

## Absolute Maximum Ratings

| Parameter                                                          | Min. | Max. | Units |
|--------------------------------------------------------------------|------|------|-------|
| Storage Temperature                                                | -65  | 150  | °C    |
| Ambient Temperature with Power Applied                             | -40  | 85   | °C    |
| Supply Voltage to Ground Potential (Inputs & V <sub>CC</sub> Only) | -0.5 | 4.6  | V     |
| Supply Voltage to Ground Potential (Outputs & D/O Only)            | -0.5 | 4.6  | V     |
| DC Input Voltage                                                   | -0.5 | 5.5  | V     |
| DC Output Current                                                  | -    | 120  | mA    |
| Power Dissipation                                                  | -    | 0.5  | W     |

Stress beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device.

## DC Electrical Characteristics (Over the Operating Range, T<sub>A</sub> = -40°C to +85°C, V<sub>CC</sub> = 3.3V ±10%)

| Parameters       | Description                         | Test Conditions <sup>(1)</sup>                                         | Min  | Typ <sup>(2)</sup> | Max  | Units |
|------------------|-------------------------------------|------------------------------------------------------------------------|------|--------------------|------|-------|
| V <sub>IH</sub>  | Input HIGH Voltage                  | Guaranteed Logic HIGH Level                                            | 2.0  |                    |      | V     |
| V <sub>IL</sub>  | Input LOW Voltage                   | Guaranteed Logic LOW Level                                             | -0.5 |                    | 0.8  | V     |
| I <sub>IH</sub>  | Input HIGH Current                  | V <sub>CC</sub> = Max., V <sub>IN</sub> = V <sub>CC</sub>              |      |                    | ±1   | μA    |
| I <sub>IL</sub>  | Input LOW Current                   | V <sub>CC</sub> = Max., V <sub>IN</sub> = GND                          |      |                    | ±1   |       |
| I <sub>OZH</sub> | High Impedance Output Current       | 0 ≤ A, B ≤ V <sub>CC</sub>                                             |      |                    | ±1   |       |
| V <sub>IK</sub>  | Clamp Diode Voltage                 | V <sub>CC</sub> = Min., I <sub>IN</sub> = -18 mA                       |      | -0.73              | -1.2 | V     |
| R <sub>ON</sub>  | Switch On Resistance <sup>(4)</sup> | V <sub>CC</sub> = Min., V <sub>IN</sub> = 0.0V, I <sub>ON</sub> = 48mA |      | 5                  | 7    | Ω     |
|                  |                                     | V <sub>CC</sub> = Min, V <sub>IN</sub> = 2.4V, I <sub>ON</sub> = 15mA  |      | 8                  | 15   |       |

## Capacitance (T<sub>A</sub> = 25°C, f = 1 MHz)

| Parameters <sup>(5)</sup> | Description                 | Test Conditions      | Typ  | Units |
|---------------------------|-----------------------------|----------------------|------|-------|
| C <sub>IN</sub>           | Input Capacitance           | V <sub>IN</sub> = 0V | 3.5  | pF    |
| C <sub>OFF</sub>          | A/B Capacitance, Switch Off | V <sub>IN</sub> = 0V | 5.0  | pF    |
| C <sub>ON</sub>           | A/B Capacitance, Switch On  | V <sub>IN</sub> = 0V | 10.0 | pF    |

Notes:

1. For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device type.
2. Typical values are at V<sub>CC</sub> = 3.3V, T<sub>A</sub> = 25°C ambient and maximum loading.
3. Not more than one output should be shorted at one time. Duration of the test should not exceed one second.
4. Measured by the voltage drop between A and B pin at indicated current through the switch. ON resistance is determined by the lower of the voltages on the two (A,B) pins.

## Power Supply Characteristics

| Parameters       | Description                    | Test Conditions <sup>(1)</sup> |                                          | Min | Typ <sup>(2)</sup> | Max | Units |
|------------------|--------------------------------|--------------------------------|------------------------------------------|-----|--------------------|-----|-------|
| I <sub>CC</sub>  | Quiescent Power Supply Current | V <sub>CC</sub> = Max.         | V <sub>IN</sub> = GND or V <sub>CC</sub> |     | 0.5                | 1.0 | mA    |
| ΔI <sub>CC</sub> | Supply Current per Input HIGH  | V <sub>CC</sub> = Max.         | V <sub>IN</sub> = 3.0V <sup>(3)</sup>    |     |                    | 2.5 |       |

Notes:

- For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device.
- Typical values are at V<sub>CC</sub> = 3.3V, +25°C ambient.
- Per TTL driven input (control input only); A and B pins do not contribute to ΔI<sub>CC</sub>.

