ACS257MS

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

November 1997

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 10⁵ RAD(Si)
 - SEU Immunity.....<1 x 10⁻¹⁰ Errors/Bit/Dav
 - SEU LET Threshold>100MeV/(mg/cm²)
- Input Logic Levels . . $V_{IL} = (0.3)(V_{CC})$, $V_{IH} = (0.7)(V_{CC})$
- Quiescent Supply Current......400μA
- Propagation Delay
 - Enable to Output13ns

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 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.

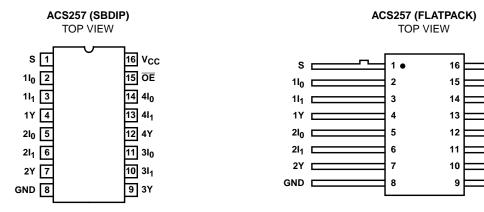
Specifications for Rad Hard QML devices are controlled by the Defense Supply Center in Columbus (DSCC). The SMD numbers listed below must be used when ordering.

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 (°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



⊐ Vcc

J OE

⊐ 4l₀

□ 4I₁

¬ 4Y

31₀

3 I₁

⊐ 3Y

ACS257MS

Die Characteristics

DIE DIMENSIONS:

Size: $2390\mu m \times 2390\mu m$ (94 mils x 94 mils) Thickness: $525\mu m \pm 25\mu m$ (20.6 mils ± 1 mil) Bond Pad: $110\mu m \times 110\mu m$ (4.3 x 4.3 mils)

METALLIZATION: AI

Metal 1 Thickness: $0.7\mu m \pm 0.1\mu m$ Metal 2 Thickness: $1.0\mu m \pm 0.1\mu m$

SUBSTRATE POTENTIAL:

Unbiased Insulator

PASSIVATION

Type: Phosphorous Silicon Glass (PSG)

Thickness: 1.30μm ±0.15μm

SPECIAL INSTRUCTIONS:

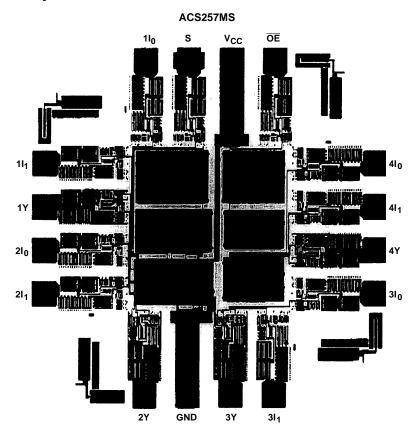
Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Density: <2.0 x 10⁵ A/cm²

Transistor Count: 212

Metallization Mask Layout



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