



Integrated low cost  
Qi wireless charging  
transmitters  
NXQ1TXH5,  
NXQ1TXL5

## Plug 'n play low power wireless charging transmitters for cost-sensitive applications

Flexible and simple design: build a complete high-end performance 5 V Qi Version 1.2 compliant low power wireless charging transmitter, with a standby power of less than 10 mW.

### KEY FEATURES

- ▶ Qi Low Power version 1.2 compliant
- ▶ Transmit power up to 8W
- ▶ Fully integrated transmitter with integrated power stages
- ▶ Low-power technology based on CoolFlux™ DSP
- ▶ Extremely low component count and easy-to-design solution
- ▶ Small product package: HVQFN32 (5 x 5 mm)
- ▶ Standby power of < 10 mW, including device detection
- ▶ ASK with a DSP for reliable communication
- ▶ Easy FOD tuning (2 resistors) for Qi version 1.2 certification

### KEY BENEFITS

- ▶ High efficiency from 1W to 5W charging applications
- ▶ Ideal for smartphone and wearable charging applications
- ▶ Extremely small application size and easy to design
- ▶ Very low standby power including analog & digital ping
- ▶ Safe operation with FOD and optional NTC

### APPLICATIONS

- ▶ Wireless Power Consortium (WPC) Qi certified/compliant wireless power transmitters
- ▶ Wireless charger for (smart)phones, toys, shavers, and other handheld devices, smartwatches and wearables, with high efficiency and small form factor

Designed for superior performance in size- and cost-optimized 5 V Qi wireless chargers, the NXP NXQ1TXH5 wireless charging transmitter integrates everything from power control, signal processing, on-chip current and voltage measurement up to a fullbridge output power stage, with output power of 8W and a standby power as low as only 10 mW. The NXQ1TXH5 meets all the latest Wireless Power Consortium (WPC) Qi low power version 1.2 specifications and is ideally suitable for a Qi certified design that is future proof.

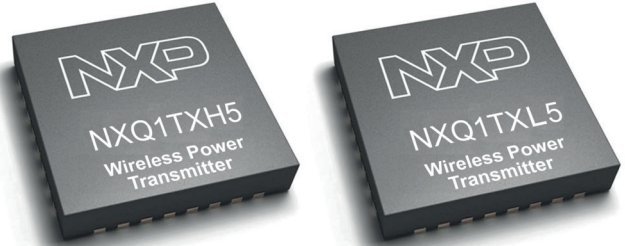
Exceptionally high integration and advanced functionality serve to reduce footprint and standby power consumption, while making the design of a wireless charger very simple. In addition to the Qi coil and resonant capacitors, the NXQ1TXH5 requires very few external components. Also the Foreign Object Detection (FOD) tuning has been made very simple and adjustment to any Qi coil and any application is done by only 2 external resistors. The device comes in a very small, 32 pin HVQFN package (SOT617-3) of 5 x 5 mm with a 0.5 mm pitch.



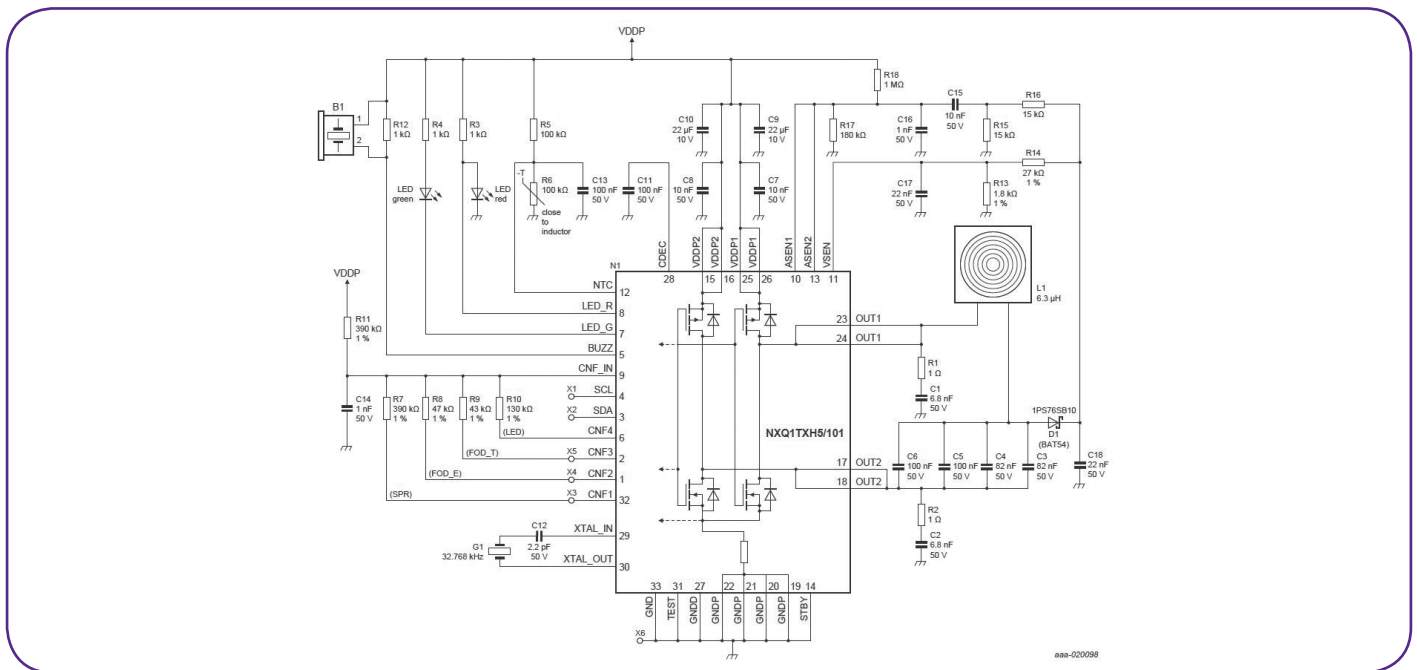
The NXQ1TXH5 integrates NXP's low-power CoolFlux™ DSP technology and many high-performance mixed-signal features, like extremely low power device detection during standby, and Foreign Object Detection (FOD) for safe wireless charging. The CoolFlux™ DSP processor performs dual channel ASK demodulation, for reliable interoperability with Qi receivers. Special ultra low-power circuitry detects devices placed on the wireless charger.

The NXQ1TXL5 is an ever further simplified and cost-optimized device with the same excellent charging performance of the NXQ1TXH5, but without the FOD function and configuration options. The NXQ1TXL5 still fits into existing NXQ1TXH5 PCB designs, or a special low cost PCB design. For extremely cost-sensitive applications that do not need Qi certification, but still the complete performance of a 5W wireless charger the NXQ1TXL5 is the perfect candidate.

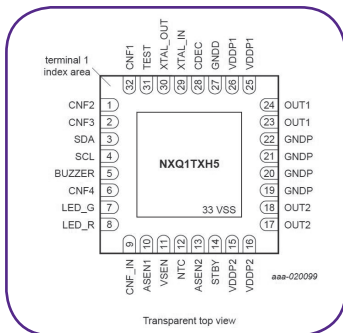
The NXQ1TXH5 can be powered by a USB port or USB charger. Using the on-chip Smart Power function, the NXQ1TXH5 detects a drop in the supply voltage and, in response, reduces the transmitted output power. This makes it possible for the design to use a USB port capable of only low output power.



### NXQ1TXH5 Circuit Diagram



### NXQ1TXH5 Pinning



### NXQ1TXL5 Pinning