## Switching Characteristics over 3.3V Operating Range

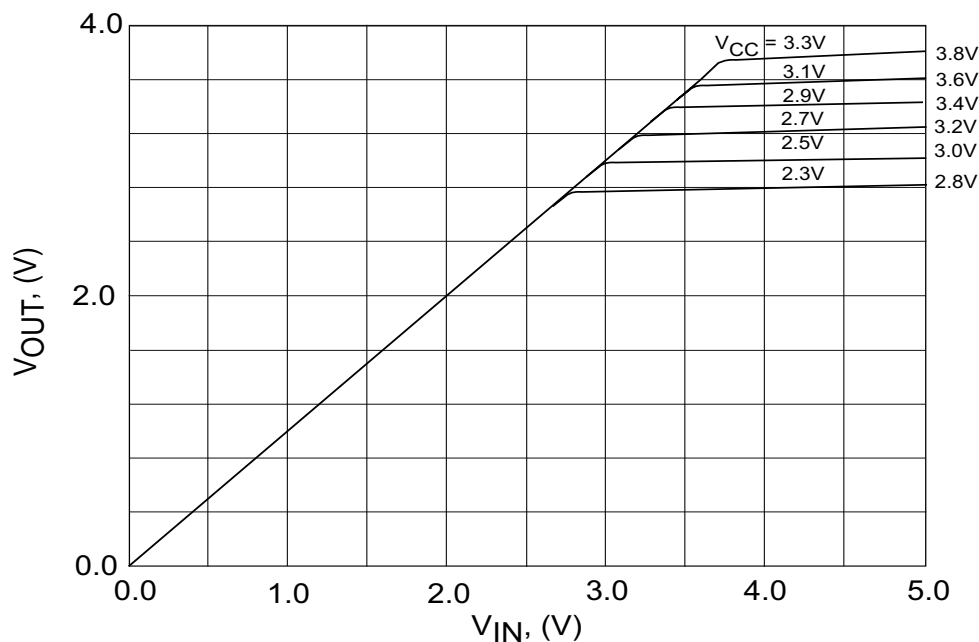
| Parameters                           | Description                                            | Test Conditions                                 | P13C32X245 |      | Units |
|--------------------------------------|--------------------------------------------------------|-------------------------------------------------|------------|------|-------|
|                                      |                                                        |                                                 | Com.       |      |       |
|                                      |                                                        |                                                 | Min        | Max  |       |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Propagation Delay <sup>(2,3)</sup><br>Ax to Bx         | C <sub>L</sub> = 50 pF<br>R <sub>L</sub> = 500Ω |            | 0.25 | ns    |
| t <sub>PZH</sub><br>t <sub>PZL</sub> | Bus Enable Time<br>$\overline{\text{BE}}$ to Ax or Bx  | C <sub>L</sub> = 50 pF<br>R <sub>L</sub> = 500Ω | 1.5        | 6.5  |       |
| t <sub>PHZ</sub><br>t <sub>PLZ</sub> | Bus Disable Time<br>$\overline{\text{BE}}$ to Ax or Bx | R = 500Ω                                        | 1.5        | 5.5  |       |

## Switching Characteristics over 2.5V Operating Range

| Parameters                           | Description                                    | Test Conditions                                 | P13C32X245 |      | Units |
|--------------------------------------|------------------------------------------------|-------------------------------------------------|------------|------|-------|
|                                      |                                                |                                                 | Com.       |      |       |
|                                      |                                                |                                                 | Min        | Max  |       |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Propagation Delay <sup>(2,3)</sup><br>Ax to Bx | C <sub>L</sub> = 50 pF<br>R <sub>L</sub> = 500Ω |            | 0.25 | ns    |
| t <sub>PZH</sub><br>t <sub>PZL</sub> | Bus Enable Time<br>BE to Ax or Bx              | C <sub>L</sub> = 50 pF<br>R <sub>L</sub> = 500Ω | 1.5        | 9.8  |       |
| t <sub>PHZ</sub><br>t <sub>PLZ</sub> | Bus Disable Time<br>BE to Ax or Bx             | R = 500Ω                                        | 1.5        | 8.3  |       |

Notes:

- See test circuit and waveforms.
- This parameter is guaranteed but not tested on Propagation Delays.
- The bus switch contributes no propagational delay other than the RC delay of the On-Resistance of the switch and the load capacitance. The time constant for the switch alone is of the order of 0.25 ns for 50 pF load. Since this time constant is much smaller than the rise/fall times of typical driving signals, it adds very little propagational delay to the system. Propagational delay of the bus switch when used in a system is determined by the driving circuit on the driving side of the switch and its interaction with the load on the driven side.



