ACS257MS

November 1997

Radiation Hardened Quad 2-Input Multiplexer with Three-State Outputs

Features

- QML Qualified Per MIL-PRF-38535 Requirements
- 1.25Micron Radiation Hardened SOS CMOS
- Radiation Environment
  - Latch-up Free Under any Conditions
  - Total Dose . . . . . 3×10^5 RAD(Si)
  - SEU Immunity . . . . . $<1 \times 10^{-10}$ Errors/Bit/Day
  - SEU LET Threshold . . . . . >100MeV/(mg/cm^2)
- Input Logic Levels . . . $V_{IL} = (0.3)(V_{CC})$, $V_{IH} = (0.7)(V_{CC})$
- Output Current . . . . . $\pm$8mA
- Quiescent Supply Current. 400μA
- Propagation Delay
  - Enable to Output 13ns
  - Input or Address to Output 14ns

Applications

- 4-Bit Source Selection
- Data Routing
- High Frequency Switching

Description

The Radiation Hardened ACS257MS is a Quad 2-Channel multiplexer which selects four bits of data from one of two sources under the control of a single select pin. The Output Enable input is active LOW and controls all outputs. When $\overline{OE}$ is set HIGH, all outputs are configured into a high impedance state, regardless of all other input conditions. All inputs are buffered and the outputs are designed for balanced propagation delay and transition times.

The ACS257MS 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.

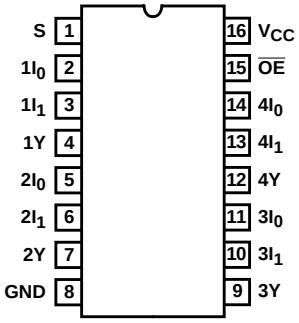
Detailed Electrical Specifications for the ACS257 are contained in SMD 5962-98008. A "hot-link" is provided on our homepage with instructions for downloading. http://www.intersil.com/data/sm/index.htm

Ordering Information

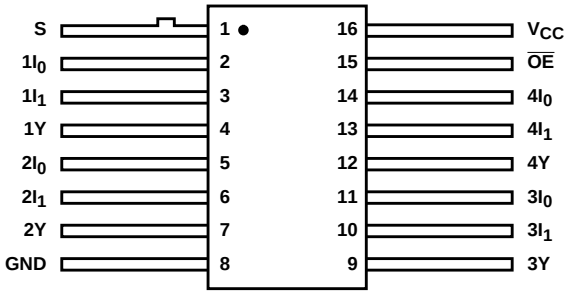
SMD PART NUMBER	INTERSIL PART NUMBER	TEMP. RANGE (^{O}C)	PACKAGE	CASE OUTLINE
5962F9800801VEC	ACS257DMSR-02	-55 to 125	16 Ld SBDIP	CDIP2-T16
N/A	ACS257D/Sample-02	25	16 Ld SBDIP	CDIP2-T16
5962F9800801VXC	ACS257KMSR-02	-55 to 125	16 Ld Flatpack	CDFP4-F16
N/A	ACS257K/Sample-02	25	16 Ld Flatpack	CDFP4-F16
N/A	ACS257HMSR-02	25	Die	N/A

Pinouts

ACS257 (SBDIP)
TOP VIEW



ACS257 (FLATPACK)
TOP VIEW



CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.

File Number **4429**

Die Characteristics

DIE DIMENSIONS:

Size: 2390µm x 2390µm (94 mils x 94 mils)
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:

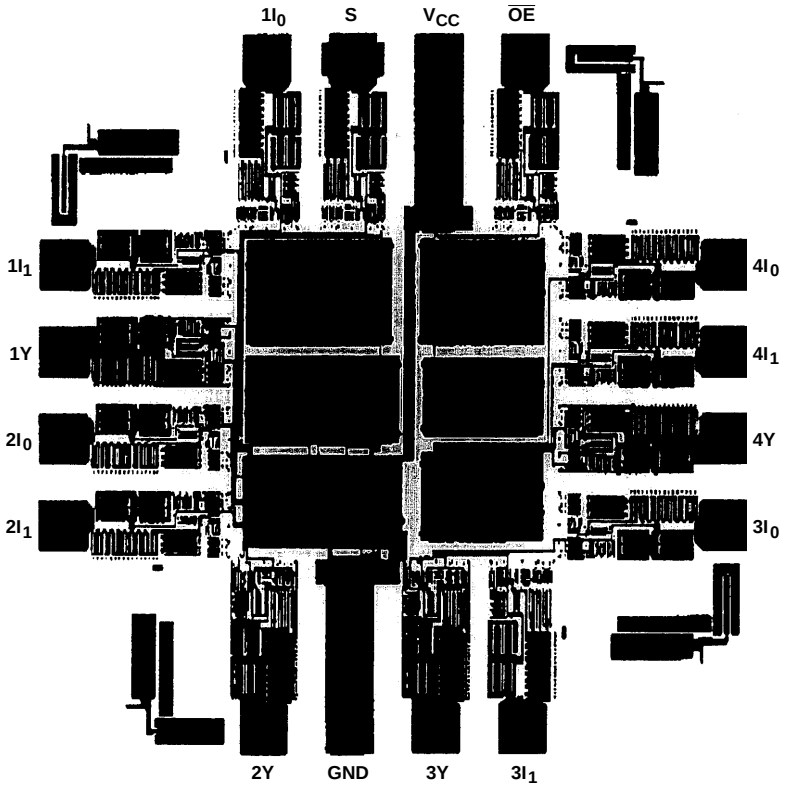
Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Density: $<2.0 \times 10^5$ A/cm^2
Transistor Count: 212

Metallization Mask Layout

ACS257MS



All Intersil semiconductor products are manufactured, assembled and tested under **ISO9000** quality systems certification.

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