

General Description

The AOZ32033AQI is an integrated half-bridge solution with intelligent slew-rate control for wireless charger application. The device includes the high-side, low-side N-channel MOSFETs and its driver circuit. Typically, it's dedicated for the design of wireless charger transmitter circuit which is composed of full-bridge topology with resonant tank circuit to get best efficiency of power converter.

The AOZ32033AQI provides adjustable gate drive sink and source current control, by doing this control methodology, it's able to optimize EMI and driver losses to improve overall efficiency performance. Moreover, the features of AOZ32033AQI have multiple protection functions such as V_{CC} UVLO and over temperature protection to make the design more robust.

The AOZ32033AQI is available in a 3mm×3mm QFN-18L package and is rated over a -40°C to +85°C ambient temperature range.

Features

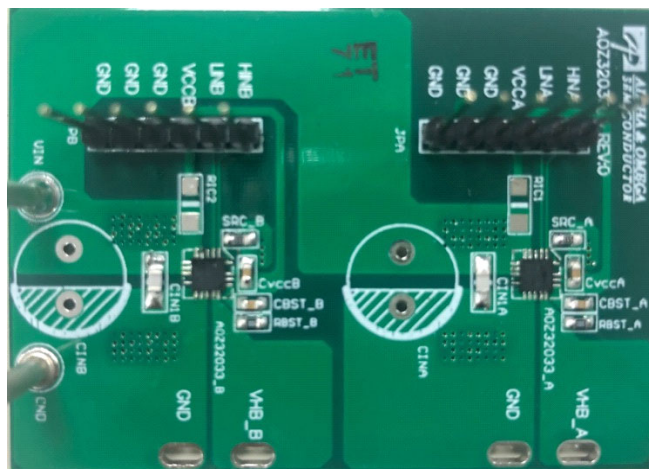
- Maximum input voltage 30V
 - Support 12V & 24V voltage rail system
- 15W~30W coil driver
 - For wireless charger transmitter circuit
- Slew-Rate control to improve EMI performance
- Integrated bootstrap diode
- Support protections
 - OTP, UVLO
- Thermally enhanced 18-pin 3×3 QFN

