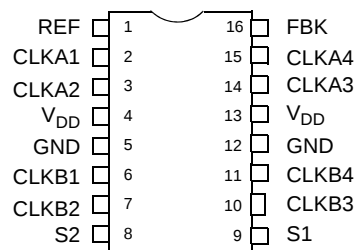


## Pinouts

**Figure 1. Pin Diagram - 16 Pin SOIC (Top view)**



**Table 1. Pin Definitions - 16 Pin SOIC**

| Pin | Signal               | Description                                  |
|-----|----------------------|----------------------------------------------|
| 1   | REF <sup>[1]</sup>   | Input reference frequency, 5V tolerant input |
| 2   | CLKA1 <sup>[2]</sup> | Clock output, Bank A                         |
| 3   | CLKA2 <sup>[2]</sup> | Clock output, Bank A                         |
| 4   | V <sub>DD</sub>      | 3.3V supply                                  |
| 5   | GND                  | Ground                                       |
| 6   | CLKB1 <sup>[2]</sup> | Clock output, Bank B                         |
| 7   | CLKB2 <sup>[2]</sup> | Clock output, Bank B                         |
| 8   | S2 <sup>[3]</sup>    | Select input, bit 2                          |
| 9   | S1 <sup>[3]</sup>    | Select input, bit 1                          |
| 10  | CLKB3 <sup>[2]</sup> | Clock output, Bank B                         |
| 11  | CLKB4 <sup>[2]</sup> | Clock output, Bank B                         |
| 12  | GND                  | Ground                                       |
| 13  | V <sub>DD</sub>      | 3.3V supply                                  |
| 14  | CLKA3 <sup>[2]</sup> | Clock output, Bank A                         |
| 15  | CLKA4 <sup>[2]</sup> | Clock output, Bank A                         |
| 16  | FBK                  | PLL feedback input                           |

## Select Input Decoding

| S2 | S1 | CLOCK A1–A4           | CLOCK B1–B4           | Output Source | PLL Shutdown |
|----|----|-----------------------|-----------------------|---------------|--------------|
| 0  | 0  | Tri-State             | Tri-State             | PLL           | Y            |
| 0  | 1  | Driven                | Tri-State             | PLL           | N            |
| 1  | 0  | Driven <sup>[4]</sup> | Driven <sup>[4]</sup> | Reference     | Y            |
| 1  | 1  | Driven                | Driven                | PLL           | N            |

### Notes

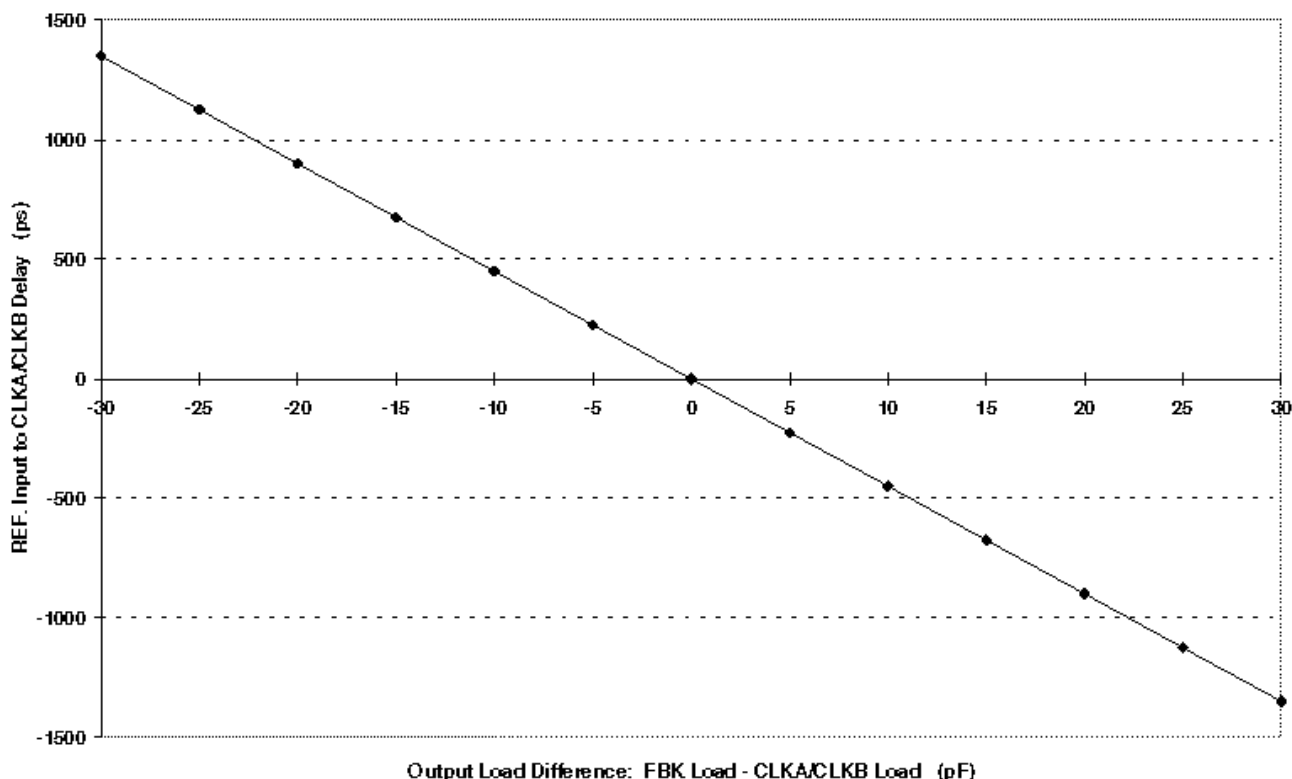
1. Weak pull down.
2. Weak pull down on all outputs.
3. Weak pull ups on these inputs.
4. Outputs inverted on 2308–2 and 2308–3 in bypass mode, S2 = 1 and S1 = 0.

