

**IC Drives Low-, Medium- And High-Voltage E-mode GaN HEMTs**

[Innoscence Technology's](#) INS1001DE driver IC is designed to drive single-channel GaN HEMTs in either low-side, high-side, or secondary-side SR applications. The gate driver has dual non-inverting and inverting PWM inputs, enabling flexible operation with controller, opto-coupler and digital isolator. Independent pull-up and pull-down outputs facilitate the control of turn-on and turn-off speeds.

Driver voltage is user-programmable to suit different gate requirements using an external resistor divider. An integrated 5-V LDO is included to supply digital isolator or other circuitry in high-side applications.

Min Chen, VP of IC Design at Innoscence, comments, "The INS1001DE is perfectly matched to optimize the performance of e-mode GaN HEMTs and particularly innoscence's e-mode InnoGaN. A strong driving capability and fast propagation delay, along with input noise deglitching and built-in UVLO, OVP, OTP protection features, make the INS1001DE extremely suitable for high power, high frequency, and robust power GaN applications."

Featuring a wide 6-V to 20-V operating voltage range and with a strong 1.3-Ω pull-up and 0.5-Ω pull-down resistance, the INS1001DE is available in a thermally-enhanced DFN 3x3-10L package (see the figure). Applications include ac-dc and dc-dc converters, boost, flyback, forward, half-bridge and full-bridge converters, synchronous rectification circuits, solar inverters, motor control and UPSs. For more information, see the [INS1001DE page](#).

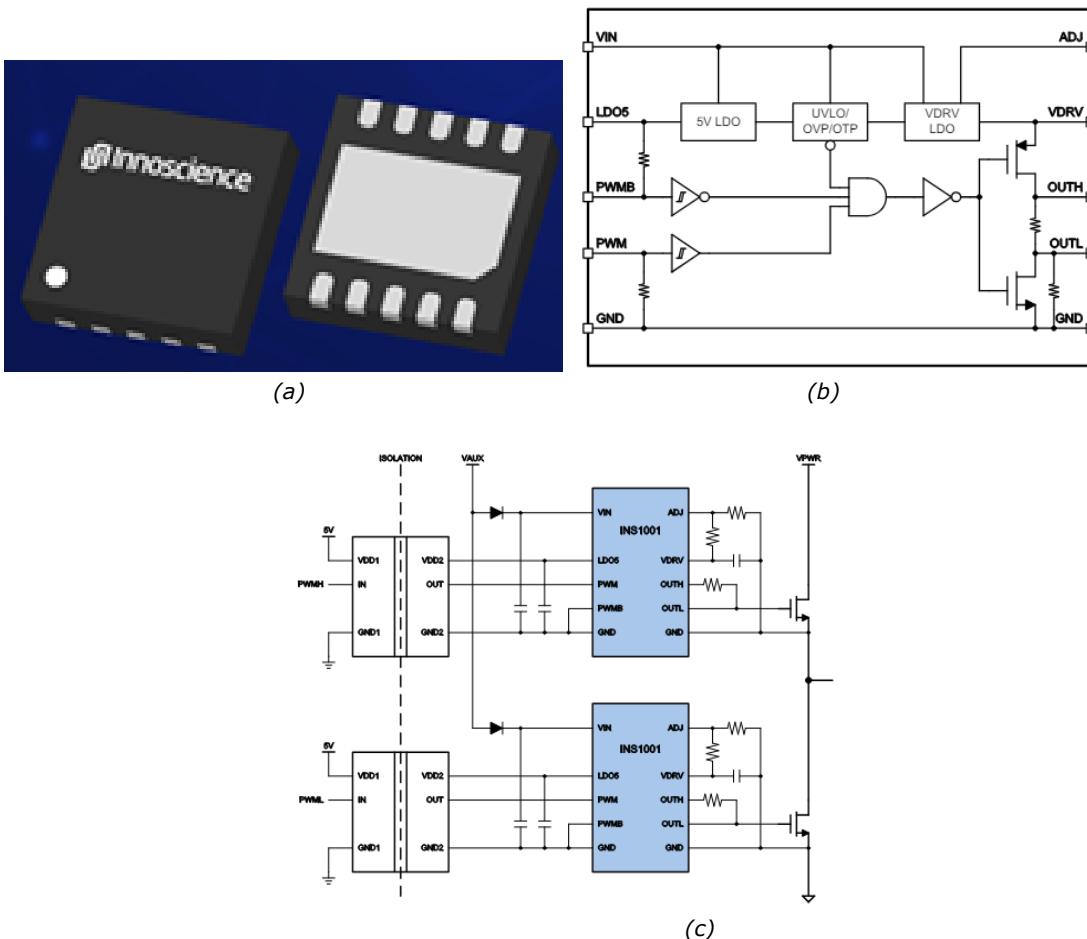


Figure. The INS1001DE driver IC is designed to drive single-channel GaN HEMTs. It has dual non-inverting and inverting PWM inputs, independent pull-up and pull-down outputs and user-programmable driver voltage. Shown here are the device's package (a), internal block diagram (b) and typical application circuit (c).