



# NC7SP17

## TinyLogic® ULP Single Buffer with Schmitt Trigger Input

### Features

- 0.9V to 3.6V  $V_{CC}$  Supply Operation
- 3.6V Over-Voltage Tolerant I/Os at  $V_{CC}$  from 0.9V to 3.6V
- Propagation Delay ( $t_{PD}$ ):
  - 4.0ns Typical for 3.0V to 3.6V  $V_{CC}$
  - 5.0ns Typical for 2.3V to 2.7V  $V_{CC}$
  - 6.0ns Typical for 1.65V to 1.95V  $V_{CC}$
  - 7.0ns Typical for 1.40V to 1.60V  $V_{CC}$
  - 11.0ns Typical for 1.10V to 1.30V  $V_{CC}$
  - 27.0ns Typical for 0.90V  $V_{CC}$
- Power-Off High-Impedance Inputs and Outputs
- Static Drive ( $I_{OH}/I_{OL}$ ):
  - $\pm 2.6$ mA at 3.00V  $V_{CC}$
  - $\pm 2.1$ mA at 2.30V  $V_{CC}$
  - $\pm 1.5$ mA at 1.65V  $V_{CC}$
  - $\pm 1.0$ mA at 1.40V  $V_{CC}$
  - $\pm 0.5$ mA at 1.10V  $V_{CC}$
  - $\pm 20$  $\mu$ A at 0.9V  $V_{CC}$
- Quiet Series™ Noise / EMI Reduction Circuitry
- Ultra Small MicroPak™ Packages
- Ultra Low Dynamic Power

### Description

The NC7SP17 is a single buffer with Schmitt trigger input from Fairchild's Ultra Low Power (ULP) series of TinyLogic®. Ideal for applications where battery life is critical, this product is designed for ultra low power consumption within the  $V_{CC}$  operating range of 0.9V to 3.6V  $V_{CC}$ .

The internal circuit is composed of a minimum of inverter stages, including the output buffer, to enable ultra low static and dynamic power.

The NC7SP17, for lower drive requirements, is uniquely designed for optimized power and speed and is fabricated with an advanced CMOS technology to achieve best-in-class speed of operation, while maintaining extremely low CMOS power dissipation.

### Ordering Information

| Part Number | Top Mark | Package                                     | Packing Method            |
|-------------|----------|---|---------------------------|
| NC7SP17P5X  | P17      | 5-Lead SC70, EIAJ SC-88a, 1.25mm Wide       | 3000 Units on Tape & Reel |
| NC7SP17L6X  | K4       | 6-Lead MicroPak™, 1.00mm Wide               | 5000 Units on Tape & Reel |
| NC7SP17FHX  | K4       | 6-Lead, MicroPak2™, 1x1mm Body, .35mm Pitch | 5000 Units on Tape & Reel |

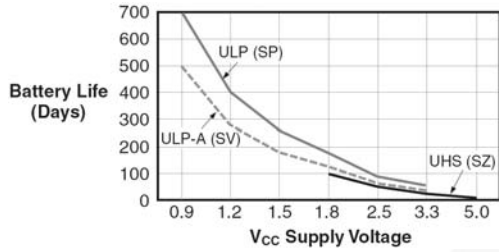


Figure 1. Battery Life vs. V<sub>CC</sub> Supply Voltage

**Notes:**

1. TinyLogic ULP and ULP-A with up to 50% less power consumption can extend battery life significantly.
2. Battery Life=(V<sub>battery</sub> x I<sub>battery</sub> x 0.9) / (P<sub>device</sub>) / 24hrs/day; where, P<sub>device</sub>=(I<sub>CC</sub> x V<sub>CC</sub>) + (C<sub>PD</sub> + C<sub>L</sub>) x V<sub>CC</sub><sup>2</sup> x f.
3. Assumes ideal 3.6V Lithium Ion battery with current rating of 900mAH and derated 90% and device frequency at 10MHz, with C<sub>L</sub>=15pF load.