## Available CY2308 Configurations

| Device    | Feedback From    | Bank A Frequency | Bank B Frequency                      |
|-----------|------------------|------------------|---------------------------------------|
| CY2308-1  | Bank A or Bank B | Reference        | Reference                             |
| CY2308-1H | Bank A or Bank B | Reference        | Reference                             |
| CY2308-2  | Bank A           | Reference        | Reference/2                           |
| CY2308-2  | Bank B           | 2 X Reference    | Reference                             |
| CY2308-3  | Bank A           | 2 X Reference    | Reference or Reference <sup>[5]</sup> |
| CY2308-3  | Bank B           | 4 X Reference    | 2 X Reference                         |
| CY2308-4  | Bank A or Bank B | 2 X Reference    | 2 X Reference                         |
| CY2308-5H | Bank A or Bank B | Reference /2     | Reference /2                          |

## Zero Delay and Skew Control

Figure 2. REF. Input to CLKA/CLKB Delay Versus Difference in Loading between FBK Pin and CLKA/CLKB Pins



To close the feedback loop of the CY2308, the FBK pin is driven from any of the eight available output pins. The output driving the FBK pin drives a total load of 7 pF plus any additional load that it drives. The relative loading of this output to the remaining outputs adjusts the input-output delay. This is shown in the Figure 2.

For applications requiring zero input-output delay, all outputs including the one providing feedback is equally loaded.

If input-output delay adjustments are required, use the [Zero Delay and Skew Control](#) graph to calculate loading differences between the feedback output and remaining outputs.

For zero output-output skew, outputs are loaded equally. For further information on using CY2308, refer to the application note "CY2308: Zero Delay Buffer."

### Note

5. Output phase is indeterminant (0° or 180° from input clock). If phase integrity is required, use the CY2308-2.

## Maximum Ratings

|                                         |                          |                                 |        |
|-----------------------------------------|--------------------------|---------------------------------|--------|
| Supply Voltage to Ground Potential..... | –0.5V to +7.0V           | Junction Temperature .....      | 150°C  |
| DC Input Voltage (Except Ref) .....     | –0.5V to $V_{DD} + 0.5V$ | Static Discharge Voltage        |        |
| DC Input Voltage REF .....              | –0.5 to 7V               | (MIL-STD-883, Method 3015)..... | >2000V |
| Storage Temperature .....               | –65°C to +150°C          |                                 |        |

## Operating Conditions for Commercial Temperature Devices

| Parameter | Description                                                                                         | Min  | Max | Unit |
|-----------|-----------------------------------------------------------------------------------------------------|------|-----|------|
| $V_{DD}$  | Supply Voltage                                                                                      | 3.0  | 3.6 | V    |
| $T_A$     | Operating Temperature (Ambient Temperature)                                                         | 0    | 70  | °C   |
| $C_L$     | Load Capacitance, below 100 MHz                                                                     | –    | 30  | pF   |
|           | Load Capacitance, from 100 MHz to 133 MHz                                                           | –    | 15  | pF   |
| $C_{IN}$  | Input Capacitance <sup>[6]</sup>                                                                    | –    | 7   | pF   |
| $t_{PU}$  | Power up time for all $V_{DD}$ s to reach minimum specified voltage (power ramps must be monotonic) | 0.05 | 50  | ms   |

## Electrical Characteristics for Commercial Temperature Devices

| Parameter          | Description                        | Test Conditions                                                                   | Min | Max                | Unit |
|--------------------|------------------------------------|-----------------------------------------------------------------------------------|-----|--------------------|------|
| $V_{IL}$           | Input LOW Voltage                  |                                                                                   | –   | 0.8                | V    |
| $V_{IH}$           | Input HIGH Voltage                 |                                                                                   | 2.0 | –                  | V    |
| $I_{IL}$           | Input LOW Current                  | $V_{IN} = 0V$                                                                     | –   | 50.0               | μA   |
| $I_{IH}$           | Input HIGH Current                 | $V_{IN} = V_{DD}$                                                                 | –   | 100.0              | μA   |
| $V_{OL}$           | Output LOW Voltage <sup>[7]</sup>  | $I_{OL} = 8\text{ mA } (-1, -2, -3, -4)$<br>$I_{OL} = 12\text{ mA } (-1H, -5H)$   | –   | 0.4                | V    |
| $V_{OH}$           | Output HIGH Voltage <sup>[7]</sup> | $I_{OH} = -8\text{ mA } (-1, -2, -3, -4)$<br>$I_{OH} = -12\text{ mA } (-1H, -5H)$ | 2.4 | –                  | V    |
| $I_{DD}$ (PD mode) | Power Down Supply Current          | REF = 0 MHz                                                                       | –   | 12.0               | μA   |
| $I_{DD}$           | Supply Current                     | Unloaded outputs, 100 MHz REF,<br>Select inputs at $V_{DD}$ or GND                | –   | 45.0               | mA   |
|                    |                                    |                                                                                   | –   | 70.0<br>(–1H, –5H) | mA   |
|                    |                                    | Unloaded outputs, 66 MHz REF<br>(–1, –2, –3, –4)                                  | –   | 32.0               | mA   |
|                    |                                    | Unloaded outputs, 33 MHz REF<br>(–1, –2, –3, –4)                                  | –   | 18.0               | mA   |

## Switching Characteristics for Commercial Temperature Devices

| Parameter <sup>[8]</sup> | Name                                                                        | Test Conditions                                              | Min  | Typ. | Max   | Unit |
|--------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------|------|------|-------|------|
| $t_1$                    | Output Frequency                                                            | 30 pF load, All devices                                      | 10   | –    | 100   | MHz  |
| $t_1$                    | Output Frequency                                                            | 20 pF load, –1H, –5H devices <sup>[9]</sup>                  | 10   | –    | 133.3 | MHz  |
| $t_1$                    | Output Frequency                                                            | 15 pF load, –1, –2, –3, –4 devices                           | 10   | –    | 133.3 | MHz  |
| $t_{PD}$                 | Duty Cycle <sup>[7, 8]</sup> = $t_2 \div t_1$<br>(–1, –2, –3, –4, –1H, –5H) | Measured at 1.4V, $F_{OUT} = 66.66\text{ MHz}$<br>30 pF load | 40.0 | 50.0 | 60.0  | %    |
| $t_{PD}$                 | Duty Cycle <sup>[7, 8]</sup> = $t_2 \div t_1$<br>(–1, –2, –3, –4, –1H, –5H) | Measured at 1.4V, $F_{OUT} < 50\text{ MHz}$<br>15 pF load    | 45.0 | 50.0 | 55.0  | %    |

### Notes

6. Applies to both Ref Clock and FBK.
7. Parameter is guaranteed by design and characterization. Not 100% tested in production.
8. All parameters are specified with loaded outputs.
9. CY2308–5H has maximum input frequency of 133.33 MHz and maximum output of 66.67 MHz.

