

**In This Issue**

[Low-Cost RS-485 Isolated Transceivers](#)

[Exhibitions](#)

[Isolator Creepage](#)

**Quick Links**

[Sensor Selector Guide](#)

[Isolator Selector Guide](#)

[Online Store](#)

[Contact Us](#)

**New Products**

[Low-Cost Isolated RS-485 Transceivers](#)

**New Documents**

[IL3085 Datasheet](#)

[True 8 mm Creepage Application Bulletin](#)

[Isolator Catalog rev. N](#) (includes new IL3085 RS-485 transceivers)

[IL41050TA IBIS Model](#)

**Spring Forward**

Daylight Saving Time begins Sunday, March 10. Set your clocks forward an hour. It's also a good time to check smoke alarms and make sure your [isolators have enough creepage](#).

**St. Patrick's Quote**

St. Patrick's Day is a great day for the Irish, but just an okay day if you're looking for a quiet tavern to talk, read or have a white wine spritzer.

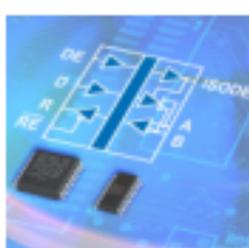


—Jon Stewart

**Low-Cost Isolated RS-485 Transceiver**

The new IL3085 is NVE's lowest-cost RS-485 transceiver.

Available in wide and narrow-body versions, the newest member of the award-winning IsoLoop® family of isolated transceivers has best-in-class specifications and unmatched reliability for rugged environments.



**World's Smallest**

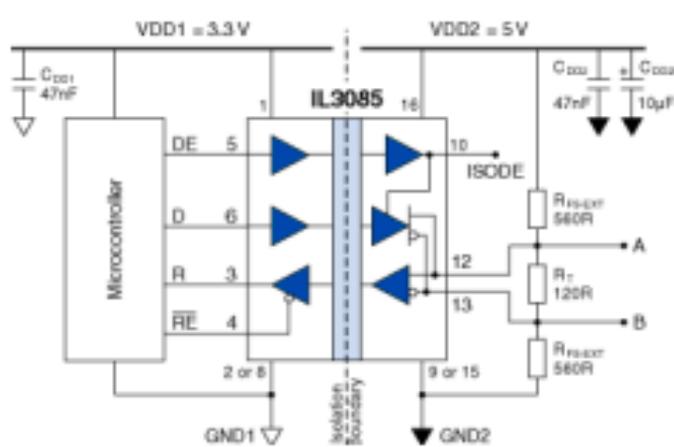


NVE's unique narrow-body versions, designated with the -3E suffix, are the world's smallest isolated transceivers. The 0.15-inch wide 16-pin "dash 3" SOIC package is half the size of other isolators.

**Best-in-Class Specifications**

The new transceivers feature best-in-class speed and efficiency for a low-cost transceiver, including 4 Mbps data rate and 3 mA typical controller-side quiescent current.

The parts meet or exceed ANSI RS-485 and ISO 8482:1987(E) industry standards.



**IL3085 Reference Design**

**Rugged and Reliable**

Designed for rugged industrial applications, IL3085 transceivers have a -40 to +85 degree Celsius temperature range, 15 kV bus ESD protection, and current limiting and thermal shutdown features. Receiver inputs feature a "fail-safe if open" design.

Parts are IEC 61010-1 approved and UL 1577 recognized. Unlike optocouplers or other isolation technologies, IsoLoop isolators have indefinite life at high voltage.

**Available Now**

The narrow-body IL3085-3E and wide-body IL3085E are both in stock for immediate delivery. Pricing is \$2.60 each for 1,000 pieces for the IL3085-3E, and \$3.25 for the IL3085E. [Contact Us](#) for higher-volume pricing.

[Download IL3085 Datasheet >](#)

**Buy Online**  
\$9.95 shipping

**Recent Exhibitions**



The Embedded World exhibition is underway in Nuremberg, Germany.

Distributor HY LINE Power Components is showing IsoLoop isolators. [Isolated Bus Transceivers](#) are popular for embedded applications.

**Applications Corner**

**NVE Isolators Feature TRUE 8 mm Creepage**

Eight millimeter creepage is required for 250 Vrms working voltage under IEC 60601, which specifies isolator creepage for medical safety and other equipment. The 8 mm is an absolute minimum and working voltage cannot be prorated for creepage any less than 8 mm.

Sixteen-pin wide-body SOIC isolators are popular isolator packages, but most do not meet the creepage requirement. With most packages, JEDEC tolerances, variability between package molds, and surface metal in the creepage path mean full 8 mm creepage cannot be assured.

**Ordinary Packages**

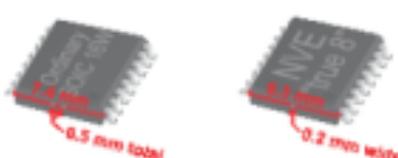
The shortage creepage path is usually around the end of the package from pin 1 to pin 16 or pin 8 to 9. Ordinary JEDEC wide-body packages are nominally 7.4 mm wide, with approximately 8.1 mm between pins around the end before subtracting metal tabs (sometimes called "tie bars") on the package edge. The tie bar is used in the molding process, and even if it is not internally connected, the exposed metal reduces the creepage and must be subtracted under creepage measuring rules. The tie bar subtraction for an ordinary JEDEC package is typically 0.5 mm, bringing typical creepage to only 7.6 mm—not enough for 250 working volt applications, even before allowing for mechanical tolerances.

**NVE's Tight-Tolerance Package**

Instead of an ordinary general-purpose package, NVE has custom tooled the True 8™ isolator package to meet isolation creepage requirements\*. The package is within the JEDEC standard, so no special board layout or handling is needed. The package has much tighter tolerances on package width and pin-to-end spacing, which are the key creepage dimensions.

Additionally, rather than two metal tabs on the edge of the package, the NVE package has just one narrow tab that secures the leadframe during molding.

NVE's unique design ensures full 8 mm creepage, as illustrated below:



An ordinary wide-body package (left) has 7.6 mm typical creepage after subtracting tie-bars; the NVE True 8 isolator package (right) has a single narrow tab and 8.3 mm typical creepage.

Typical dimensions are summarized in the following table:

Package	Width	Pin-to-end Spacing (total)	Surface Metal Subtraction	Typical Creepage
Ordinary wide-body	7.4 mm	0.7 mm	0.5 mm	7.1 mm
NVE "true 8 mm"	7.5 mm	1.0 mm	0.2 mm	8.3 mm

Creepage around the end is calculated as the package edge width, plus two pin-to-end spacings, less the surface metal subtraction. Creepage is usually limited by the path around the end of the package, but the path over the top of the package is also specified to ensure 8 mm.

**True 8 mm Creepage**

With worst-case tolerances (minimum package width, minimum pin to edge spacing, and maximum metal-tab width), the unique NVE True 8 package ensures 8.03 mm minimum creepage.

For more information on creepage, download our [Application Bulletin](#).

NVE offers a full line of [wide-body isolators](#) available in True 8 packages, including our latest, the IL3085 RS-485 transceiver ([see story above](#)).

\*To ensure security of supply NVE may use alternate packages, so be sure to specify the "True 8" package if needed.