**Connection Diagrams**



Figure 2. Logic Symbol

**Pin Configurations**

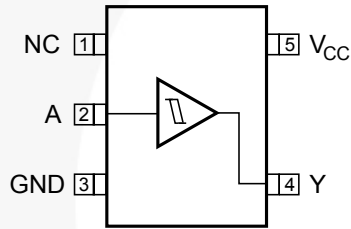


Figure 3. SC70 (Top View)

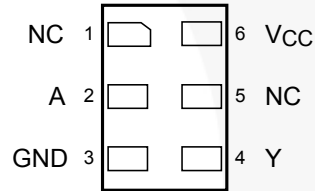


Figure 4. MicroPak™ (Top Through View)

**Function Table**

Y=A

| Input | Output |
|-------|--------|
| A     | Y      |
| L     | L      |
| H     | H      |

L = Low Logic Level  
H = High Logic Level

**Pin Definitions**

| Pin # SC70 | Pin # MicroPak | Name            | Description    |
|------------|----------------|-----------------|----------------|
| 1          | 1, 5           | NC              | No Connect     |
| 2          | 2              | A               | Input          |
| 3          | 3              | GND             | Ground         |
| 4          | 4              | Y               | Output         |
| 5          | 6              | V <sub>CC</sub> | Supply Voltage |

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

| Symbol             | Parameter   |                                  | Min. | Max.             | Unit |
|--------------------|---|----------------------------------|------|------------------|------|
| $V_{CC}$           | Supply Voltage                                    |                                  | -0.5 | 4.6              | V    |
| $V_{IN}$           | DC Input Voltage                                  |                                  | -0.5 | 4.6              | V    |
| $V_{OUT}$          | DC Output Voltage                                 | HIGH or LOW State <sup>(4)</sup> | -0.5 | $V_{CC}$ to +0.5 | V    |
|                    |   | $V_{CC}=0V$                      | -0.5 | 4.6              | V    |
| $I_{IK}$           | DC Input Diode Current at $V_{IN} < 0V$           |                                  |      | -50              | mA   |
| $I_{OK}$           | DC Output Diode Current                           | $V_{OUT} < 0V$                   |      | -50              | mA   |
|                    |   | $V_{OUT} > V_{CC}$               |      | +50              |      |
| $I_{OH} / I_{OL}$  | DC Output Source/Sink Current                     |                                  |      | ±50              | mA   |
| $I_{CC}$ or Ground | DC $V_{CC}$ or Ground Current per Supply Pin      |                                  |      | ±50              | mA   |
| $T_{STG}$          | Storage Temperature Range                         |                                  | -65  | +150             | °C   |
| $T_J$              | Junction Temperature Under Bias                   |                                  |      | +150             | °C   |
| $T_L$              | Junction Lead Temperature (Soldering, 10 Seconds) |                                  |      | +260             | °C   |
| $P_D$              | Power Dissipation at +85°C                        | SC70-5                           |      | 150              | mW   |
|                    |   | MicroPak™-6                      |      | 130              |      |
|                    |   | MicroPak2™-6                     |      | 120              |      |
| ESD                | Human Body Model                                  | JEDEC: JESD22-A114               |      | 4000             | V    |
|                    | Charged Device Model                              | JEDEC: JESD22-C101               |      | 2000             |      |

**Note:**

4. The  $I_O$  maximum rating must be observed.

## Recommended Operating Conditions

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. Fairchild does not recommend exceeding them or designing to Absolute Maximum Ratings.

| Symbol                | Parameter                           | Conditions                              | Min. | Typ. | Max.     | Unit |
|-----------------------|-------------------------------------|---|------|------|----------|------|
| $V_{CC}$              | Supply Voltage                      |   | 0.9  |      | 3.6      | V    |
| $V_{IN}$              | Input Voltage <sup>(5)</sup>        |   | 0    |      | 3.6      | V    |
| $V_{OUT}$             | Output Voltage                      | HIGH or LOW State                       | 0    |      | $V_{CC}$ | V    |
|                       |                                     | $V_{CC}=0V$                             | 0    |      | 3.6      |      |
| $I_{OH} / I_{OL}$     | Output Current in $I_{OH} / I_{OL}$ | $V_{CC}=3.0V$ to $3.6V$                 |      | ±2.6 |          | mA   |
|                       |                                     | $V_{CC}=2.3V$ to $2.7V$                 |      | ±2.1 |          |      |
|                       |                                     | $V_{CC}=1.65V$ to $1.95V$               |      | ±1.5 |          |      |
|                       |                                     | $V_{CC}=1.40V$ to $1.60V$               |      | ±1.0 |          |      |
|                       |                                     | $V_{CC}=1.10V$ to $1.30V$               |      | ±0.5 |          |      |
|                       |                                     | $V_{CC}=0.9V$                           |      | 20.0 |          | µA   |
| $T_A$                 | Free Air Operating Temperature      |   | -40  |      | +85      | °C   |
| $\Delta t / \Delta V$ | Minimum Input Edge Rate             | $V_{IN}=0.8V$ to $2.0V$ , $V_{CC}=3.0V$ |      | 10   |          | ns/V |
| $\theta_{JA}$         | Thermal Resistance                  | SC70-5                                  |      | 425  |          | °C/W |
|                       |                                     | MicroPak™-6                             |      | 500  |          |      |
|                       |                                     | MicroPak2™-6                            |      | 560  |          |      |

