intersil

# ACS240MS

## Radiation Hardened Inverting, Octal, Three-State Buffer/Line Driver

March 1998

### Features

- **QML Qualified Per MIL-PRF-38535 Requirements**
- **1.25Micron Radiation Hardened SOS CMOS**
- **Radiation Environment**
  - **Latch-up Free Under any Conditions**
  - **Total Dose . . . . . . . . . . . . . . . . . . . . . . 3 x $10^5$ RAD(Si)**
  - **SEU Immunity . . . . . . . . . . . <1 x $10^{-10}$ Errors/Bit/Day**
  - **SEU LET Threshold . . . . . . . . . . . >100MeV/(mg/$cm^2$)**
- **Input Logic Levels $V_{IL} = (0.3V)(V_{CC})$, $V_{IH} = (0.7V)(V_{CC})$**
- **Output Current . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ±16mA**
- **Quiescent Supply Current. . . . . . . . . . . . . . . . . . . . 20μA**
- **Propagation Delay . . . . . . . . . . . . . . . . . . . . . . . . 11.5ns**

### Applications

- **Databus Driving**
- **Data Routing**
- **Redundant Data Control Circuitry**

### Description

The Radiation Hardened ACS240MS is an Inverting, Octal, Three-State Buffer/Line Driver with two active-LOW Enable inputs ($\overline{AE}$ and $\overline{BE}$). Each Enable input controls four outputs. When an Enable input is LOW, the corresponding outputs are active and input signals are inverted. A HIGH on an Enable input causes the corresponding outputs to be high impedance, regardless of the input levels.

The ACS240MS is fabricated on a CMOS Silicon on Sapphire (SOS) process, which provides an immunity to Single Event Latch-up and the capability of highly reliable performance in any radiation environment. These devices offer significant power reduction and faster performance when compared to ALSTTL types.

**Specifications for Rad Hard QML devices are controlled by the Defense Supply Center in Columbus (DSCC). The SMD numbers listed below must be used when ordering.**

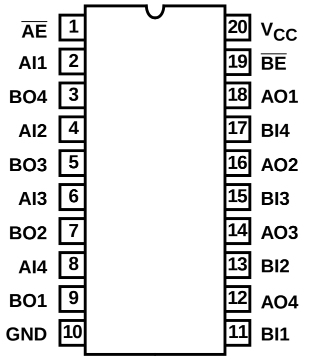
**Detailed Electrical Specifications for the ACS240 are contained in SMD 5962-98540. A “hot-link” is provided on our homepage with instructions for downloading. http://www.intersil.com/data/sm/index.htm**

### Ordering Information

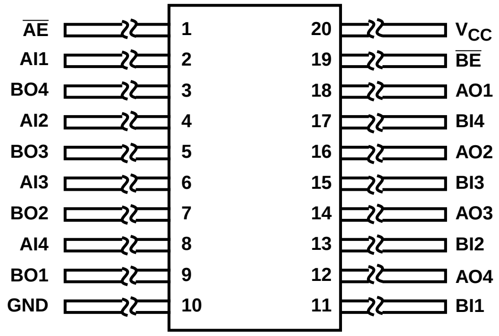
| SMD PART NUMBER | INTERSIL PART NUMBER | TEMP. RANGE ($^oC$) | PACKAGE | CASE OUTLINE |
|---|---|---|---|---|
| 5962F9854001VRC | ACS240DMSR-02 | -55 to 125 | 20 Ld SBDIP | CDIP2-T20 |
| N/A | ACS240D/Sample-02 | 25 | 20 Ld SBDIP | CDIP2-T20 |
| 5962F9854001VXC | ACS240KMSR-02 | -55 to 125 | 20 Ld Flatpack | CDFP4-F20 |
| N/A | ACS240K/Sample-02 | 25 | 20 Ld Flatpack | CDFP4-F20 |
| N/A | ACS240HMSR-02 | 25 | Die | N/A |

