

Frequently Asked Questions— Certified 8 mm Creepage Package

Q. What is the “Certified 8 mm Creepage Package”?

A. The certified 8 mm creepage package is the only package for digital isolators on the market that is certified by CSA to have at least 8 mm creepage. This allows it to be used in medical and other applications that require 8 mm creepage for 2MOPP or reinforced applications.

Q. What does 2MOPP mean?

A. 2MOPP (means of patient protection) refers to two independent systems of insulation protecting the patient from dangerous voltages. A single insulating component can get this rating based on extensive testing.

Q. Other suppliers claim that their packages have 8 mm creepage. How is ADI different?

A. Those suppliers’ claims are based on their own measurements and are not certified by CSA as 8 mm. ADI’s certified 8 mm creepage package has been certified by CSA to meet the 8 mm creepage requirement.

Q. What is CSA, and why does ADI utilize them for this certification?

A. CSA International is a leading provider of product testing and certification services located in Canada, used for standards testing by companies worldwide. ADI utilizes CSA as a trusted provider of test services for their IEC-based testing, including IEC 60601 third edition.

Q. Why is this important for medical applications?

A. Designs which need to conform to IEC 60601 require creepage of 8 mm. Patient connections many times bypass the protective layer of the patient’s skin making even small leakage currents life threatening. An 8 mm minimum creepage is required for digital isolators with reinforced (2MOPP) patient connections at a 220 V to 250 V ac working voltage.

Q. What is the IEC 60601 standard?

A. IEC 60601 is the international safety standard for medical equipment. It was recently updated to its third edition, which incorporated both stricter requirements for patient connected equipment and more relaxed standards for operator interfaces. All ADI isolators are qualified to the third edition of the standard.

Q. Will nonmedical applications need this package?

A. Yes, for specific applications requiring high creepage reinforced isolation rail voltages, however, the result is a fully rail-to-rail switch, with relatively constant on resistance over the signal range.

Q. How did ADI achieve the 8 mm creepage requirement?

A. The JEDEC standard 16-lead SOIC has 7.6 mm of creepage as measured around the end of the package and does not meet 220 V to 250 V ac requirements to ensure safe operation in medical applications. By increasing the length of the standard JEDEC package by 2.5 mm, ADI is able to increase the creepage path to 8.3 mm.

Q. Does the certified 8 mm creepage package increase clearance?

A. Yes, with the geometry of the SOIC type package, the creepage and clearance path are identical, so the package clearance also increases to 8.3 mm in the certified 8 mm creepage package. Many designers do not actually use the package clearance in their designs because they are concerned with the clearance along the PCB plane. This distance is the same between the standard SOIC and certified 8 mm long creepage package and is significantly greater than 8 mm for both.

Q. If I am using one of ADI’s iCoupler digital isolators with a component in the standard SOIC package, and my safety team people tell me I need at least >8 mm creepage, will I need to change the PCB layout to accommodate the long creepage package?

A. The new package should be compatible with your current PCB. The pinout of the standard and certified 8 mm creepage package is identical, as is the recommended pad layout. You should be able to drop the new packages right onto your existing board. The one exception would be where other components are placed too close to the ends of the iCoupler® isolator package. However, because this is where the isolation barrier is located, it is unlikely that there are any components nearby. You should review your board layouts for components placed too close to the end of the package.

Q. What happens to my designs that were certified to IEC 60601 with 250 V ac working voltage using the standard package, which is now respecified to 7.6 mm creepage?

A. Any system that has been certified can continue to use the originally certified part. If the system is redesigned or modified such that the system-level certification must be repeated, then the long creepage package may have to be used to achieve >8 mm of creepage.

Q. Will all of ADI’s digital isolators have this package?

A. All ADI digital isolators that are rated for 5 kV rms withstand voltage will be available in the certified 8 mm creepage package. If a 5 kV rms rated part is in production in the standard package, then it will continue to be available in that package, in addition to the certified 8 mm creepage package.

To learn more about our digital isolators: www.analog.com/icoupler

To learn more about our new certified 8 mm package: www.analog.com/8mmpackaging

Q. How can I tell the difference between the standard package and the certified 8 mm creepage package? Will they have different part numbers?

A. The base part number (for example, [ADuM2401B](#)) will remain the same. There will be a different suffix to indicate the use of the certified 8 mm creepage package:

- Certified 8 mm creepage package = “RI” (for example, [ADuM2401BRIZ](#))
- Standard wide-body SOIC package = “RW” (for example, [ADuM2401BRWZ](#))

Q. Will I have to pay more for the certified 8 mm creepage package?

A. No. Products using the certified 8 mm creepage package (“RI” suffix) will have the same price as the same products using the standard wide-body SOIC package (“RW” suffix).

Q. Where can I learn more?

A. For further information visit this dedicated package page, which contains package drawings, products available in the certified 8 mm creepage package, and an informative introductory video on the package: www.analog.com/8mmpackaging.

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