**Note:**

5. Unused inputs must be held HIGH or LOW. They may not float.

### DC Electrical Characteristics

| Symbol                  | Parameter                     | Conditions                                     | V <sub>CC</sub> (V)           | T <sub>A</sub> =+25°C  |                        | T <sub>A</sub> =-40°C to +85°C |                        | Units |
|-------------------------|-------------------------------|--|-------------------------------|------------------------|------------------------|--------------------------------|------------------------|-------|
|                         |                               |  |                               | Min.                   | Max.                   | Min.                           | Max.                   |       |
| V <sub>P</sub>          | Positive Threshold Voltage    |  | 0.90                          | 0.30                   | 0.60                   | 0.30                           | 0.60                   | V     |
|                         |                               |  | 1.10                          | 0.40                   | 1.00                   | 0.40                           | 1.00                   |       |
|                         |                               |  | 1.40                          | 0.50                   | 1.20                   | 0.50                           | 1.20                   |       |
|                         |                               |  | 1.65                          | 0.70                   | 1.50                   | 0.70                           | 1.50                   |       |
|                         |                               |  | 2.30                          | 1.00                   | 1.90                   | 1.00                           | 1.90                   |       |
|                         |                               |  | 3.00                          | 1.50                   | 2.60                   | 1.50                           | 2.60                   |       |
| V <sub>N</sub>          | Negative Threshold Voltage    |  | 0.90                          | 0.10                   | 0.60                   | 0.10                           | 0.60                   | V     |
|                         |                               |  | 1.10                          | 0.15                   | 0.70                   | 0.15                           | 0.70                   |       |
|                         |                               |  | 1.40                          | 0.20                   | 0.80                   | 0.20                           | 0.80                   |       |
|                         |                               |  | 1.65                          | 0.25                   | 0.90                   | 0.25                           | 0.90                   |       |
|                         |                               |  | 2.30                          | 0.40                   | 1.15                   | 0.40                           | 1.15                   |       |
|                         |                               |  | 3.00                          | 0.6                    | 1.50                   | 0.60                           | 1.50                   |       |
| V <sub>H</sub>          | Hysteresis Voltage            |  | 0.90                          | 0.07                   | 0.50                   | 0.07                           | 0.50                   | V     |
|                         |                               |  | 1.10                          | 0.08                   | 0.60                   | 0.08                           | 0.60                   |       |
|                         |                               |  | 1.40                          | 0.09                   | 0.80                   | 0.09                           | 0.80                   |       |
|                         |                               |  | 1.65                          | 0.10                   | 1.00                   | 0.10                           | 1.00                   |       |
|                         |                               |  | 2.30                          | 0.25                   | 1.10                   | 0.25                           | 1.10                   |       |
|                         |                               |  | 3.00                          | 0.60                   | 1.80                   | 0.60                           | 1.80                   |       |
| V <sub>OH</sub>         | HIGH Level Output Voltage     | I <sub>OH</sub> =-20μA                         | 0.90                          | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1          |                        | V     |
|                         |                               |  | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1          |                        |       |
|                         |                               |  | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1          |                        |       |
|                         |                               |  | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1          |                        |       |
|                         |                               |  | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1          |                        |       |
|                         |                               |  | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1          |                        |       |
|                         |                               | I <sub>OH</sub> =-0.5mA                        | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 | 0.75 x V <sub>CC</sub> |                        | 0.70 x V <sub>CC</sub>         |                        |       |
|                         |                               | I <sub>OH</sub> =-1mA                          | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 | 1.07                   |                        | 0.99                           |                        |       |
|                         |                               | I <sub>OH</sub> =-1.5mA                        | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 | 1.24                   |                        | 1.22                           |                        |       |
|                         |                               | I <sub>OH</sub> =-2.1mA                        | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 | 1.95                   |                        | 1.87                           |                        |       |
| I <sub>OH</sub> =-2.6mA | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 | 2.61   |                               | 2.55                   |                        |                                |                        |       |
| V <sub>OL</sub>         | LOW Level Output Voltage      | I <sub>OL</sub> =20μA                          | 0.90                          |                        | 0.1                    |                                | 0.1                    | V     |
|                         |                               |  | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 |                        | 0.1                    |                                | 0.1                    |       |
|                         |                               |  | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 |                        | 0.1                    |                                | 0.1                    |       |
|                         |                               |  | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 |                        | 0.1                    |                                | 0.1                    |       |
|                         |                               |  | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 |                        | 0.1                    |                                | 0.1                    |       |
|                         |                               |  | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 |                        | 0.1                    |                                | 0.1                    |       |
|                         |                               | I <sub>OL</sub> =0.5mA                         | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 |                        | 0.30 x V <sub>CC</sub> |                                | 0.30 x V <sub>CC</sub> |       |
|                         |                               | I <sub>OL</sub> =1mA                           | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 |                        | 0.31                   |                                | 0.37                   |       |
|                         |                               | I <sub>OL</sub> =1.5mA                         | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 |                        | 0.31                   |                                | 0.35                   |       |
|                         |                               | I <sub>OL</sub> =2.1mA                         | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 |                        | 0.31                   |                                | 0.33                   |       |
| I <sub>OL</sub> =2.6mA  | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 |  | 0.31                          |                        | 0.33                   |                                |                        |       |
| I <sub>IN</sub>         | Input Leakage Current         | 0 ≤ V <sub>IN</sub> ≤ 3.6V                     | 0.90 to 3.60                  |                        | ±0.1                   |                                | ±0.5                   | μA    |
| I <sub>OFF</sub>        | Power Off Leakage Current     | 0 ≤ (V <sub>IN</sub> , V <sub>O</sub> ) ≤ 3.6V | 0                             |                        | 0.5                    |                                | 0.5                    | μA    |
| I <sub>CC</sub>         | Quiescent Supply Current      | V <sub>IN</sub> =V <sub>CC</sub> or GND        | 0.90 to 3.60                  |                        | 0.9                    |                                | 0.9                    | μA    |

