

## NU1020

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

## 1 Features

- 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×4mm QFN Package

## 2 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

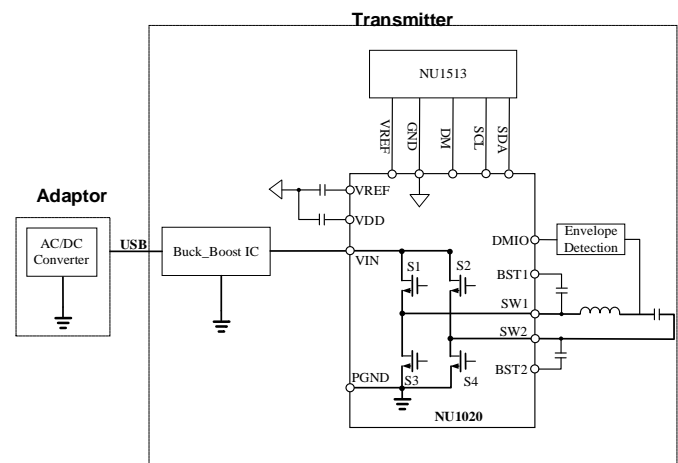
## 3 Descriptions

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 4mm×4mm QFN package.



**Simplified Application Diagram**

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## 9 Package Information

Orderable Device	Status	Package Type	Package Drawing	Pins	Package Quantity
NU1020QCDB	MP	QFN	QCD	33	3000
Orderable Device	Eco Plan	Lead/Ball Finish	MSL Peak Temp	OpTemp/°C	Device Marking
NU1020QCDB	Green (RoHS & no Sb/Br)	NiPdAu	Level-2	-40 to 125	NU1020QCD

## 10 Revision History

REVISION	REVISION DATE	CHANGES	PAGES CHANGED
V1.0	10/01/2018	Initial release	–
V1.1	04/01/2019	Update the pin configuration and function.	–
V1.2	06/01/2020	Release Version V1.2	–

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