**Switching Characteristics for Commercial Temperature Devices** (continued)

| Parameter <sup>[8]</sup> | Name                                                                        | Test Conditions                                                           | Min | Typ. | Max  | Unit |
|--------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------|-----|------|------|------|
| $t_3$                    | Rise Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>30 pF load                             | —   | —    | 2.20 | ns   |
| $t_3$                    | Rise Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>15 pF load                             | —   | —    | 1.50 | ns   |
| $t_3$                    | Rise Time <sup>[7, 8]</sup><br>(-1H, -5H)                                   | Measured between 0.8V and 2.0V,<br>30 pF load                             | —   | —    | 1.50 | ns   |
| $t_4$                    | Fall Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>30 pF load                             | —   | —    | 2.20 | ns   |
| $t_4$                    | Fall Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>15 pF load                             | —   | —    | 1.50 | ns   |
| $t_4$                    | Fall Time <sup>[7, 8]</sup><br>(-1H, -5H)                                   | Measured between 0.8V and 2.0V,<br>30 pF load                             | —   | —    | 1.25 | ns   |
| $t_5$                    | Output to Output Skew on<br>same Bank<br>(-1, -2, -3, -4) <sup>[7, 8]</sup> | All outputs equally loaded                                                | —   | —    | 200  | ps   |
|                          | Output to Output Skew (-1H,<br>-5H)                                         | All outputs equally loaded                                                | —   | —    | 200  | ps   |
|                          | Output Bank A to Output<br>Bank B Skew (-1, -4, -5H)                        | All outputs equally loaded                                                | —   | —    | 200  | ps   |
|                          | Output Bank A to Output<br>Bank B Skew (-2, -3)                             | All outputs equally loaded                                                | —   | —    | 400  | ps   |
| $t_6$                    | Delay, REF Rising Edge to<br>FBK Rising Edge <sup>[7, 8]</sup>              | Measured at $V_{DD}/2$                                                    | —   | 0    | ±250 | ps   |
| $t_7$                    | Device to Device Skew <sup>[7, 8]</sup>                                     | Measured at $V_{DD}/2$ on the FBK pins<br>of devices                      | —   | 0    | 700  | ps   |
| $t_8$                    | Output Slew Rate <sup>[7, 8]</sup>                                          | Measured between 0.8V and 2.0V on<br>-1H, -5H device using Test Circuit 2 | 1   | —    |      | V/ns |
| $t_j$                    | Cycle to Cycle Jitter <sup>[7, 8]</sup><br>(-1, -1H, -4, -5H)               | Measured at 66.67 MHz, loaded<br>outputs,<br>15 pF load                   | —   | 75   | 200  | ps   |
|                          |                                                                             | Measured at 66.67 MHz, loaded<br>outputs,<br>30 pF load                   | —   | —    | 200  | ps   |
|                          |                                                                             | Measured at 133.3 MHz, loaded<br>outputs,<br>15 pF load                   | —   | —    | 100  | ps   |
| $t_j$                    | Cycle to Cycle Jitter <sup>[7, 8]</sup><br>(-2, -3)                         | Measured at 66.67 MHz, loaded<br>outputs<br>30 pF load                    | —   | —    | 400  | ps   |
|                          |                                                                             | Measured at 66.67 MHz, loaded<br>outputs<br>15 pF load                    | —   | —    | 400  | ps   |
| $t_{LOCK}$               | PLL Lock Time <sup>[7, 8]</sup>                                             | Stable power supply, valid clocks<br>presented on REF and FBK pins        | —   | —    | 1.0  | ms   |

## Operating Conditions for Industrial Temperature Devices

| Parameter | Description                                                                                         | Min  | Max | Unit |
|-----------|-----------------------------------------------------------------------------------------------------|------|-----|------|
| $V_{DD}$  | Supply Voltage                                                                                      | 3.0  | 3.6 | V    |
| $T_A$     | Operating Temperature (Ambient Temperature)                                                         | -40  | 85  | °C   |
| $C_L$     | Load Capacitance, below 100 MHz                                                                     | –    | 30  | pF   |
|           | Load Capacitance, from 100 MHz to 133 MHz                                                           | –    | 15  | pF   |
| $C_{IN}$  | Input Capacitance <sup>[6]</sup>                                                                    | –    | 7   | pF   |
| $t_{PU}$  | Power up time for all $V_{DD}$ S to reach minimum specified voltage (power ramps must be monotonic) | 0.05 | 50  | ms   |

## Electrical Characteristics for Industrial Temperature Devices

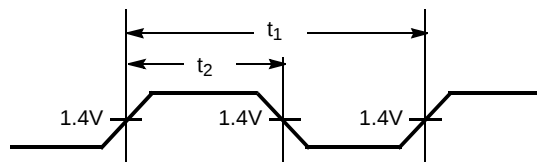
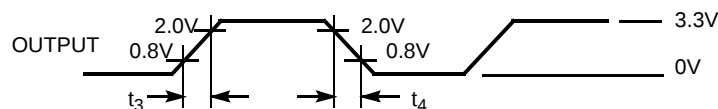
| Parameter          | Description                           | Test Conditions                                                                   | Min | Max          | Unit |
|--------------------|---------------------------------------|-----------------------------------------------------------------------------------|-----|--------------|------|
| $V_{IL}$           | Input LOW Voltage                     |                                                                                   | –   | 0.8          | V    |
| $V_{IH}$           | Input HIGH Voltage                    |                                                                                   | 2.0 | –            | V    |
| $I_{IL}$           | Input LOW Current                     | $V_{IN} = 0V$                                                                     | –   | 50.0         | μA   |
| $I_{IH}$           | Input HIGH Current                    | $V_{IN} = V_{DD}$                                                                 | –   | 100.0        | μA   |
| $V_{OL}$           | Output LOW Voltage <sup>[7, 8]</sup>  | $I_{OL} = 8\text{ mA } (-1, -2, -3, -4)$<br>$I_{OL} = 12\text{ mA } (-1H, -5H)$   | –   | 0.4          | V    |
| $V_{OH}$           | Output HIGH Voltage <sup>[7, 8]</sup> | $I_{OH} = -8\text{ mA } (-1, -2, -3, -4)$<br>$I_{OH} = -12\text{ mA } (-1H, -5H)$ | 2.4 | –            | V    |
| $I_{DD}$ (PD mode) | Power Down Supply Current             | REF = 0 MHz                                                                       | –   | 25.0         | μA   |
| $I_{DD}$           | Supply Current                        | Unloaded outputs, 100 MHz, Select inputs at $V_{DD}$ or GND                       | –   | 45.0         | mA   |
|                    |                                       |                                                                                   | –   | 70(-1H, -5H) | mA   |
|                    |                                       | Unloaded outputs, 66 MHz REF (-1, -2, -3, -4)                                     | –   | 35.0         | mA   |
|                    |                                       | Unloaded outputs, 66 MHz REF (-1, -2, -3, -4)                                     | –   | 20.0         | mA   |