### AC Electrical Characteristics

| Symbol                              | Parameter                     | Conditions  | V <sub>CC</sub>               | T <sub>A</sub> =25°C |      |      | T <sub>A</sub> =-40 to 85°C |      | Units |  |
|-------------------------------------|-------------------------------|---|-------------------------------|----------------------|------|------|-----------------------------|------|-------|--|
|                                     |                               |   |                               | Min.                 | Typ. | Max. | Min.                        | Max. |       |  |
| t <sub>PHL</sub> , t <sub>PLH</sub> | Propagation Delay             | C <sub>L</sub> =10pF,<br>R <sub>L</sub> =1MΩ        | 0.90                          |                      | 27.0 |      |                             |      | ns    |  |
|                                     |                               |   | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 | 3.5                  | 11.0 | 21.8 | 3.0                         | 34.3 |       |  |
|                                     |                               |   | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 | 2.5                  | 7.0  | 14.8 | 2.0                         | 15.0 |       |  |
|                                     |                               |   | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 | 2.0                  | 6.0  | 12.0 | 1.5                         | 12.2 |       |  |
|                                     |                               |   | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 | 1.5                  | 5.0  | 9.4  | 1.0                         | 9.9  |       |  |
|                                     |                               |   | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 | 1.0                  | 4.0  | 8.3  | 1.0                         | 9.0  |       |  |
|                                     |                               | C <sub>L</sub> =15pF,<br>R <sub>L</sub> =1MΩ        | 0.90                          |                      | 30.0 |      |                             |      |       |  |
|                                     |                               |   | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 | 4.0                  | 11.0 | 22.8 | 3.5                         | 37.3 |       |  |
|                                     |                               |   | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 | 3.0                  | 8.0  | 15.5 | 2.5                         | 16.5 |       |  |
|                                     |                               |   | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 | 2.5                  | 6.0  | 12.6 | 2.0                         | 13.6 |       |  |
|                                     |                               |   | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 | 2.0                  | 5.0  | 9.9  | 1.5                         | 10.8 |       |  |
|                                     |                               |   | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 | 1.5                  | 4.0  | 8.7  | 1.0                         | 9.5  |       |  |
|                                     |                               | C <sub>L</sub> =30pF,<br>R <sub>L</sub> =1MΩ        | 0.90                          |                      | 32.0 |      |                             |      |       |  |
|                                     |                               |   | 1.10 ≤ V <sub>CC</sub> ≤ 1.30 | 5.0                  | 13.0 | 25.9 | 4.0                         | 46.3 |       |  |
|                                     |                               |   | 1.40 ≤ V <sub>CC</sub> ≤ 1.60 | 4.0                  | 9.0  | 17.8 | 3.5                         | 18.2 |       |  |
|                                     |                               |   | 1.65 ≤ V <sub>CC</sub> ≤ 1.95 | 3.0                  | 7.0  | 14.4 | 2.0                         | 15.9 |       |  |
|                                     |                               |   | 2.30 ≤ V <sub>CC</sub> ≤ 2.70 | 2.0                  | 6.0  | 11.3 | 1.5                         | 12.8 |       |  |
|                                     |                               |   | 3.00 ≤ V <sub>CC</sub> ≤ 3.60 | 1.5                  | 5.0  | 9.2  | 1.0                         | 10.7 |       |  |
| C <sub>IN</sub>                     | Input Capacitance             |   | 0                             |                      | 2    |      |                             | pF   |       |  |
| C <sub>PD</sub>                     | Power Dissipation Capacitance | V <sub>IN</sub> =0V or V <sub>CC</sub> ,<br>f=10MHz | 0.90 to 3.60                  |                      | 8    |      |                             |      | pF    |  |

