

First Integrated MOSFET Capable of Functioning as a -48 V Telecom Shifter, Power Good Signal and Inrush Limiter

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Versatile NUD3048 handles five times the continuous current and delivers higher breakdown voltage than competitive industry-standard 60 V rated N-Channel MOSFETs

SUPERCOMM – Chicago, IL - June 23, 2004 – A leading global supplier of communications design solutions, ON Semiconductor today introduced the NUD3048 - a highly integrated N-Channel MOSFET featuring a breakdown voltage of 100 volts (V) and a buffered gate voltage rating of 100 V - for use in telecom, datacom or any -48 V bus distribution power system applications. This versatile device is the first integrated MOSFET in the industry capable of functioning as a level shifter, a power good signal and an inrush limiter. Additionally, it can be used as a relay drive circuit.

ON Semiconductor has taken an industry standard 2N7002x small signal 60 V MOSFET and supercharged it into a 100 V breakdown voltage N-Channel MOSFET – creating a highly versatile switching device ideal for a wider range of communications applications. A gate-to-source zener clamp, ESD protection diodes and 100 KOhms gate resistor have been integrated into the device – eliminating the need for many of the discrete components commonly required to support a 2N7002x MOSFET, shortening the bill of materials list and reducing pc board space usage.

The NUD3048 is offered in a TSOP6 package for several reasons. First, its small size conserves board space and allows maximum board density. Secondly, the package enables external connections to both sides of the 100 KOhms integrated gate resistor - enabling a designer to add a gate capacitor to delay turn-on of this device and still meet the timing requirements. Additionally, the TSOP6 packaging – with 0.72 Ohm maximum on resistance – enables the device to handle approximately five times the continuous current of the industry standard 2N7002. This in turn allows the device to be used in a wider range of communications applications.

Pricing and Availability

The NUD3048 is available in a TSOP6 priced at \$0.17 per unit in 10,000 unit quantities. Samples can be ordered online at www.onsemi.com by searching the part number.

Design Solution

The NUD3048 is a complementary device with the NIS5101 SMART HotPlug™ designed to allow safe insertion and removal of electronic equipment to -48 V backplanes. While the NIS5101 limits inrush current during initial charging of input capacitors, the NUD3048 is used to send a logic signal to turn on the dc/dc converter load when its input capacitors are safely charged.

For more information, a copy of the application notes explaining several uses for the NUD3048 and NIS5101 and device characterization data visit www.onsemi.com/communications.

The original press release is available [here](#)

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