

1-2-4-Bit Bidirectional Voltage-Level Translator with Automatic Direction Sensing and $\pm 15\text{kV}$ ESD Protection

Features

- 1.2V to 3.6V on A port and 1.65V to 5.5V on B port ($V_{CCA} \leq V_{CCB}$)
- V_{CC} Isolation Feature-If Either V_{CC} Input Is at GND, All Outputs Are in the High-Impedance State
- EO Input Circuit Referenced to V_{CCA}
- Low Power Consumption, $5\mu\text{A}$ Max I_{CC}
- No Power-Supply Sequencing Required-Either V_{CCA} or V_{CCB} Can be Ramped First
- I_{off} 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
 - $\pm 15\text{kV}$ 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_{CCA} . V_{CCA} accepts any supply voltage from 1.2V to 3.6V. The B port is designed to track V_{CCB} . V_{CCB} 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_{CCA} should not exceed V_{CCB} .

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_{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.

Ordering Information

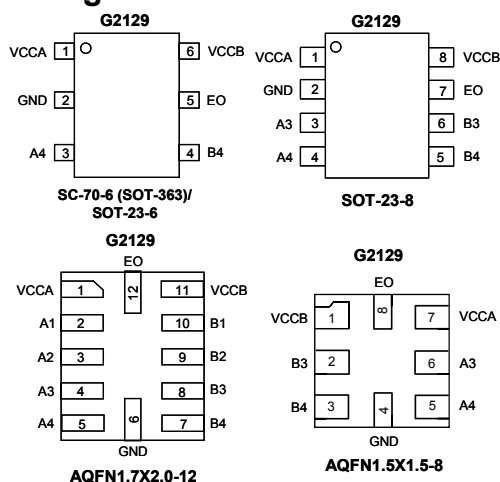
ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G2129TL1U	219x	-40°C to +85°C	SC-70-6 (SOT-363)
G2129TB1U	2129x	-40°C to +85°C	SOT-23-6
G2129TM1U	2129x	-40°C to +85°C	SOT-23-8
G2129AE1U	2129	-40°C to +85°C	AQFN1.7X2.0-12
G2129A71U	29 XX	-40°C to +85°C	AQFN1.5X1.5-8

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

Pin Configuration



Typical Application Circuit

