intersil™

DATASHEET

ACS244MS

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

FN4479
Rev.0.00
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 9.0ns**

Applications

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

Description

The Radiation Hardened ACS244MS is a Non-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. A HIGH on an Enable input causes the corresponding outputs to be high impedance, regardless of the input levels.

The ACS244MS 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.

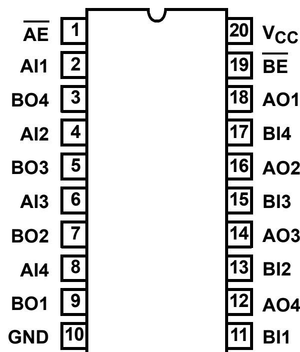
Detailed Electrical Specifications for the ACS244 are contained in SMD 5962-98541.

Ordering Information

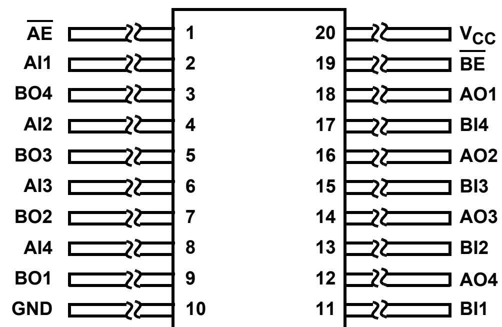
SMD PART NUMBER	INTERSIL PART NUMBER	TEMP. RANGE (^oC)	PACKAGE	CASE OUTLINE
5962F9854101VRC	ACS244DMSR-02	-55 to 125	20 Ld SBDIP	CDIP2-T20
N/A	ACS244D/Sample-02	25	20 Ld SBDIP	CDIP2-T20
5962F9854101VXC	ACS244KMSR-02	-55 to 125	20 Ld Flatpack	CDFP4-F20
N/A	ACS244K/Sample-02	25	20 Ld Flatpack	CDFP4-F20
N/A	ACS244HMSR-02	25	Die	N/A

Pinouts

ACS244 (SBDIP)
TOP VIEW



ACS244 (FLATPACK)
TOP VIEW



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:

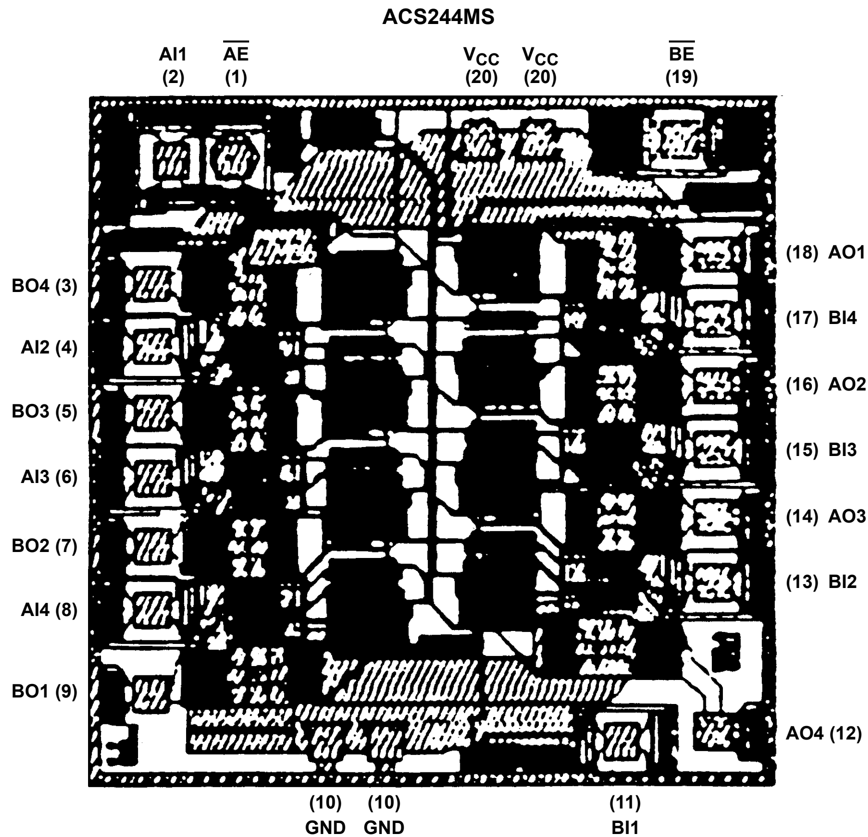
Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Density: <2.0 x 10^5 A/cm^2
Transistor Count: 214

Metallization Mask Layout

ACS244MS



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