

# **General Wixed-mode Technology** 1-2-4-Bit Bidirectional Voltage-Level Translator with Automatic Direction Sensing and ±15kV ESD Protection

## Features

- 1.2V to 3.6V on A port and 1.65V to 5.5V on B port (V<sub>CCA</sub> ≤ V<sub>CCB</sub>)
- V<sub>cc</sub> Isolation Feature-If Either V<sub>cc</sub> Input Is at GND, All Outputs Are in the High-Impedance State
- EO Input Circuit Referenced to V<sub>CCA</sub>
- Low Power Consumption, 5µA Max Icc
- No Power-Supply Sequencing Required-Either V<sub>CCA</sub> or V<sub>CCB</sub> Can be Ramped First
- Ioff Supports Partial-Power-Down Mode Operation
- Latch-Up Performance Exceeds 100mA Per JESD 78, Class II
- ESD Protection Exceeds JESD 22
  - A Port
    2500V Human-Body Model (A114-B)
    1500V Charged-Device Model (C101)
    B Port
    - ±15kV Human-Body Model (A114-B) 1500V Charged-Device Model (C101)
- SC-70-6 (SOT-363), SOT-23-6, SOT-23-8, AQFN1.7X2.0-12 and AQFN1.5X1.5-8 Package

### **General Description**

This 4-bit noninverting translator uses two separate configurable power-supply rails. The A port is designed to track V<sub>CCA</sub>. V<sub>CCA</sub> accepts any supply voltage from 1.2V to 3.6V. The B port is designed to track V<sub>CCB</sub>. V<sub>CCB</sub> accepts any supply voltage from 1.65V to 5.5V. This allows for universal low-voltage bidirectional translation between any of the 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, and 5V voltage nodes. V<sub>CCA</sub> should not exceed V<sub>CCB</sub>.

When the enable-output (EO) input is low, all outputs are placed in the high-impedance state. To ensure the high-impedance state during power up or power down, EO should be tied to GND through a pulldown resistor; the minimum value of the resistor is determined by the current-sourcing capability of the driver.

The G2129 is designed so that the EO input circuit is supplied by  $V_{\text{CCA}}$ 

This device is fully specified for partial-power-down applications using  $I_{Off}$ . The  $I_{off}$  circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.

**Typical Application Circuit** 

VCCE

3.3V

System

Data

VCCA

FO

1.8V

System Controlle

Data

Data

ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G2129TL1U	219x	-40°C to +85°C	SC-70-6 (SOT-363)
G2129TB1U	2129x	-40°C to +85°C	SOT-23-6
G2129TM1U	2129x	-40°C to +85°C	SOT-23-8
G2129AE1U	2129	-40°C to +85°C	AQFN1.7X2.0-12
G2129A71U	29 xx	-40°C to +85°C	AQFN1.5X1.5-8

Note: TL: SC-70-6 (SOT-363) TB: SOT-23-6 TM: SOT-23-8 AE: AQFN1.7X2.0-12 A7: AQFN1.5X1.5-8 1: Bonding Code

U: Tape & Reel

Ordering Information

#### **Pin Configuration**



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0.1µl