### Pinouts

**ACS240 (SBDIP)**
TOP VIEW



**ACS240 (FLATPACK)**
TOP VIEW



File Number **4478**

## *Die Characteristics*

**DIE DIMENSIONS:**

Size: 2540µm x 2540µm (100 mils x 100mils)
Thickness: 525µm ±25µm (20.6 mils ±1 mil)
Bond Pad: 110µm x 110µm (4.3 x 4.3 mils)

**METALLIZATION:** Al
Metal 1 Thickness: 0.7µm ±0.1µm
Metal 2 Thickness: 1.0µm ±0.1µm

**SUBSTRATE POTENTIAL:**

Unbiased Insulator

**PASSIVATION**

Type: Phosphorous Silicon Glass (PSG)
Thickness: 1.30µm ±0.15µm

**SPECIAL INSTRUCTIONS:**

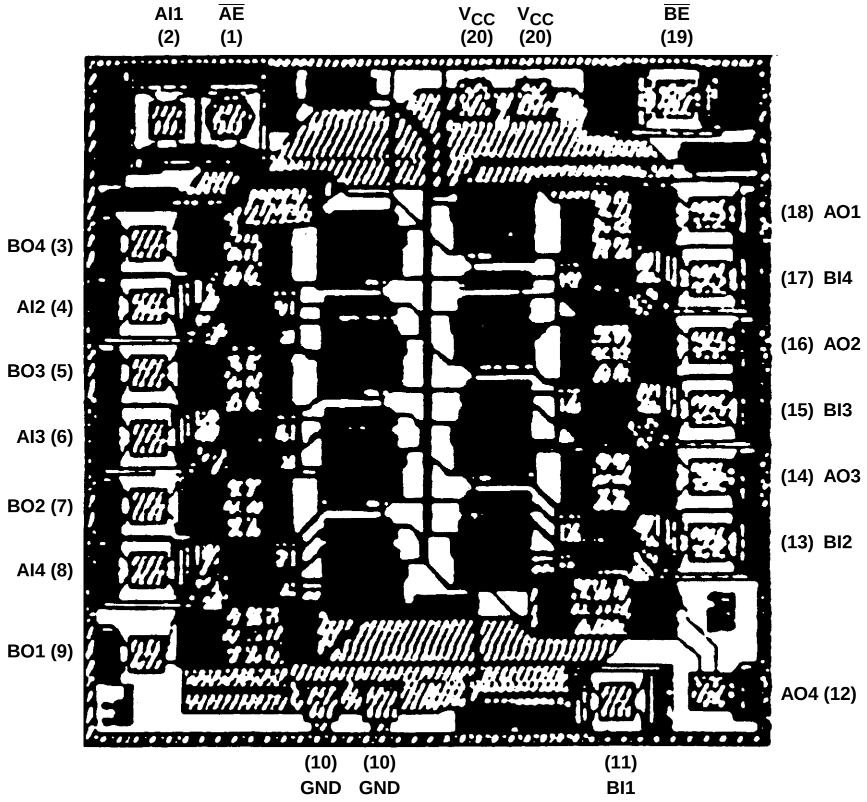
Bond $V_{CC}$ First

**ADDITIONAL INFORMATION:**

Worst Case Density: $<2.0 \times 10^5$ A/cm$^2$
Transistor Count: 198

## *Metallization Mask Layout*

**ACS240MS**



For information regarding Intersil Corporation and its products, see web site **http://www.intersil.com**

## *Sales Office Headquarters*

**NORTH AMERICA**
Intersil Corporation
P. O. Box 883, Mail Stop 53-204
Melbourne, FL 32902
TEL: (321) 724-7000
FAX: (321) 724-7240

**EUROPE**
Intersil SA
Mercure Center
100, Rue de la Fusee
1130 Brussels, Belgium
TEL: (32) 2.724.2111
FAX: (32) 2.724.22.05

**ASIA**
Intersil (Taiwan) Ltd.
Taiwan Limited
7F-6, No. 101 Fu Hsing North Road
Taipei, Taiwan
Republic of China
TEL: (886) 2 2716 9310
FAX: (886) 2 2715 3029