intersil

ACS157MS

December 1997

Radiation Hardened Quad 2-Input Non-Inverting Multiplexer

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} = (0.3)(Vcc), V_{IH} = (0.7)(Vcc)
- Output Current . . . . ±12mA
- Quiescent Supply Current. 20µA
- Propagation Delay 14ns

Applications

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

Description

The Radiation Hardened ACS157MS is a Quad 2-Channel Non-Inverting 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 $\overline{E}$ is set HIGH, all outputs are forced LOW, regardless of all other input conditions. All inputs are buffered and the outputs are designed for balanced propagation delay and transition times.

The ACS157MS 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.

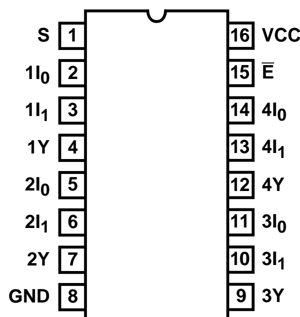
Detailed Electrical Specifications for the ACS157 are contained in SMD 5962-98536. A "hot-link" is provided on our homepage with instructions for downloading. http://www.intersil.com/data/sm/index.htm

Ordering Information

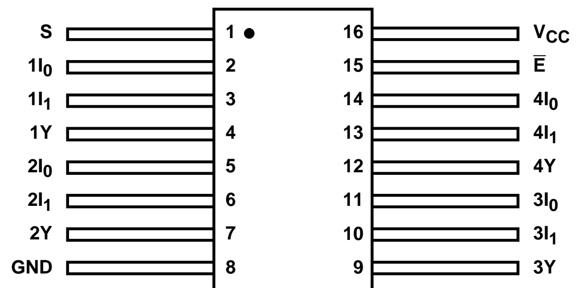
SMD PART NUMBER	INTERSIL PART NUMBER	TEMP. RANGE (°C)	PACKAGE	CASE OUTLINE
5962F9853601VEC	ACS157DMSR-02	-55 to 125	16 Ld SBDIP	CDIP2-T16
N/A	ACS157D/Sample-02	25	16 Ld SBDIP	CDIP2-T16
5962F9853601VXC	ACS157KMSR-02	-55 to 125	16 Ld Flatpack	CDFP4-F16
N/A	ACS157K/Sample-02	25	16 Ld Flatpack	CDFP4-F16
N/A	ACS157HMSR-02	25	Die	N/A

Pinouts

ACS157 (SBDIP)
TOP VIEW



ACS157 (FLATPACK)
TOP VIEW



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

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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:

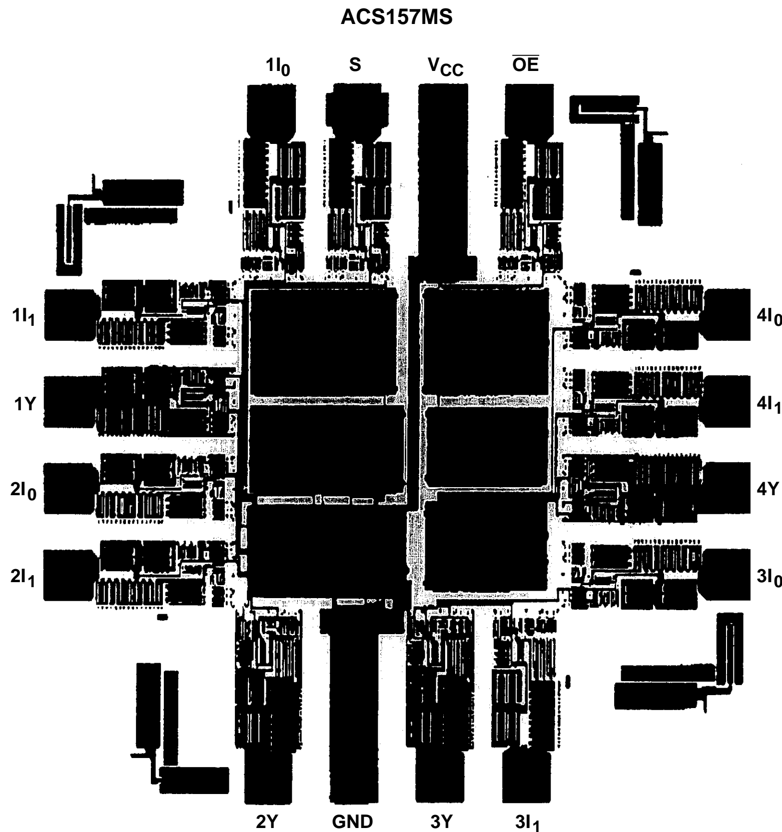
Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Density: <2.0 x 10^5 A/cm^2
Transistor Count: 150

Metallization Mask Layout

ACS157MS



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