

NU1020: Integrated Power Stage for High-Integration and High-Efficiency Medium-Power Wireless Power Transmitter

Feature

- Wide Input Voltage: 4V to 21V
- Integrated High-Efficiency Full-Bridge FETs
- Integrated FET Driver Optimized for Low EMI
- Integrated 5V DC/DC for IC power supply
- Integrated 3.3V (2.5V configurable) LDO to Bias External Circuit and Provide Reference Voltage
- High-Accuracy, Lossless Current Measurement for FOD and In-Band Communication
- Integrated Lossless Q Factor Detection
- Integrated Low-Error-Rate Digital Demodulation
- Input UVLO and OVP
- Over-Current Protection
- Thermal Shutdown
- I²C Interface
- 4mm x 4mm QFN Package

Applications

- Wireless Power Transmitter Compliant with WPC V1.2.4 Extended Power Profile (EPP)
- Wireless Power Transmitter for Consumer, Industrial, Automotive Aftermarket, and Medical Applications
- Motor Drivers

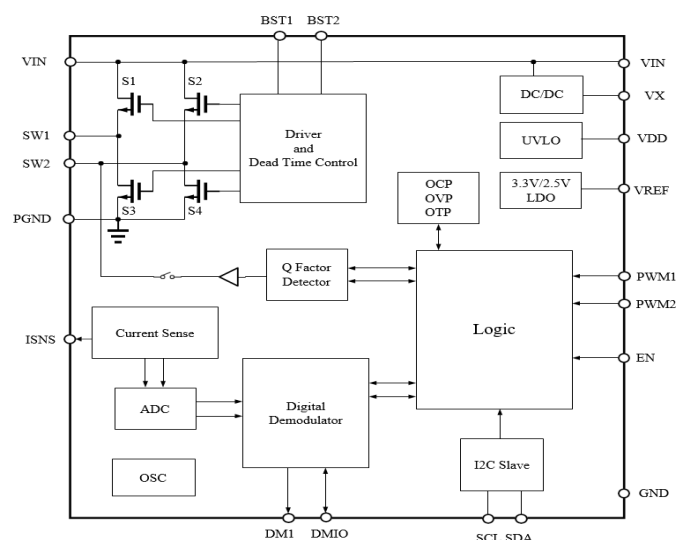
Descriptions

NU1020 is a family of highly integrated full-bridge power stage IC optimized for wireless power transmitter solutions. The device integrates all critical functions, such as high-efficiency power FETs, low-EMI FET drivers, bootstrap circuit, 5V integrated DC/DC power supply, 3.3V (2.5V configurable) LDO and lossless current measurement. The proprietary current-measurement circuit provides the accurate current reading used for the FOD (Foreign Object Detection) power measurement, in-band communication, Q factor detection, and digital demodulation.

The IC also includes protection functions such as input under-voltage lockout, over-voltage protection, over current protection, and thermal shutdown. These provisions further enhance the reliability of the total system solution.

I²C interface is used for communication with the controller and can easily be extended to multi-coil solutions. The device is housed in a thermally enhanced 4mmx4mm QFN package.

Functional Block Diagram



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