

***SENSYLINK Microelectronics***

***(CAG92102S)***

***2-bit Bidirectional Voltage-Level  
Translator***

***CAG92102S is a 2-bit Bidirectional Voltage-Level Translator for  
Open-Drain and Push-Pull.***

***It is ideally used in Industrial, Personal Electronics and Telecom  
Equipment.***

## 1. Description

This 2-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 two separate configurable power supply rails, with the A ports supporting operating voltages from 1.65 V to 3.6 V while it tracks the  $V_{CCA}$  supply, and the B ports supporting operating voltages from 2.3 V to 5.5 V 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 1.8 V, 2.5 V, 3.3 V, and 5 V voltage nodes.

For the CAG92102S, when the output-enable (OE) input is low, all outputs are placed in the high-impedance state. 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. The OE device control pin input circuit is supplied by  $V_{CCA}$ .

Available Package: DFN2x3-8 package.

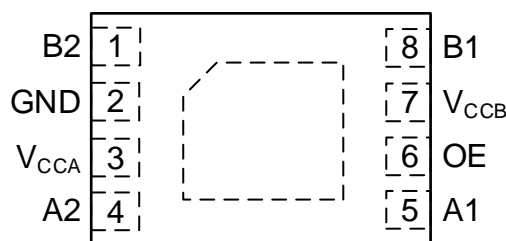
## 2. Features

- $V_{CCA}$  Operation Voltage: 1.65 V to 3.6 V
- $V_{CCB}$  Operation Voltage: 2.3 V to 5.5 V
- $V_{CCA}$  must be less than or equal to  $V_{CCB}$ , and  $V_{CCA}$  must not exceed 3.6 V
- Low Power Consumption
- No Direction-Control Signal Needed
- Maximum Data Rates
  - 24 Mbps (Push Pull)
  - 2 Mbps (Open Drain)
- No Power-Supply Sequencing Required: Either  $V_{CCA}$  or  $V_{CCB}$  Can Be Ramped First
- OE Input Circuit Referenced to  $V_{CCA}$
- Temperature Range: -40°C to 85°C

## 3. Applications

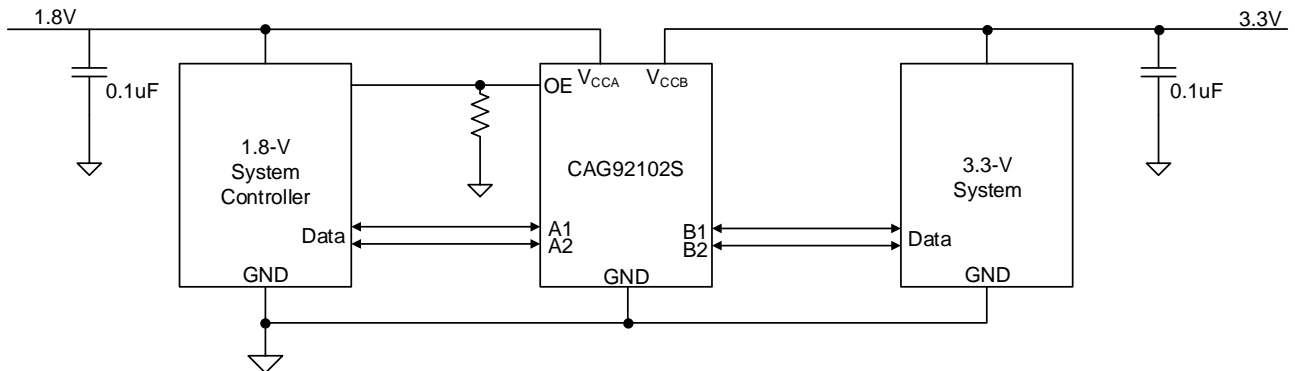
- IIC/SMBus
- UART
- GPIO
- Telecom equipment
- Industrial
- Enterprise

## 4. Pin Configurations (Top View)



DFN2x3-8(Package Code DN)