## Switching Characteristics for Industrial Temperature Devices

| Parameter <sup>[8]</sup> | Name                                                                        | Test Conditions                                              | Min  | Typ  | Max   | Unit |
|--------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------|------|------|-------|------|
| $t_1$                    | Output Frequency                                                            | 30 pF load, All devices                                      | 10   | –    | 100   | MHz  |
| $t_1$                    | Output Frequency                                                            | 20 pF load, -1H, -5H devices <sup>[9]</sup>                  | 10   | –    | 133.3 | MHz  |
| $t_1$                    | Output Frequency                                                            | 15 pF load, -1, -2, -3, -4 devices                           | 10   | –    | 133.3 | MHz  |
| $t_{PD}$                 | Duty Cycle <sup>[7, 8]</sup> = $t_2 \div t_1$<br>(-1, -2, -3, -4, -1H, -5H) | Measured at 1.4V, $F_{OUT} = 66.66\text{ MHz}$<br>30 pF load | 40.0 | 50.0 | 60.0  | %    |
| $t_{PD}$                 | Duty Cycle <sup>[7, 8]</sup> = $t_2 \div t_1$<br>(-1, -2, -3, -4, -1H, -5H) | Measured at 1.4V, $F_{OUT} < 50\text{ MHz}$<br>15 pF load    | 45.0 | 50.0 | 55.0  | %    |
| $t_3$                    | Rise Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>30 pF load                | –    | –    | 2.50  | ns   |
| $t_3$                    | Rise Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>15 pF load                | –    | –    | 1.50  | ns   |
| $t_3$                    | Rise Time <sup>[7, 8]</sup><br>(-1H, -5H)                                   | Measured between 0.8V and 2.0V,<br>30 pF load                | –    | –    | 1.50  | ns   |
| $t_4$                    | Fall Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>30 pF load                | –    | –    | 2.50  | ns   |
| $t_4$                    | Fall Time <sup>[7, 8]</sup><br>(-1, -2, -3, -4)                             | Measured between 0.8V and 2.0V,<br>15 pF load                | –    | –    | 1.50  | ns   |

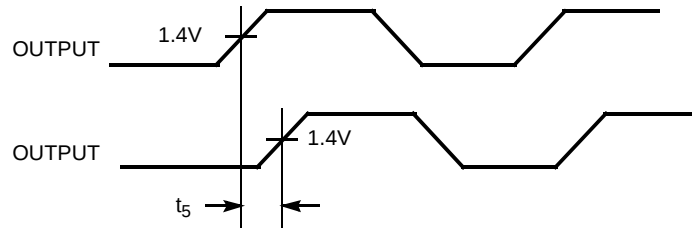
**Switching Characteristics for Industrial Temperature Devices** (continued)

| Parameter <sup>[8]</sup> | Name                                                                     | Test Conditions                                                           | Min | Typ | Max  | Unit |
|--------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|-----|-----|------|------|
| $t_4$                    | Fall Time <sup>[7, 8]</sup><br>(-1H, -5H)                                | Measured between 0.8V and 2.0V,<br>30 pF load                             | –   | –   | 1.25 | ns   |
| $t_5$                    | Output to Output Skew on<br>same Bank (-1, -2, -3, -4) <sup>[7, 8]</sup> | All outputs equally loaded                                                | –   | –   | 200  | ps   |
|                          | Output to Output Skew<br>(-1H, -5H)                                      | All outputs equally loaded                                                | –   | –   | 200  | ps   |
|                          | Output Bank A to Output Bank<br>B Skew (-1, -4, -5H)                     | All outputs equally loaded                                                | –   | –   | 200  | ps   |
|                          | Output Bank A to Output Bank<br>B Skew (-2, -3)                          | All outputs equally loaded                                                | –   | –   | 400  | ps   |
| $t_6$                    | Delay, REF Rising Edge to<br>FBK Rising Edge <sup>[7, 8]</sup>           | Measured at $V_{DD}/2$                                                    | –   | 0   | ±250 | ps   |
| $t_7$                    | Device to Device Skew <sup>[7, 8]</sup>                                  | Measured at $V_{DD}/2$ on the FBK pins of<br>devices                      | –   | 0   | 700  | ps   |
| $t_8$                    | Output Slew Rate <sup>[7, 8]</sup>                                       | Measured between 0.8V and 2.0V on<br>-1H, -5H device using Test Circuit 2 | 1   | –   | –    | V/ns |
| $t_j$                    | Cycle to Cycle Jitter <sup>[7, 8]</sup><br>(-1, -1H, -4, -5H)            | Measured at 66.67 MHz, loaded<br>outputs, 15 pF load                      | –   | 75  | 200  | ps   |
|                          |                                                                          | Measured at 66.67 MHz, loaded<br>outputs, 30 pF load                      | –   | –   | 200  | ps   |
|                          |                                                                          | Measured at 133.3 MHz, loaded<br>outputs, 15 pF load                      | –   | –   | 100  | ps   |
| $t_j$                    | Cycle to Cycle Jitter <sup>[7, 8]</sup><br>(-2, -3)                      | Measured at 66.67 MHz, loaded<br>outputs<br>30 pF load                    | –   | –   | 400  | ps   |
|                          |                                                                          | Measured at 66.67 MHz, loaded<br>outputs<br>15 pF load                    | –   | –   | 400  | ps   |
| $t_{LOCK}$               | PLL Lock Time <sup>[7, 8]</sup>                                          | Stable power supply, valid clocks<br>presented on REF and FBK pins        | –   | –   | 1.0  | ms   |

