

## Radiation Hardened Octal Non-Inverting Three-State Buffer

January 1996

### Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96718 and Intersil's QM Plan
- 1.25 Micron Radiation Hardened SOS CMOS
- Total Dose ..... >300K RAD (Si)
- Single Event Upset (SEU) Immunity: <math> <1 \times 10^{-10}</math> Errors/Bit/Day (Typ)
- SEU LET Threshold ..... >100 MEV-cm<sup>2</sup>/mg
- Dose Rate Upset ..... >10<sup>11</sup> RAD (Si)/s, 20ns Pulse
- Dose Rate Survivability ..... >10<sup>12</sup> RAD (Si)/s, 20ns Pulse
- Latch-Up Free Under Any Conditions
- Military Temperature Range ..... -55°C to +125°C
- Significant Power Reduction Compared to ALSTTL Logic
- DC Operating Voltage Range ..... 4.5V to 5.5V
- Input Logic Levels
  - VIL = 0.8V Max
  - VIH = VCC/2 Min
- Input Current ≤ 1μA at VOL, VOH
- Fast Propagation Delay ..... 14.5ns (Max), 10ns (Typ)

### Description

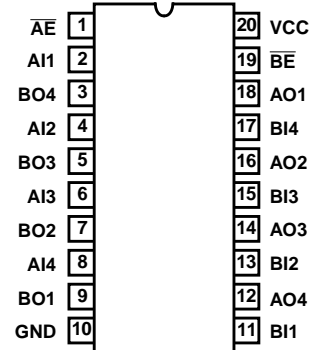
The Intersil ACTS244MS is a Radiation Hardened Octal Non-Inverting Three-State Buffer having two active low enable inputs.

The ACTS244MS utilizes advanced CMOS/SOS technology to achieve high-speed operation. This device is a member of radiation hardened, high-speed, CMOS/SOS Logic Family.

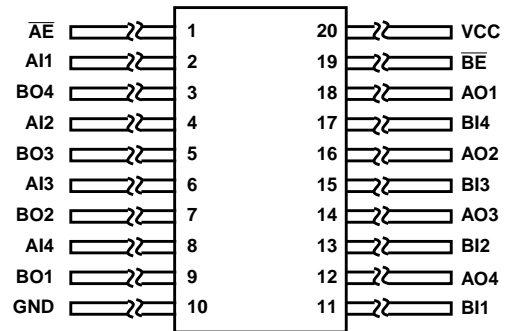
The ACTS244MS is supplied in a 20 lead Ceramic Flatpack (K suffix) or a Dual-In-Line Ceramic Package (D suffix).

### Pinouts

20 PIN CERAMIC DUAL-IN-LINE  
MIL-STD-1835 DESIGNATOR CDIP2-T20,  
LEAD FINISH C  
TOP VIEW



20 PIN CERAMIC FLATPACK  
MIL-STD-1835 DESIGNATOR CDFP4-F20,  
LEAD FINISH C  
TOP VIEW

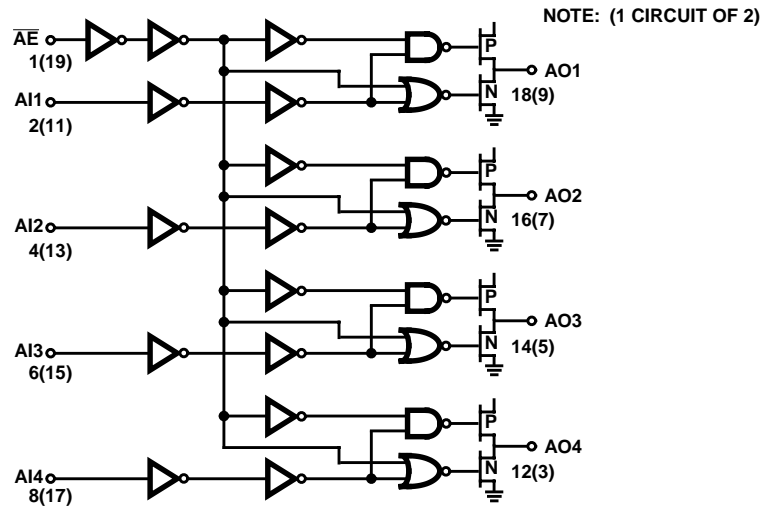


### Ordering Information

| PART NUMBER     | TEMPERATURE RANGE | SCREENING LEVEL       | PACKAGE                  |
|-----------------|-------------------|-----------------------|--------------------------|
| 5962F9671801VRC | -55°C to +125°C   | MIL-PRF-38535 Class V | 20 Lead SBDIP            |
| 5962F9671801VXC | -55°C to +125°C   | MIL-PRF-38535 Class V | 20 Lead Ceramic Flatpack |
| ACTS244D/Sample | 25°C              | Sample                | 20 Lead SBDIP            |
| ACTS244K/Sample | 25°C              | Sample                | 20 Lead Ceramic Flatpack |
| ACTS244HMSR     | 25°C              | Die                   | Die                      |

