

Voltage Level Translator 2-CH Bidirectional 8-Pin DSBGA T/R



Images are for reference only

[Inquiry](#)

Manufacturer: [Texas Instruments, Inc](#)

Package/Case: DSBGA8

Product Type: Logic ICs

RoHS: RoHS Compliant/Lead free 

Lifecycle: Active

General Description

The TCA9406 is a 2-bit bidirectional I2C and SMBus voltage-level translator with an output enable (OE) input. It is operational from 1.65 V to 3.6 V on the A-side, referenced to VCCA, and from 2.3 V to 5.5 V on the B-side, referenced to VCCB. This allows the device to interface between lower and higher logic signal levels at any of the typical 1.8-V, 2.5-V, 3.3-V, and 5-V supply rails.

The OE input pin is referenced to VCCA, can be tied directly to VCCA, but it is also 5.5-V tolerant. The OE pin can also be controlled and set to a logic low to place all the SCL and SDA pins in a high-impedance state, which significantly reduces the quiescent current consumption.

Under normal I2C and SMBus operation or other open-drain configurations, the TCA9406 can support up to 2 Mbps; therefore, it is compatible with standard I2C speeds where the frequency of SCL is 100 kHz (Standard-mode), 400 kHz (Fast-mode), or 1 MHz (Fast-mode Plus). The device can also be used as a general purpose level translator, and when the A- and B-side ports are both driven with push-pull devices the TCA9406 can support up to 24 Mbps.

The TCA9406 features internal 10-k Ω pullup resistors on SCL_A, SDA_A, SCL_B, and SDA_B. Additional external pullup resistors can be added to the bus to reduce the total pullup resistance and speed up rising edges.

Key Features

2-Bit Bidirectional Translator for SDA and SCL Lines in I2C Applications

Provides Bidirectional Voltage Translation With No Direction Pin

High-Impedance Output SCL_A, SDA_A, SCL_B, SDA_B Pins When OE = Low or VCC = 0 V

Internal 10-k Ω Pullup Resistor on All SDA and SCL Pins

1.65 V to 3.6 V on A port and 2.3 V to 5.5 V on B port ($V_{CCA} \leq V_{CCB}$)

VCC Isolation Feature: If Either VCC Input Is at GND, Both Ports Are in the High-Impedance State

No Power-Supply Sequencing Required: Either VCCA or VCCB Can Be Ramped First

Low I_{off} of 2 μ A When Either VCCA or VCCB = 0 V

OE Input Can Be Tied Directly to VCCA Or Controlled By GPIO

Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II

ESD Protection Exceeds JESD 22

A Port

2500-V Human-Body Model (A114-B)

250-V Machine Model (A115-A)

1500-V Charged-Device Model (C101)

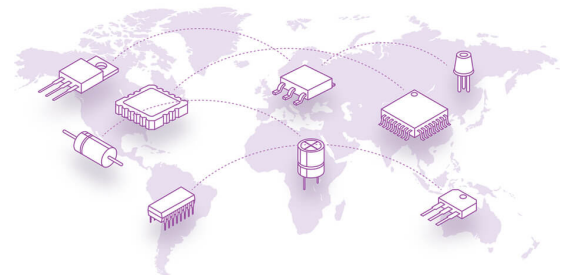
B Port

8-kV Human-Body Model (A114-B)

250-V Machine Model (A115-A)

1500-V Charged-Device Model (C101)

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Recommended For You

TCA9406DCUR

Texas Instruments, Inc
VSSOP8

TCA39306DTMR

Texas Instruments, Inc
X2SON8

TCM5089N

Texas Instruments, Inc
DIP

TCA9416DTMR

Texas Instruments, Inc
X2SON8

TCA9406DCTR

Texas Instruments, Inc
MSOP8

TCA39306DCURQ1

Texas Instruments, Inc
VSSOP8

SN74S38N

Texas Instruments, Inc
DIP

SN7438N

Texas Instruments, Inc
DIP14

CD4070BE

Texas Instruments, Inc
DIP14

SN75462P

Texas Instruments, Inc
DIP8

CD74HCT138E

Texas Instruments, Inc
DIP16

CD4098BE

Texas Instruments, Inc
DIP

CD74HC08E

Texas Instruments, Inc
DIP

SN74F08D

Texas Instruments, Inc
SOP-14

SN74LS257BN

Texas Instruments, Inc
DIP16