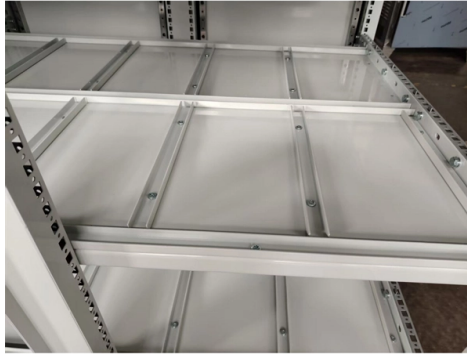


How to replace the ceramic core in an optocoupler



Overview

To compare TI digital isolators to optocouplers in standard interface circuits, see [How to Replace Optocouplers with Digital Isolators in Standard Interface Circuits](#).

Key Takeaways

Directly replacing the ceramic core inside an optocoupler is not feasible; the recommended approach is to replace the entire optocoupler or use a compatible digital isolator. Why Direct Replacement is Impractical Optocouplers are sealed semiconductor devices that contain a light-emitting diode (LED) and a photodetector, often mounted on a ceramic or plastic substrate for insulation and thermal stability. The ceramic core is integral to the device's structure, providing electrical isolation and mechanical support.

Attempting to remove or replace it would destroy the internal alignment of the LED and photodetector, compromise insulation, and likely render the device nonfunctional.

Recommended Replacement Methods

Replace the Entire Optocoupler Disconnect the circuit from power and discharge all components. Desolder the existing optocoupler carefully using a soldering station and desoldering pump or wick. Insert a new optocoupler in the correct orientation and solder it in place.

Clean the board with isopropyl alcohol to remove flux residue and reassemble the device. Use a Digital Isolator as a Drop-In Replacement. Modern digital isolators, such as the Si87xx series, can replace traditional optocouplers without PCB modifications. These devices emulate the LED-photodetector behavior and maintain pin compatibility, timing, and logic behavior, while offering improved reliability and faster response.

When using a digital isolator, you may need to adjust the input resistor to match the original optocoupler's current requirements.

Safety Considerations

Always disconnect power before working on the circuit. Avoid applying excessive heat to surrounding components during desoldering. Ensure the replacement device meets the voltage isolation and safety ratings of the original optocoupler.

Conclusion

Instead of attempting to replace the ceramic core, which is not serviceable, the practical solution is to replace the entire optocoupler or upgrade to a compatible digital isolator. This approach preserves circuit functionality, maintains electrical isolation, and ensures long-term reliability.

Article Content

Improve Your System Performance by Replacing Optocouplers with

To compare TI digital isolators to optocouplers in standard interface circuits, see [How to Replace Optocouplers with Digital Isolators in Standard Interface Circuits](#). When looking for a reliable and

[Using Opto Couplers](#)

[Designing Optocoupler Interfaces](#) 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 separate

[Never Struggle Again: Step-by-Step Guide to Replacing SMD](#)

Learn how to easily replace SMD optocouplers with this step-by-step guide. We'll cover everything from removing the old optocoupler to soldering in the new one.

[ANO007 | Understanding Phototransistor Optocouplers](#)

In order to design a functionally robust and reliable application with optocouplers, it is essential to understand not only the device's main parameters and parasitic elements, but also their tolerances

Optocoupler Tutorial and Optocoupler Application

What is an Optocoupler? An optocoupler (also called an opto-isolator, photo-coupler, or optical isolator) is a solid-state semiconductor device that transfers electrical signals between two

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A: Most simulation software provide within their standard library a basic set of optocoupler PSpice models. These generic type of models are mostly made for ambient temperatures of 25 °C and serve

Optocoupler Replacement Digital Isolator Guide

Learn drop-in optocoupler replacement isolators: pin/timing/behavior fit, fail-safe states, CMTI/EMI pitfalls, and validation checklists.

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For example, the Si87xx digital isolators from Skyworks directly replace 6- and 8-pin optocouplers and are suitable for both optocoupler retrofit and new system designs. They directly connect to existing

Everything You Need to Know About Optocouplers in Electronics

Have you ever heard the word isolation, especially in electronics? As you might guess, isolation is a key factor when it comes to optocouplers. Isolation is sometimes mandatory and

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| Analog Devices

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