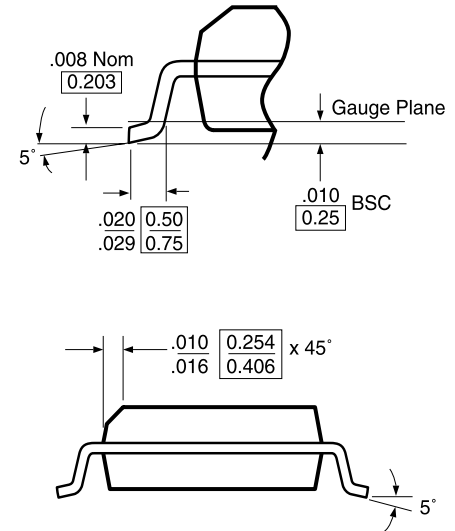
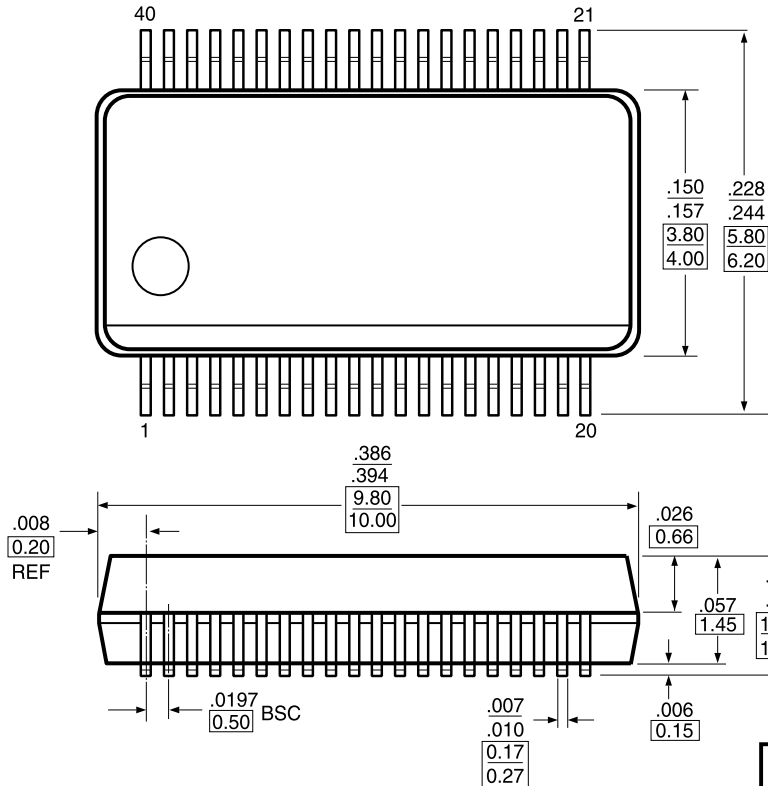
Output Voltage vs. Input Voltage over Various Supply Voltages

### Output Voltage vs. Input Voltage over Various Supply Voltages

**Packaging Mechanical: 40-pin BQSOP (B)**

DOCUMENT CONTROL NO.  
PD - 1209

REVISION: F  
DATE: 03/09/05



X.XX  
X.XX DENOTES DIMENSION IN MILLIMETERS

- Notes:**  
 1. Controlling dimensions in millimeters  
 2. Ref.: JEDEC MO - 154C/BB  
 3. Package Outline Exclusive of Mold Flash and Metal Burr



Pericom Semiconductor Corporation  
3545 N. 1st Street, San Jose, CA 95134  
1-800-435-2335 • www.pericom.com

DESCRIPTION: 40-Pin, 150-Mil Wide BQSOP

PACKAGE CODE: B

**Ordering Information**

| Ordering Code | Package Code | Package Type                  |
|---------------|--------------|-------------------------------|
| PI3C32X245BE  | B            | Pb-free & Green, 40-pin BQSOP |

1. Thermal characteristics can be found on the company web site at [www.pericom.com/packaging/](http://www.pericom.com/packaging/)