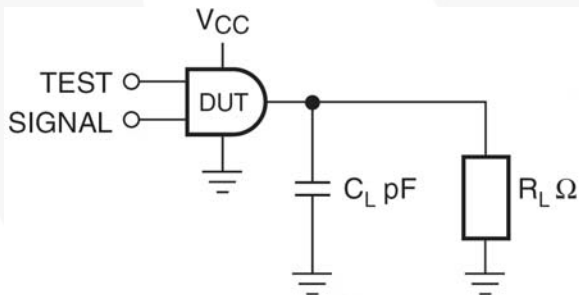


Figure 5. AC Test Circuit

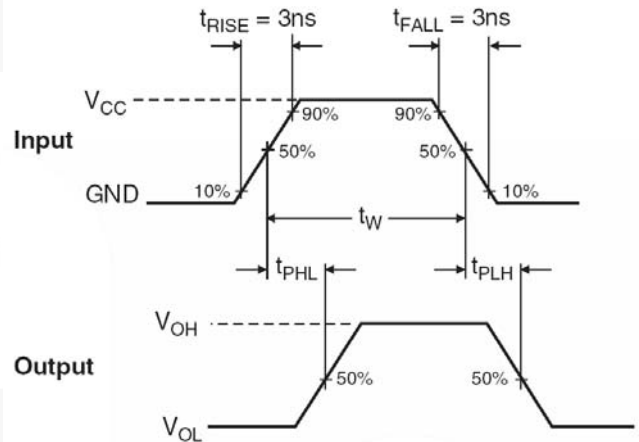
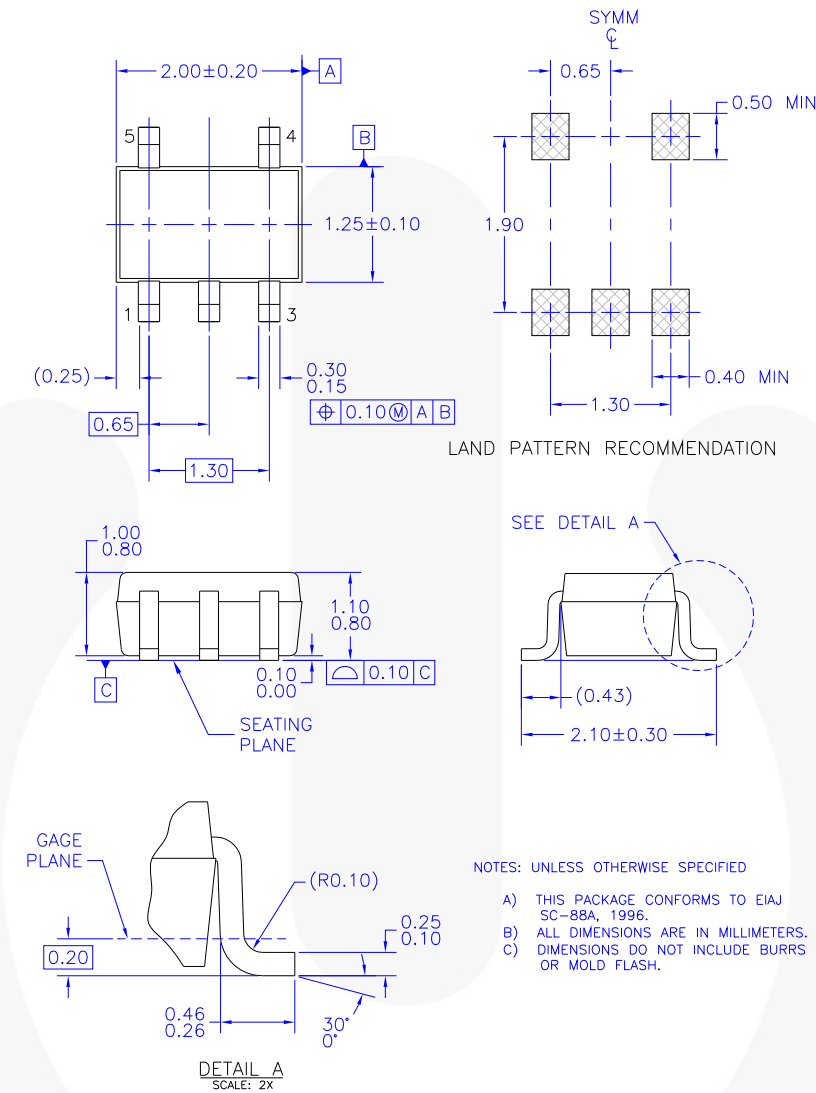