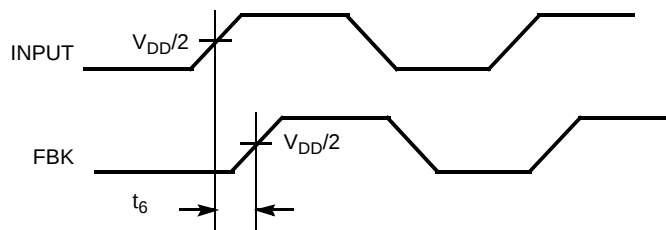
**Switching Waveforms**
**Figure 3. Duty Cycle Timing**

**Figure 4. All Outputs Rise/Fall Time**


## Switching Waveforms (continued)

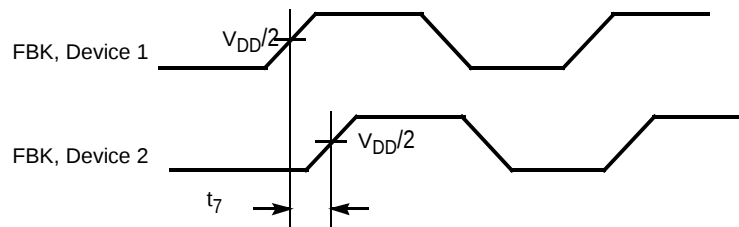
**Figure 5. Output-Output Skew**



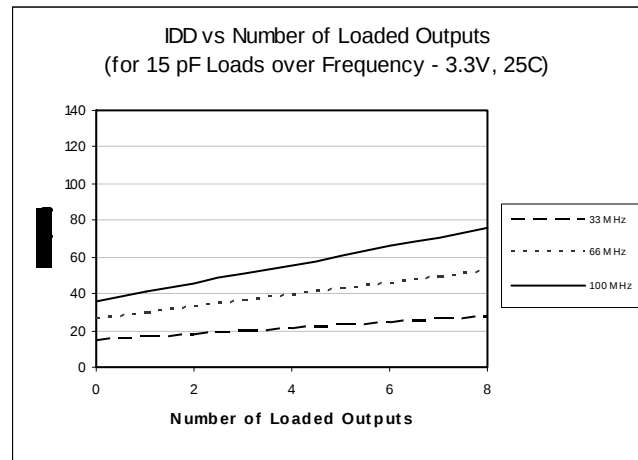
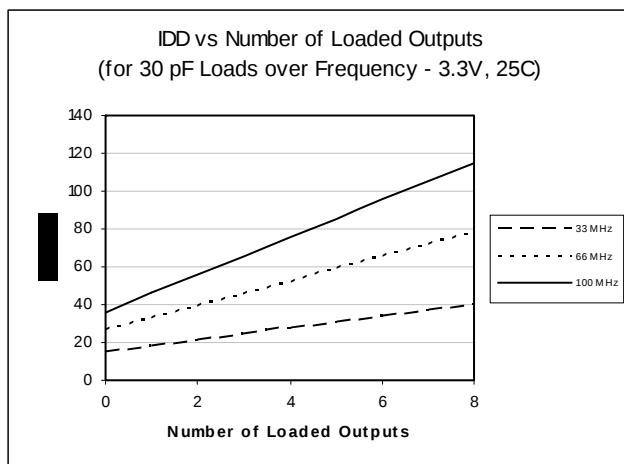
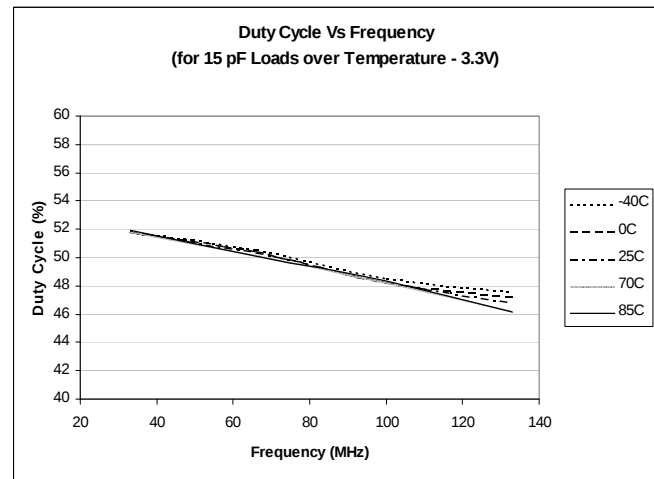
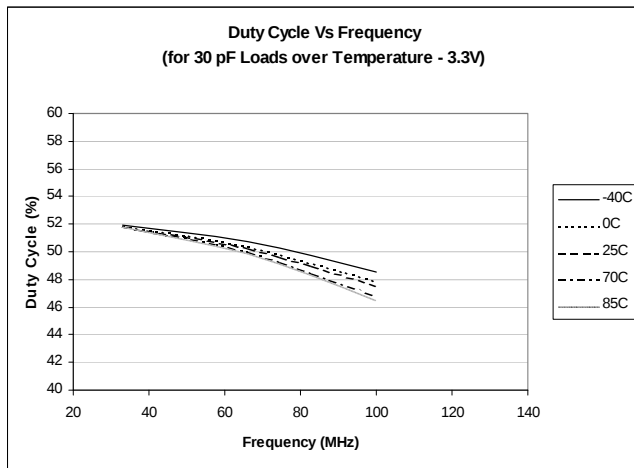
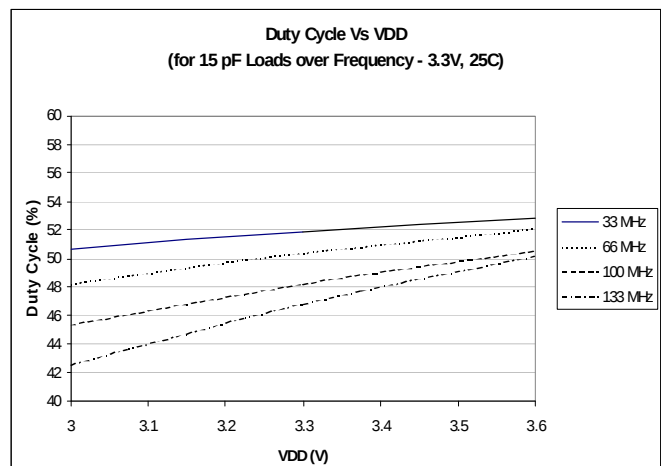
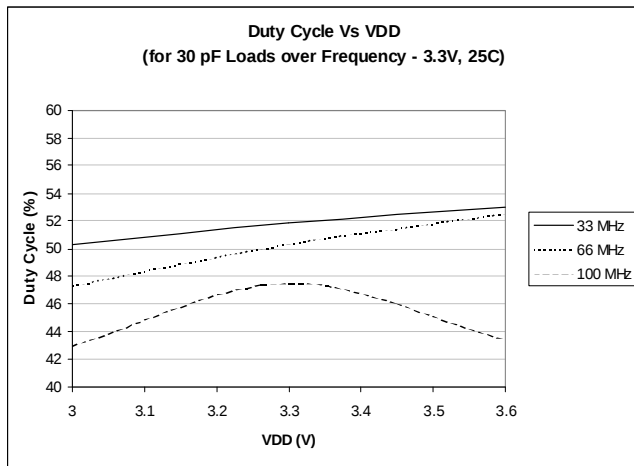
**Figure 6. Input-Output Propagation Delay**