Applications

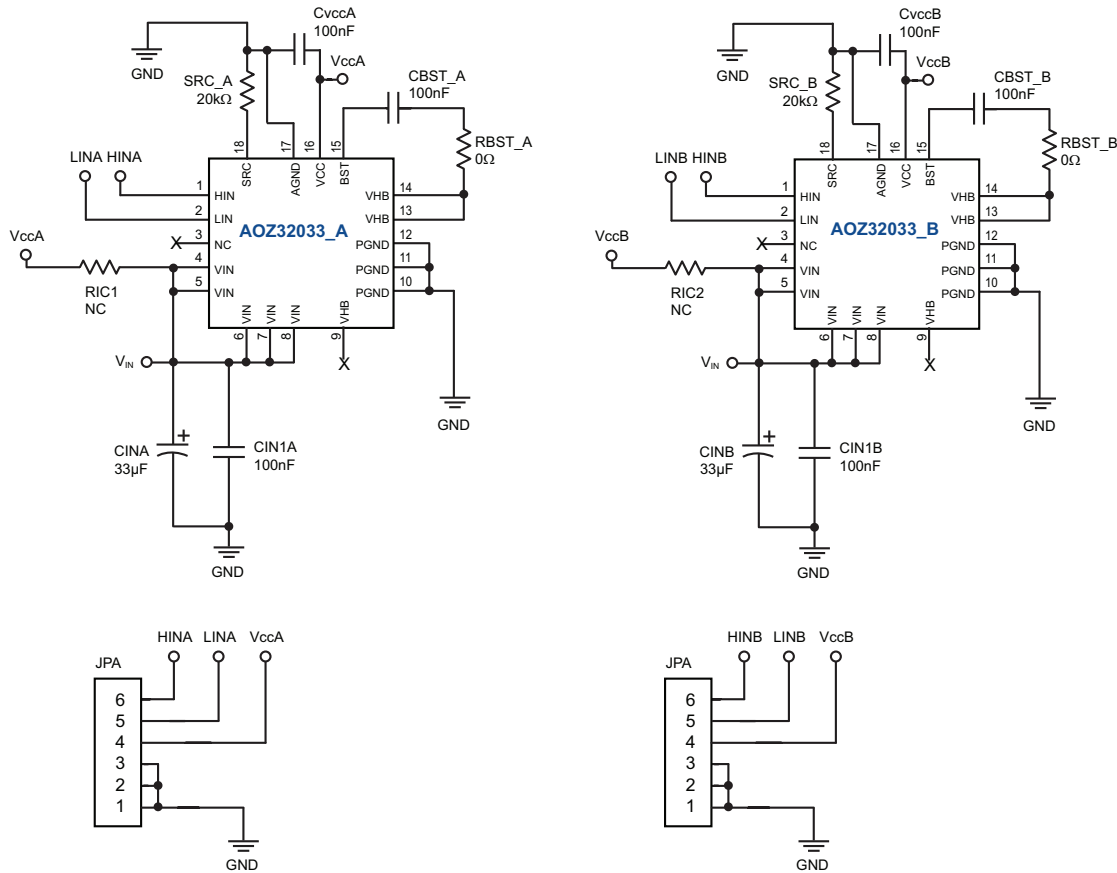
- Wireless charger TX



Evaluation Board



Evaluation Board Schematics



BOM of AOZ32033AQI

Reference Designator	Part Number	Description
C _{VCC} A, C _{VCC} B	GRM188R71H104KA01D	Cap, 100nF, 0603, 50V, X7R, 10%
C _{BST} _A, C _{BST} _B	GRM188R71H104KA01D	Cap, 100nF, 0603, 50V, X7R, 10%
C _{IN} 1A, C _{IN} 1B	0805B104k500CT	Cap, 100nF, 0805, 50V, X7R, 10%
C _{IN} B		Electrolytic capacitor 33uF/50V
SRCA, SRCB		20kΩ, 0603
R _{IC} 1, R _{IC} 2, C _{INA}		NC
R _{BST} _A, R _{BST} _B		0Ω

Quick Start Guide

1. Connect the DC power supply to V_{IN} and GND connects. Set the DC power supply voltage between the operating range of 3.8V and 30V.
2. Connect the DC power supply to V_{CC} and GND connects. Set the DC power supply voltage to 5V.
3. Connect the terminals of load to V_{HB} and GND connectors.
4. Use HIN/LIN pins to control each high-side and low-side switching.
5. When monitoring the V_{HB} switching waveform, directly probe across the V_{HB}-PGND trace to minimize inductive ringing.