Figure 6. AC Waveforms for Inverting and Non-Inverting Functions

| Symbol          | V <sub>CC</sub> |                     |                     |                     |                     |                     |
|-----------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                 | 3.3V ± 0.3V     | 2.5V ± 0.2V         | 1.8V ± 0.15V        | 1.5V ± 0.1V         | 1.2V ± 0.1V         | 0.9V                |
| V <sub>mi</sub> | 1.5V            | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 |
| V <sub>mo</sub> | 1.5V            | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 | V <sub>CC</sub> / 2 |

## Physical Dimensions



MAA05AREV5

**Figure 7. 5-Lead, SC70, EIAJ SC-88a, 1.25mm Wide**

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

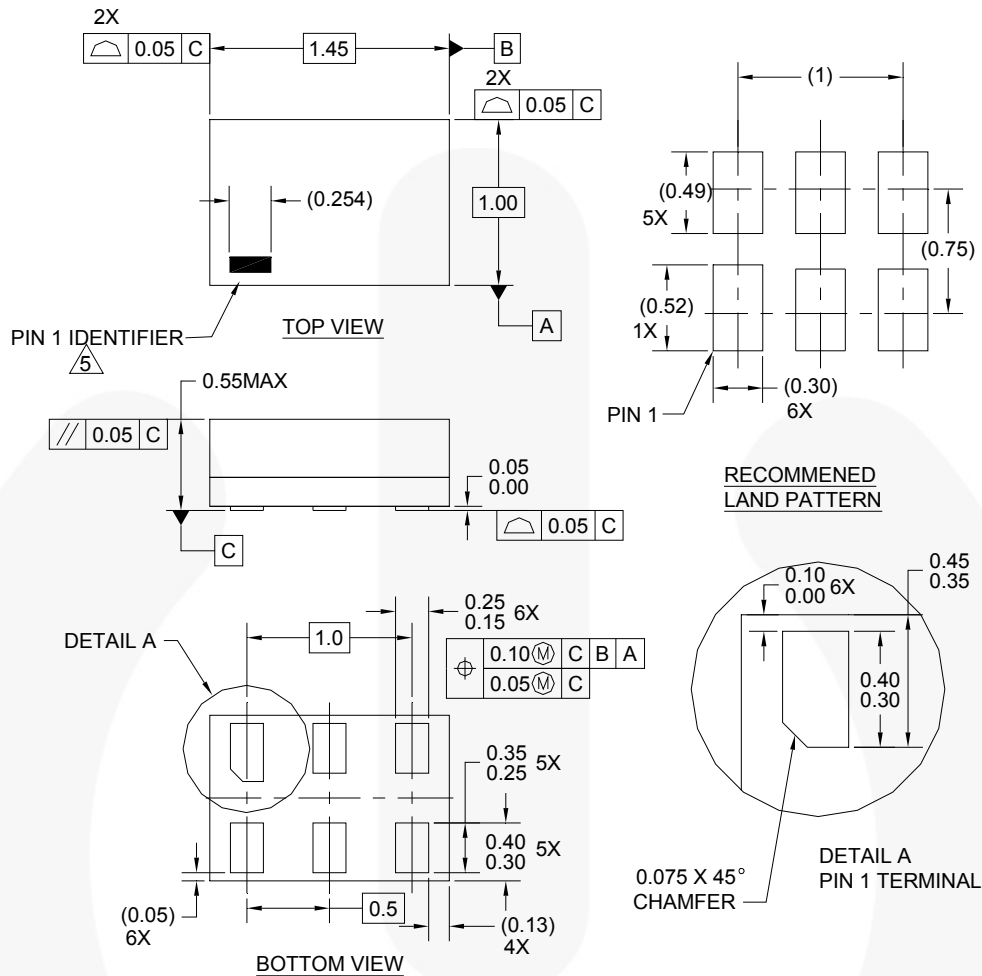
Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:  
<http://www.fairchildsemi.com/packaging/>.