**Figure 7. Device-Device Skew**



## Typical Duty Cycle<sup>[10]</sup> and I<sub>DD</sub> Trends<sup>[11]</sup> for CY2308-1,2,3,4

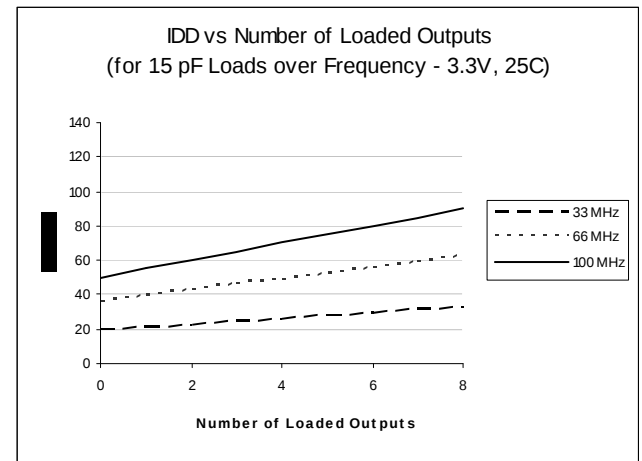
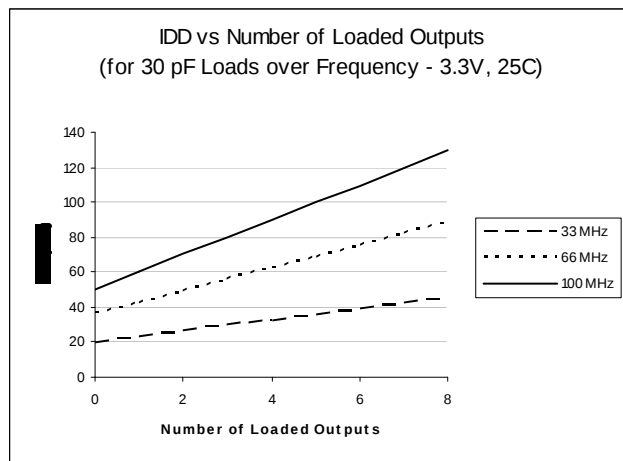
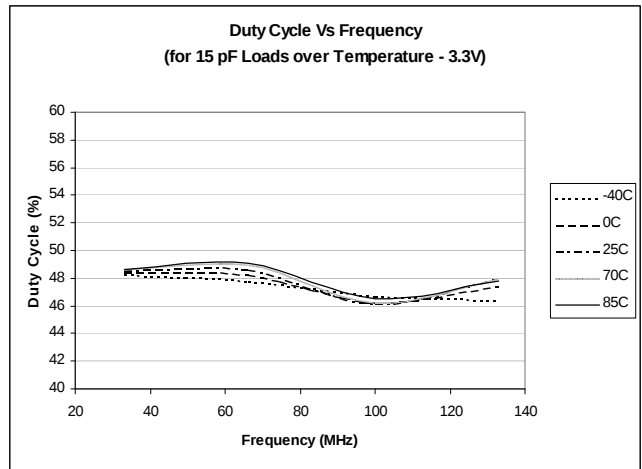
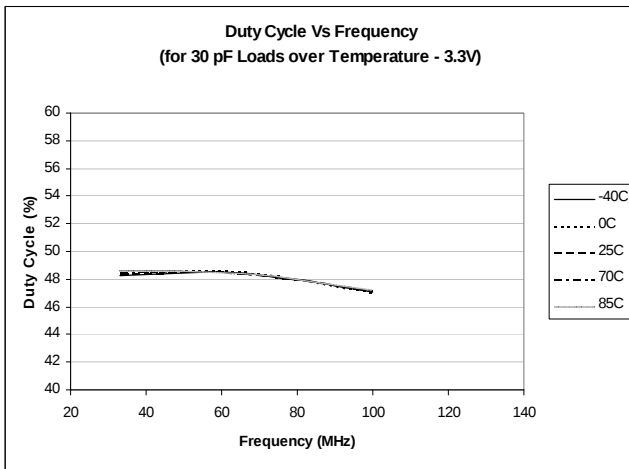
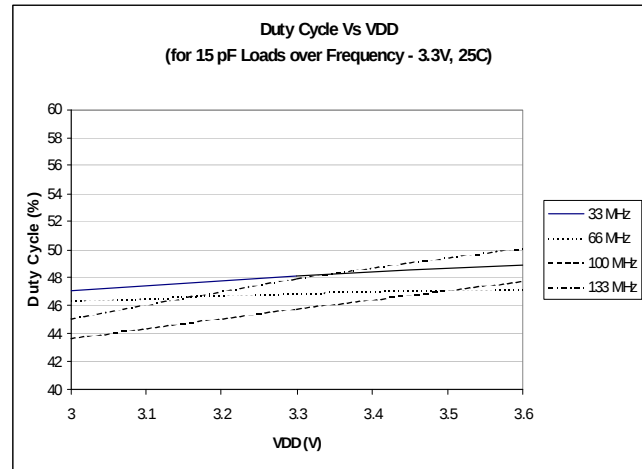
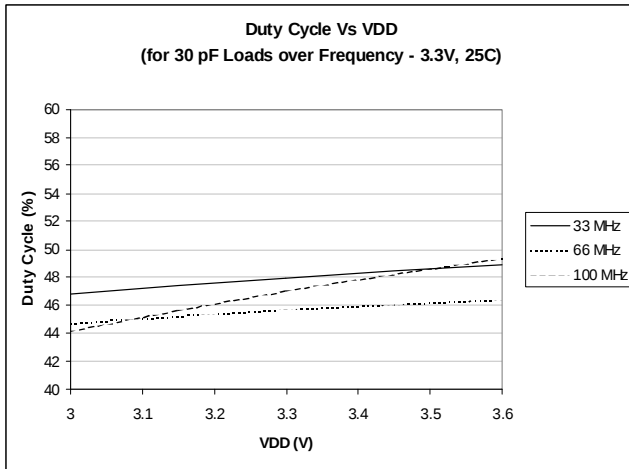