PCB Layout

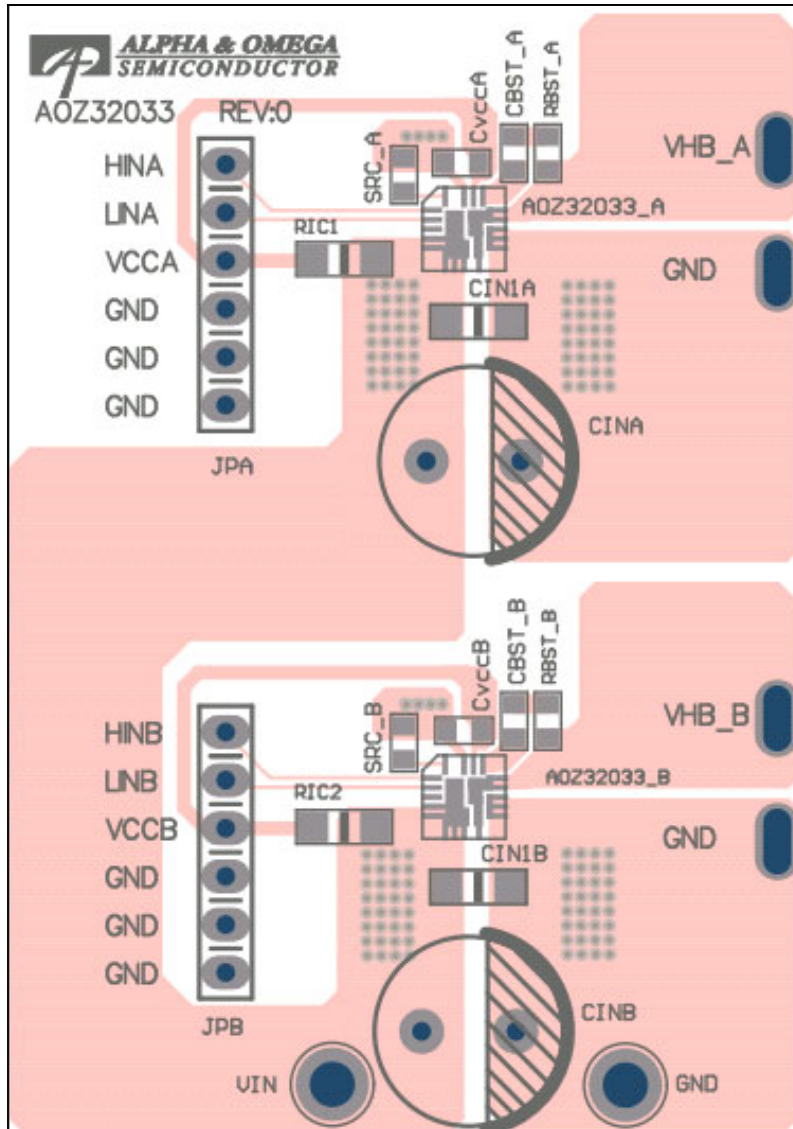


Figure 1. Top Layer

PCB Layout

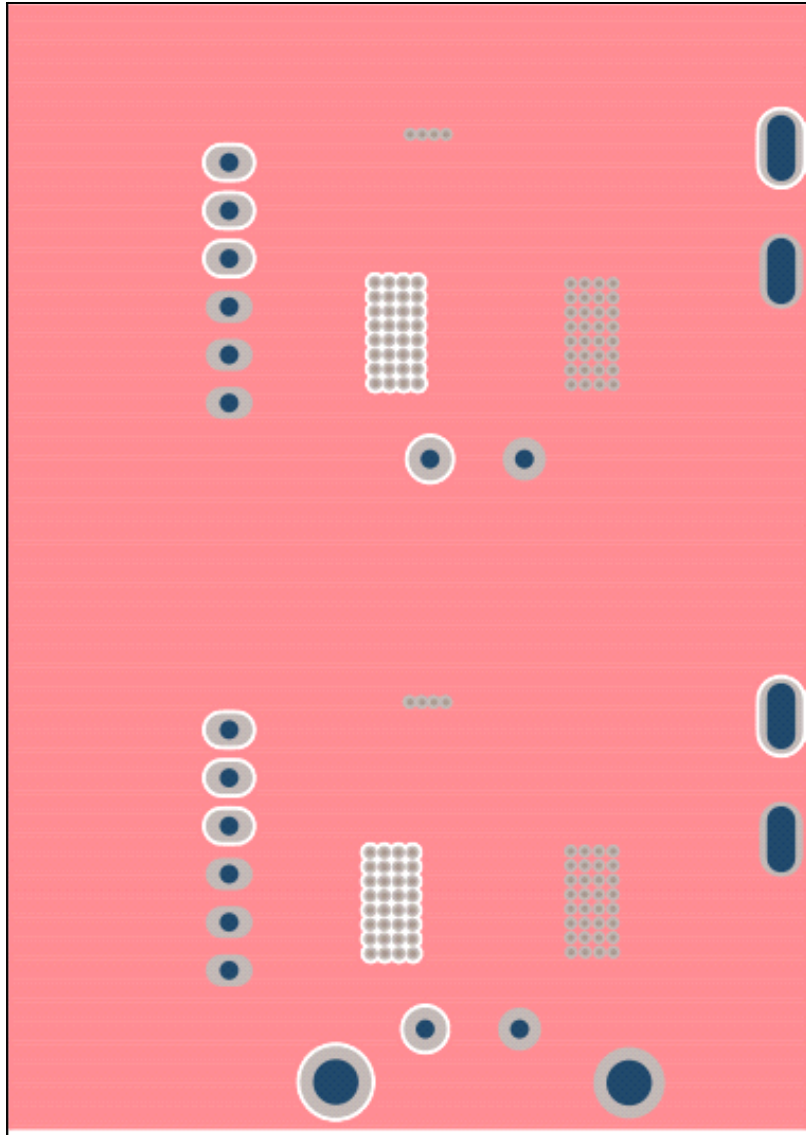


Figure 2. Mid-Layer 1

PCB Layout

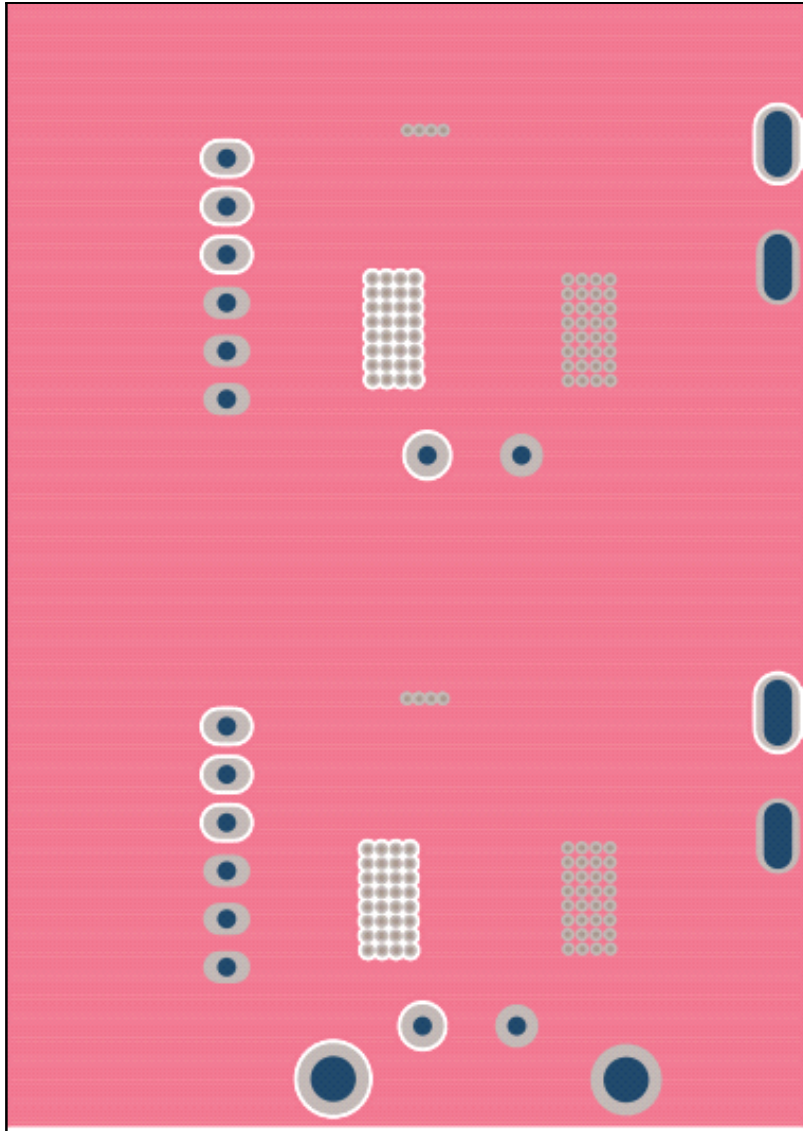