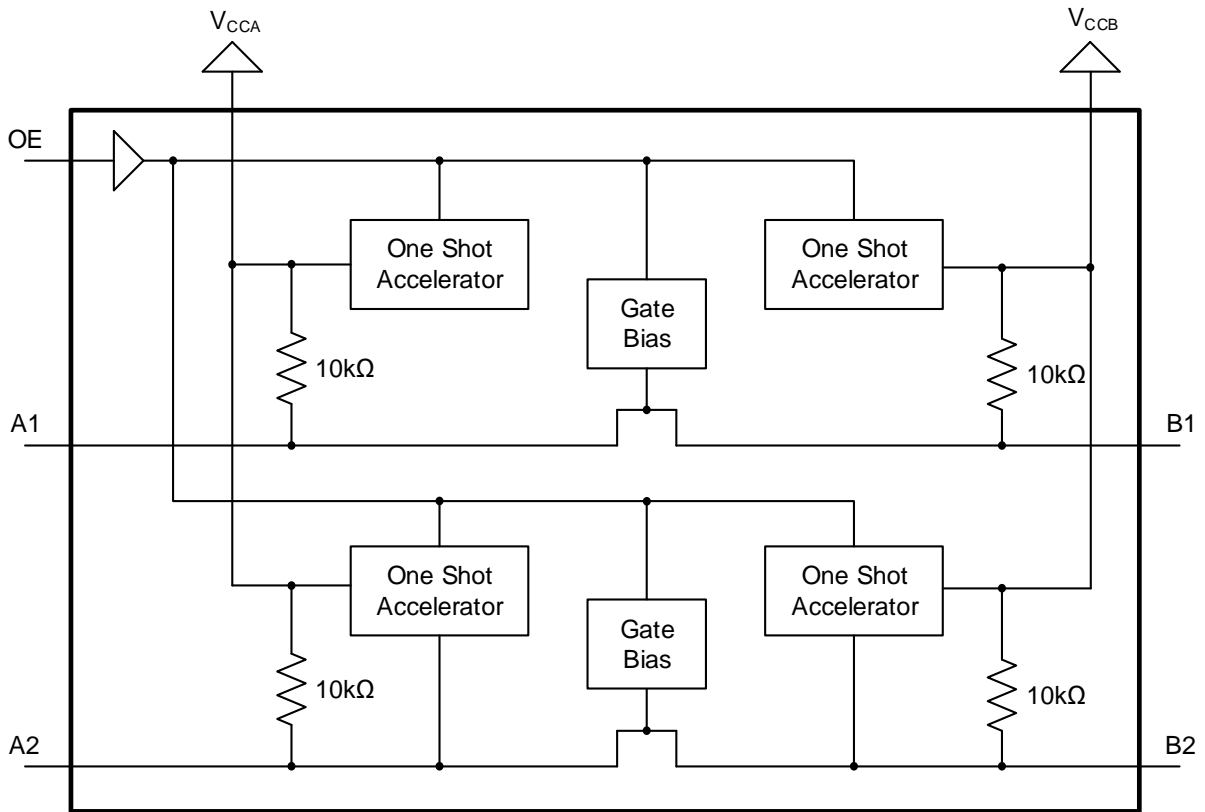
## 5. Typical Application

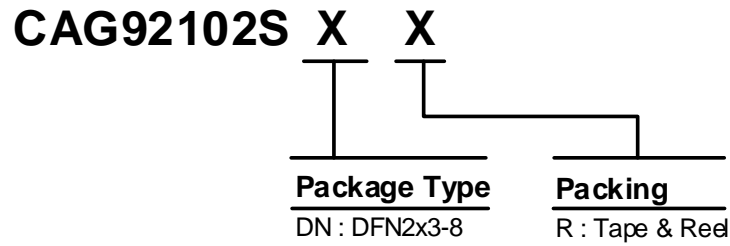


**Figure 1 Typical Application of CAG92102S**

## 6. Pin Description

PIN Name	PIN No.	Description
B2	1	Input/output B. Referenced to $V_{CCB}$ .
GND	2	Ground
$V_{CCA}$	3	A-port supply voltage. $1.65\text{ V} \leq V_{CCA} \leq 3.6\text{ V}$ and $V_{CCA} \leq V_{CCB}$
A2	4	Input/output A. Referenced to $V_{CCA}$ .
A1	5	Input/output A. Referenced to $V_{CCA}$ .
OE	6	Output enable (active High). Pull OE low to place all outputs in 3-state mode. Referenced to $V_{CCA}$ .
$V_{CCB}$	7	B-port supply voltage. $2.3\text{ V} \leq V_{CCB} \leq 5.5\text{ V}$
B1	8	Input/output B. Referenced to $V_{CCB}$ .

**2-bit Bidirectional Voltage-Level Translator**
**7. Functional Block**

**Figure 2 CAG92102S Function Block**

**2-bit Bidirectional Voltage-Level Translator**
**8. Ordering Information**


Order PN	Green <sup>1</sup>	Package	Marking ID <sup>2</sup>	Packing	MPQ	Operation Temperature
CAG92102SDNR	Halogen free	DFN2x3-8	HG YWXA	Tape & Reel	3,000	-40°C to 85°C

**Note:**

- (1) Sensylink can meet RoHS 2.0/REACH requirement. So most package types Sensylink offers only states halogen free, instead of lead free.
- (2) Marking ID includes 2 rows of characters. In general, the 1st row of characters are part number, and the 2nd row of characters are date code plus production information.



## ***SENSYLINK Microelectronics Inc.***

***[www.sensylink.com](http://www.sensylink.com)***

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