4-Bit Bidirectional Voltage-Level Translator for Open-Drain & Push-Pull Applications

DESCRIPTION

ETA4554, four-bit non-inverting translator, is a bidirectional voltage-level translator and can be used to establish digital switching compatibility between mixed-voltage systems. It uses four separate configurable power-supply rails, with the A ports supporting operating voltages from 1.65V to 5.5V while it tracks the V_{CCA} supply, and the B ports supporting operating voltages from 2.3V to 5.5V while it tracks the V_{CCB} supply. This allows the support of both lower and higher logic signal levels while providing bidirectional translation capabilities between any of the 1.8V, 2.5V, 3.3V, and 5V voltage nodes.

ETA4554 provide enable control pin, OE. When the output-enable (OE) input is low, all I/Os are placed in the high-impedance state, which significantly reduces the power-supply quiescent current consumption. OE has an internal pull-down current source, as long as V_{CCA} is powered.

To ensure the high-impedance state during power up or power down, OE should be tied to GND through a pull-down resistor, the minimum value of the resistor is determined by the current-sourcing capability of the driver.

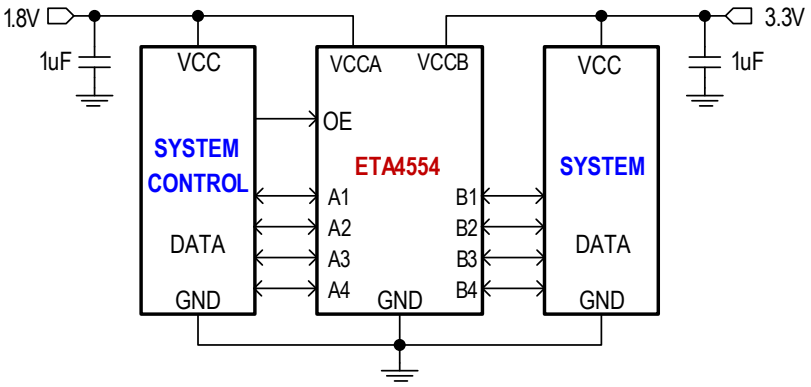
FEATURES

- No Direction-Control Signal Needed
- Data Rates
  - 24Mbps (Push-Pull)
  - 2Mbps (Open-Drain)
- 1.65V to 5.5V on A Ports and 2.3V to 5.5V on B Ports (VCCA ≤ VCCB)
- V_{CC} Isolation: If Either V_{CC} is at GND, Both Ports are in the High-Impedance State
- No Power-Supply Sequencing Required: Either V_{CCA} or V_{CCB} can be Ramped First
- I_{OFF}: Supports Partial-Power-Down Mode Operation
- Available in QFN1.7x2.0-12, QFN2x2-14, QFN3x3-16, QFN3.5x3.5-14 and TSSOP-14 Packages

APPLICATIONS

- I2C/SMBus
- UART
- GPIO

TYPICAL APPLICATION CIRCUIT



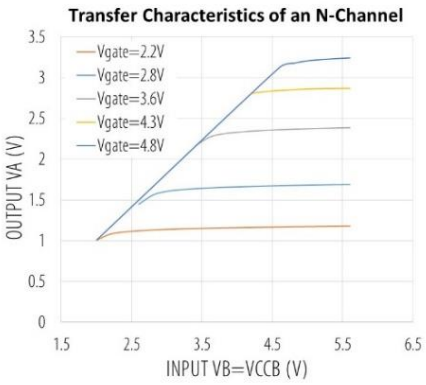


Figure 1: Typical Application Circuit