Figure 3. Mid-Layer 2

PCB Layout

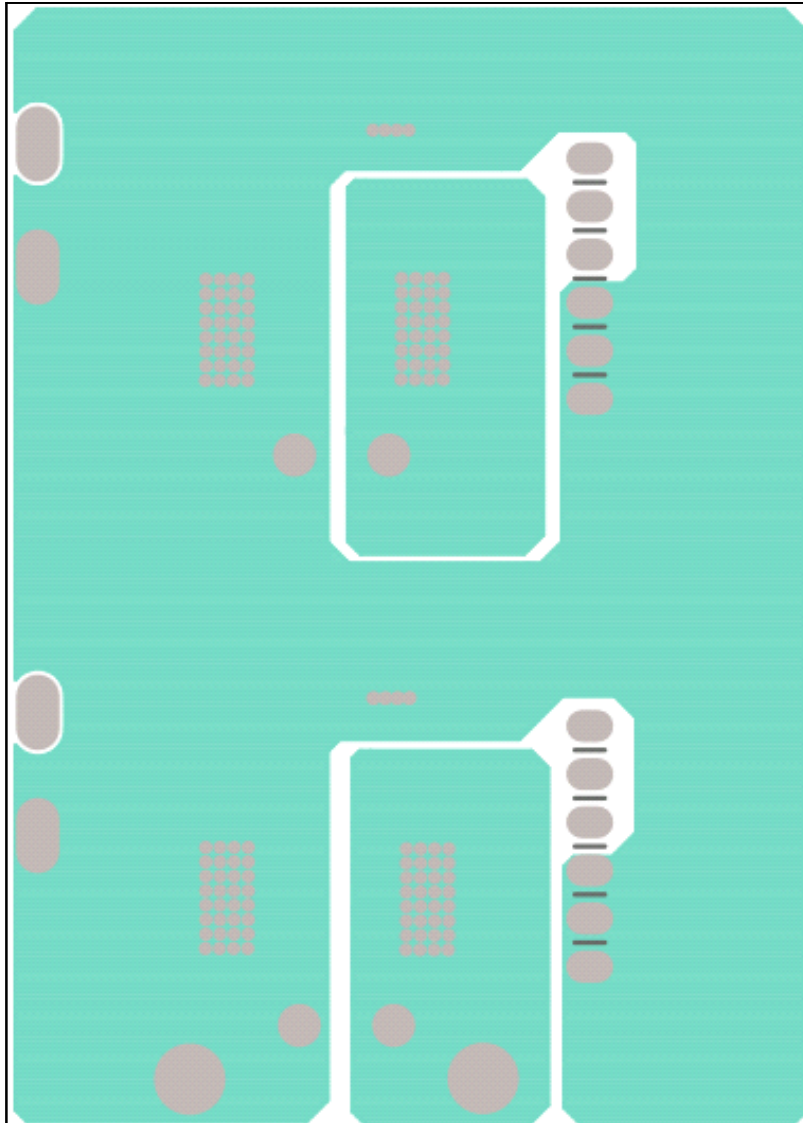


Figure 4. Bottom Layer

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2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.