

ACS253MS

Radiation Hardened Dual 4-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
- SEU LET Threshold>100MeV/(mg/cm²)
- Input Logic Levels . . .V_{IL} = (0.3)(V_{CC}), V_{IH} = (0.7)(V_{CC})

- Propagation Delay
- Enable to Output12ns
- Input or Address to Output15ns

Applications

- Digital Channel Selection
- Data Routing
- High Frequency Switching

Ordering Information

Description

The Radiation Hardened ACS253MS is a Dual 4-Channel Multiplexer having two common binary control inputs for selecting 1 of 4 data channels. All inputs and outputs are buffered and are designed for balanced propagation delay and transition times.

Separate Output Enable inputs are provided to ease system design. When $\overline{OE1}$ or $\overline{OE2}$ are set HIGH, the corresponding output is configured into a high impedance state.

The ACS253MS 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 ACS253 are contained in SMD 5962-98007. A "hot-link" is provided on our homepage with instructions for downloading. http://www.intersil.com/data/sm/index.htm

SMD PART NUMBER	INTERSIL PART NUMBER	TEMP. RANGE (^o C)	PACKAGE	CASE OUTLINE
5962F9800701VEC	ACS253DMSR-02	-55 to 125	16 Ld SBDIP	CDIP2-T16
N/A	ACS253D/Sample-02	25	16 Ld SBDIP	CDIP2-T16
5962F9800701VXC	ACS253KMSR-02	-55 to 125	16 Ld Flatpack	CDFP4-F16
N/A	ACS253K/Sample-02	25	16 Ld Flatpack	CDFP4-F16
N/A	ACS253HMSR-02	25	Die	N/A

Pinouts



CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures. 1-888-INTERSIL or 321-724-7143 | Copyright © Intersil Corporation 1999

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 mils x 4.3 mils)

METALLIZATION:

Type: Al 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

Silicon on Sapphire (SOS)

SUBSTRATE POTENTIAL:

Unbiased Insulator

Metallization Mask Layout

BACKSIDE FINISH:

Sapphire

PASSIVATION:

Type: Phosphorous Silicon Glass (PSG) Thickness: $1.30\mu m \pm 0.15\mu m$

SPECIAL INSTRUCTIONS:

Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Density: $<2.0 \times 10^5 \text{ A/cm}^2$ Transistor Count: 140



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