# ACTS244MS

## Functional Diagram



TRUTH TABLE

| INPUTS                         |          | OUTPUT   |
|--------------------------------|----------|----------|
| $\overline{AE}, \overline{BE}$ | AIn, BIn | AOn, BOn |
| L                              | L        | L        |
| L                              | H        | H        |
| H                              | X        | Z        |

NOTE: H = High Voltage Level, L = Low Voltage Level,  
X = Immaterial, Z = High Impedance

# ACTS244MS

## Die Characteristics

### DIE DIMENSIONS:

100 x 100 (mils)  
2.54 x 2.54 (mm)

### METALLIZATION:

Type: AlSi  
Metal 1 Thickness:  $7.125\text{k}\text{\AA} \pm 1.125\text{k}\text{\AA}$   
Metal 2 Thickness:  $9\text{k}\text{\AA} \pm 1\text{k}\text{\AA}$

### GLASSIVATION:

Type:  $\text{SiO}_2$   
Thickness:  $8\text{k}\text{\AA} \pm 1\text{k}\text{\AA}$

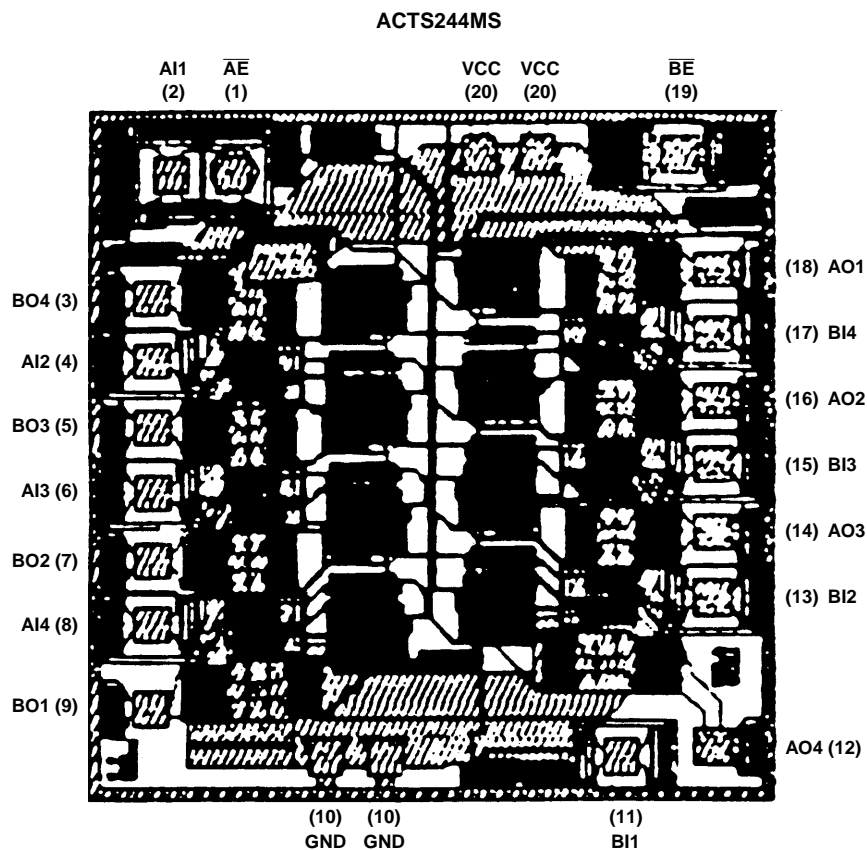
### WORST CASE CURRENT DENSITY:

$< 2.0 \times 10^5 \text{A/cm}^2$

### BOND PAD SIZE:

110 x 110 ( $\mu\text{m}$ )  
4.4 x 4.4 (mils)

## Metallization Mask Layout



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