### Tape and Reel Specification

Please visit Fairchild Semiconductor's online packaging area for the most recent tape and reel specifications:  
[http://www.fairchildsemi.com/products/analog/pdf/sc70-5\\_tr.pdf](http://www.fairchildsemi.com/products/analog/pdf/sc70-5_tr.pdf).

| Package Designator | Tape Section       | Cavity Number | Cavity Status | Cover Type Status |
|--------------------|--------------------|---------------|---------------|-------------------|
| P5X                | Leader (Start End) | 125 (Typical) | Empty         | Sealed            |
|                    | Carrier            | 3000          | Filled        | Sealed            |
|                    | Trailer (Hub End)  | 75 (Typical)  | Empty         | Sealed            |

## Physical Dimensions



**Figure 8. 6-Lead, MicroPak™, 1.0mm Wide**

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

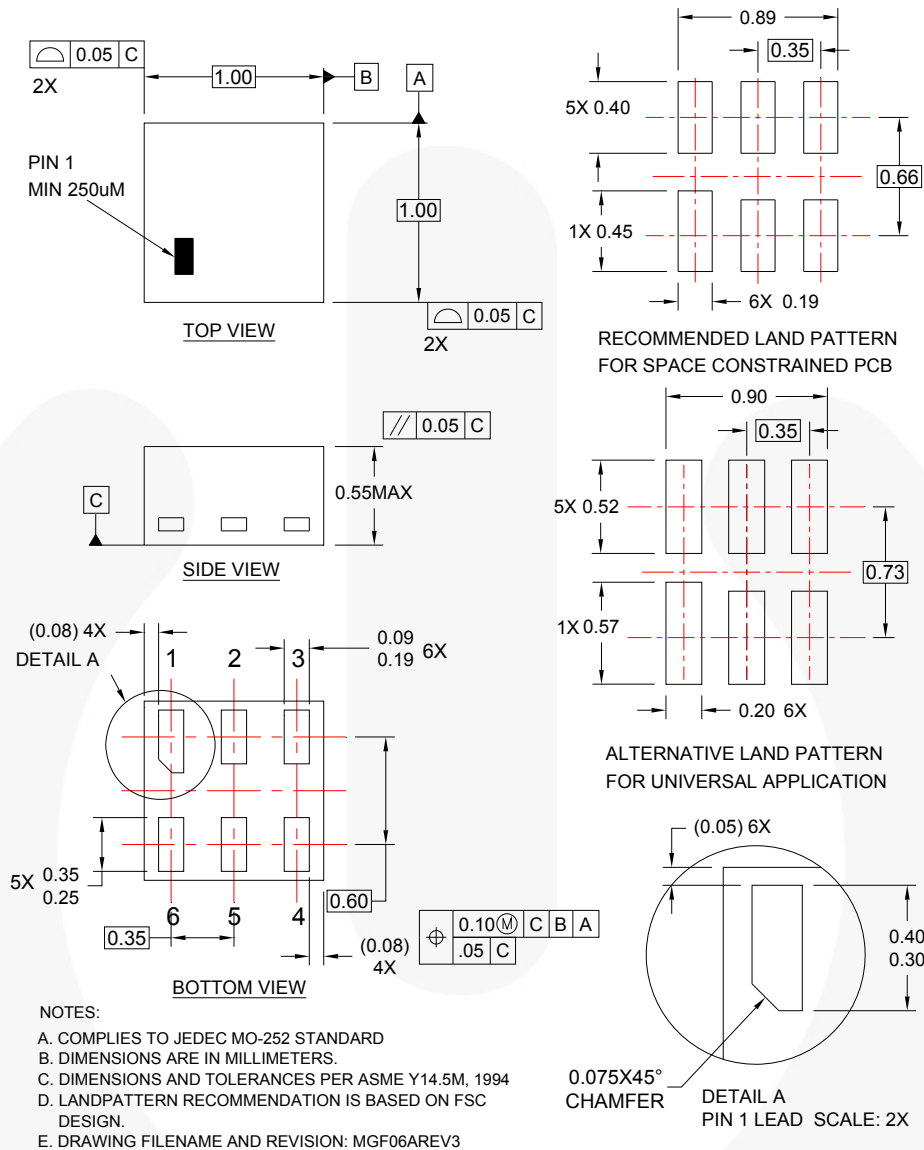
Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:  
<http://www.fairchildsemi.com/packaging/>.

