanding Phototransistor Optocouplers

Understanding Phototransistor Optocouplers An optocoupler, also known as photo-coupler or opto-isolator, is a component which can transfer an electrical signal across two

A Short De-mystification of Optocouplers

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An optocoupler can make sure to galvanically isolate the lines so that magnetic waves induced by such currents do not impact any other wires

Understanding Optocouplers: Principles, Types and Applications

Introduction An optocoupler, also known as an opto-isolator, is a crucial electronic component that transfers electrical signals between two isolated circuits using light. It ensures

Introduction of Optocouplers

Standard 6-terminal plastic DIP There are many applications of MOC3021 such as solenoid/valve controls, lamp ballasts, interfacing microprocessors to 115/240 Vac peripherals, motor controls and

Optocoupler

An optocoupler, also known as an optoisolator, is defined as a component that transfers electrical signals between two isolated circuits using light, thereby preventing high voltages from affecting the

Optocoupler : Types and Its Applications

Furthermore, because the optocoupler''s input end is a low resistance component of current type work, it has a strong common mode suppression ability. As a result, when used as a

Guidelines for reading an optocoupler datasheet

As an isolator, an optocoupler can prevent high voltages from affecting the side of the circuit receiving the signal. Transferring signals over a light barrier by using an infrared light-emitting diode and a light

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