### Notes

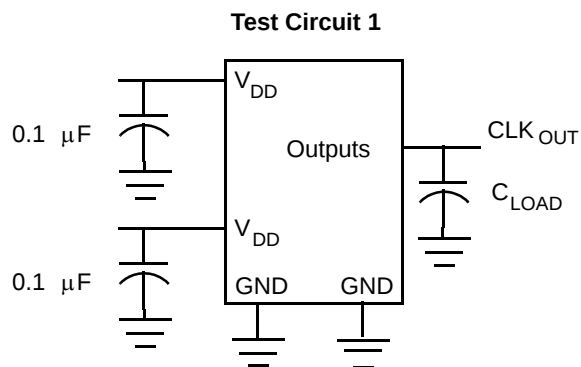
10. Duty cycle is taken from typical chip measured at 1.4V.

11. I<sub>DD</sub> data is calculated from  $I_{DD} = I_{CORE} + nCVf$ , where  $I_{CORE}$  is the unloaded current.  
(n = number of outputs; C = Capacitance load per output (F); V = Voltage Supply (V); f = frequency (Hz)).

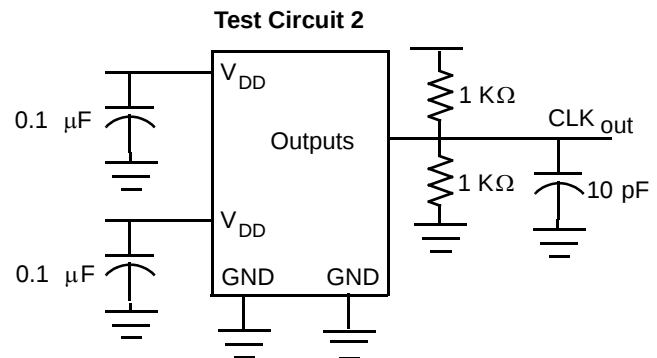
## Typical Duty Cycle<sup>[10]</sup> and I<sub>DD</sub> Trends<sup>[11]</sup> for CY2308-1H, 5H



## Test Circuits



Test Circuit for all parameters except  $t_g$



Test Circuit for  $t_g$ , Output slew rate on -1H, -5 device

## Ordering Information

| Ordering Code                | Package Type                        | Operating Range |
|------------------------------|-------------------------------------|-----------------|
| CY2308SC-1 <sup>[12]</sup>   | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SC-1T <sup>[12]</sup>  | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SI-1 <sup>[12]</sup>   | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SI-1T <sup>[12]</sup>  | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308SC-1H <sup>[12]</sup>  | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SC-1HT <sup>[12]</sup> | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SI-1H <sup>[12]</sup>  | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SI-1HT <sup>[12]</sup> | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308ZC-1H <sup>[12]</sup>  | 16-pin 4.4mm TSSOP                  | Commercial      |
| CY2308ZC-1HT <sup>[12]</sup> | 16-pin 4.4mm TSSOP - Tape and Reel  | Commercial      |
| CY2308ZI-1H <sup>[12]</sup>  | 16-pin 4.4mm TSSOP                  | Industrial      |
| CY2308ZI-1HT <sup>[12]</sup> | 16-pin 4.4mm TSSOP - Tape and Reel  | Industrial      |
| CY2308SC-2 <sup>[12]</sup>   | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SC-2T <sup>[12]</sup>  | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SI-2 <sup>[12]</sup>   | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SI-2T <sup>[12]</sup>  | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308SC-3 <sup>[12]</sup>   | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SC-3T <sup>[12]</sup>  | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SC-4 <sup>[12]</sup>   | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SC-4T <sup>[12]</sup>  | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |

### Note

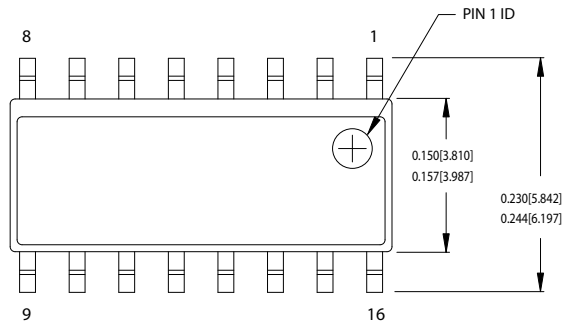
12. Not recommended for new designs.