## Tape and Reel Specification

Please visit Fairchild Semiconductor's online packaging area for the most recent tape and reel specifications:  
[http://www.fairchildsemi.com/products/logic/pdf/micropak\\_tr.pdf](http://www.fairchildsemi.com/products/logic/pdf/micropak_tr.pdf).

| Package Designator | Tape Section       | Cavity Number | Cavity Status | Cover Type Status |
|--------------------|--------------------|---------------|---------------|-------------------|
| L6X                | Leader (Start End) | 125 (Typical) | Empty         | Sealed            |
|                    | Carrier            | 5000          | Filled        | Sealed            |
|                    | Trailer (Hub End)  | 75 (Typical)  | Empty         | Sealed            |

## Physical Dimensions



**Figure 9. 6-Lead, MicroPak2™, 1x1mm Body, .35mm Pitch**

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:  
<http://www.fairchildsemi.com/packaging/>

### Tape and Reel Specification

Please visit Fairchild Semiconductor's online packaging area for the most recent tape and reel specifications:  
[http://www.fairchildsemi.com/packaging/MicroPAK2\\_6L\\_tr.pdf](http://www.fairchildsemi.com/packaging/MicroPAK2_6L_tr.pdf)

| Package Designator | Tape Section       | Cavity Number | Cavity Status | Cover Type Status |
|--------------------|--------------------|---------------|---------------|-------------------|
| FHX                | Leader (Start End) | 125 (Typical) | Empty         | Sealed            |
|                    | Carrier            | 5000          | Filled        | Sealed            |
|                    | Trailer (Hub End)  | 75 (Typical)  | Empty         | Sealed            |





**TRADEMARKS**

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

|                          |                        |                                     |  |
|--------------------------|------------------------|-------------------------------------|--|
| AccuPower™               | F-PFS™                 | Power-SPM™                          | The Power Franchise®                   |
| Auto-SPM™                | FRFET®                 | PowerTrench®                        | The Right Technology for Your Success™ |
| AX-CAP™*                 | Global Power Resource™ | PowerXS™                            | <b>the power franchise</b>             |
| Build it Now™            | Green FPST™            | Programmable Active Droop™          | TinyBoost™                             |
| CorePLUS™                | Green FPST™ e-Series™  | QFET®                               | TinyBuck™                              |
| CorePOWER™               | Gmax™                  | QS™                                 | TinyCalc™                              |
| CROSSVOLT™               | GTO™                   | Quiet Series™                       | TinyLogic®                             |
| CTL™                     | IntelliMAX™            | RapidConfigure™                     | TINYOPTO™                              |
| Current Transfer Logic™  | ISOPLANAR™             | ™                                   | TinyPower™                             |
| DEUXPEED®                | MegaBuck™              | Saving our world, 1mW/kW at a time™ | TinyPWM™                               |
| Dual Cool™               | MICROCOUPLER™          | SignalWise™                         | TinyWire™                              |
| EcoSPARK®                | MicroFET™              | SmartMax™                           | TrnFault Detect™                       |
| EfficientMax™            | MicroPak™              | SMART START™                        | TRUECURRENT®*                          |
| ESBC™                    | MicroPak2™             | SPM®                                | µSerDes™                               |
| <b>F</b> ®               | MillerDrive™           | STEALTH™                            | SerDes™                                |
| Fairchild®               | MotionMax™             | SuperFET®                           | UHC®                                   |
| Fairchild Semiconductor® | Motion-SPM™            | SuperSOT™3                          | Ultra FRFET™                           |
| FACT Quiet Series™       | mWSaver™               | SuperSOT™-6                         | UniFET™                                |
| FACT®                    | OptoHiT™               | SuperSOT™-8                         | Vcx™                                   |
| FAST®                    | OPTOLOGIC®             | SupreMOS®                           | VisualMax™                             |
| FastvCore™               | OPTOPLANAR®            | SynCFET™                            | XST™                                   |
| FETBench™                | ™                      | Syn-Lock™                           |  |
| FlashWriter®*            | PDP SPM™               | SYSTEM GENERAL®*                    |  |
| FPST™                    |                        |                                     |  |

\* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

**DISCLAIMER**

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

**LIFE SUPPORT POLICY**

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

**ANTI-COUNTERFEITING POLICY**

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, [www.fairchildsemi.com](http://www.fairchildsemi.com), under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

**PRODUCT STATUS DEFINITIONS**

**Definition of Terms**

| Datasheet Identification | Product Status        | Definition  |
|--------------------------|-----------------------|---|
| Advance Information      | Formative / In Design | Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.   |
| Preliminary              | First Production      | Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design. |
| No Identification Needed | Full Production       | Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.   |
| Obsolete                 | Not In Production     | Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.  |

Rev. 153