**Ordering Information** (continued)

| Ordering Code             | Package Type                        | Operating Range |
|---------------------------|-------------------------------------|-----------------|
| <b>Pb-Free</b>            |                                     |                 |
| CY2308SXC-1               | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SXC-1T              | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SXI-1               | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SXI-1T              | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308SXC-1H              | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SXC-1HT             | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SXI-1H              | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SXI-1HT             | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308ZXC-1H              | 16-pin 4.4mm TSSOP                  | Commercial      |
| CY2308ZXC-1HT             | 16-pin 4.4mm TSSOP - Tape and Reel  | Commercial      |
| CY2308ZXI-1H              | 16-pin 4.4mm TSSOP                  | Industrial      |
| CY2308ZXI-1HT             | 16-pin 4.4mm TSSOP - Tape and Reel  | Industrial      |
| CY2308SXC-2               | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SXC-2T              | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SXI-2               | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SXI-2T              | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308SXC-3               | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SXC-3T              | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SXI-3               | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SXI-3T              | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308SXC-4               | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SXC-4T              | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SXI-4               | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SXI-4T              | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |
| CY2308SXC-5H <sup>1</sup> | 16-pin 150 mil SOIC                 | Commercial      |
| CY2308SXC-5HT             | 16-pin 150 mil SOIC - Tape and Reel | Commercial      |
| CY2308SXI-5H              | 16-pin 150 mil SOIC                 | Industrial      |
| CY2308SXI-5HT             | 16-pin 150 mil SOIC - Tape and Reel | Industrial      |

## Package Drawings and Dimensions

Figure 7. 16-Pin (150 Mil) SOIC S16.15



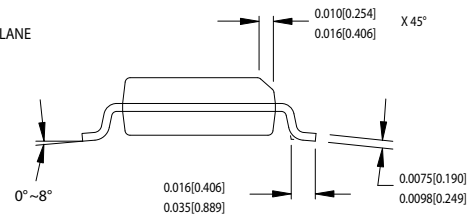
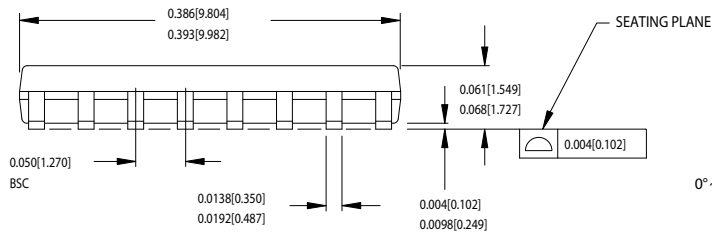
DIMENSIONS IN INCHES[MM] MIN.

MAX.

REFERENCE JEDEC MS-012

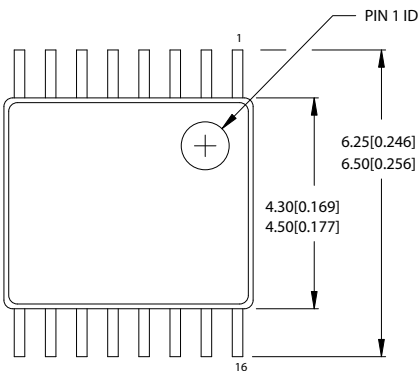
PACKAGE WEIGHT 0.15gms

| PART #  |                |
|---------|----------------|
| S16.15  | STANDARD PKG.  |
| SZ16.15 | LEAD FREE PKG. |



51-85068-\*B

Figure 8. 16-Pin TSSOP 4.40 mm Body Z16.173



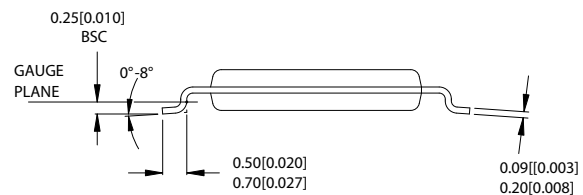
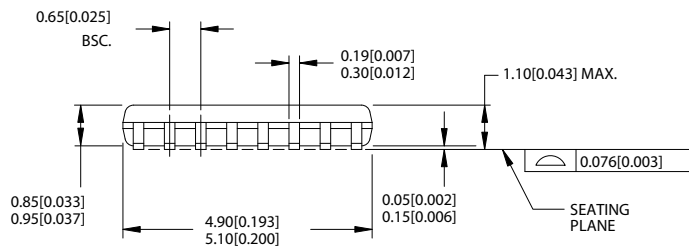
DIMENSIONS IN MM[INCHES] MIN.

MAX.

REFERENCE JEDEC MO-153

PACKAGE WEIGHT 0.05 gms

| PART #   |                |
|----------|----------------|
| Z16.173  | STANDARD PKG.  |
| ZZ16.173 | LEAD FREE PKG. |



51-85091-\*A

## Document History Page

| Document Title: CY2308 3.3V Zero Delay Buffer<br>Document Number: 38-07146 |         |                 |                 |                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------|---------|-----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rev.                                                                       | ECN     | Orig. of Change | Submission Date | Description of Change                                                                                                                                                                                                                                                             |
| **                                                                         | 110255  | SZV             | 12/17/01        | Changed from Specification number: 38-00528 to 38-07146                                                                                                                                                                                                                           |
| *A                                                                         | 118722  | RGL             | 10/31/02        | Added Note 1 in page 2.                                                                                                                                                                                                                                                           |
| *B                                                                         | 121832  | RBI             | 12/14/02        | Power up requirements added to Operating Conditions Information                                                                                                                                                                                                                   |
| *C                                                                         | 235854  | RGL             | 06/24/04        | Added Pb-Free Devices                                                                                                                                                                                                                                                             |
| *D                                                                         | 310594  | RGL             | 02/09/05        | Removed obsolete parts in the ordering information table<br>Specified typical value for cycle-to-cycle jitter                                                                                                                                                                     |
| *E                                                                         | 1344343 | KVM/VED         | 08/20/07        | Brought the Ordering Information Table up to date: removed three obsolete parts and added two parts<br>Changed titles to tables that are specific to commercial and industrial temperature ranges                                                                                 |
| *F                                                                         | 2568575 | AESA            | 09/19/08        | Updated template. Added Note "Not recommended for new designs."<br>Changed IDD (PD mode) from 12.0 to 25.0 $\mu$ A for Commercial and Industrial Temperature Devices<br>Deleted Duty Cycle parameters for $F_{out} < 50$ MHz<br>Removed CY2308SI-4, CY2308SI-4T and CY2308SC-5HT. |
| *G                                                                         | 2632364 | KVM             | 01/08/09        | Corrected TSSOP package size (from 150 mil to 4.4 mm) in Ordering Information table                                                                                                                                                                                               |
| *H                                                                         | 2673353 | KVM/PYRS        | 03/13/09        | Reverted IDD (PD mode) and Duty Cycle parameters back to the values in revision *E:<br>Changed IDD (PD mode) from 25 to 12 $\mu$ A for commercial temperature devices<br>Added Duty Cycle parameters for $F_{out} < 50$ MHz for commercial and industrial devices.                |

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