Data Sheet | July 1999 | File Number 4757

Radiation Hardened Dual 4-Input AND Gate

The Radiation Hardened ACS21MS is a Dual 4-Input AND Gate. For each gate, a HIGH level on all inputs results in a HIGH level on the Y output. A LOW level on any input results in a LOW level on the Y output. All inputs are buffered and the outputs are designed for balanced propagation delay and transition times.

The ACS21MS 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 ACS21MS are contained in SMD 5962-98629. A "hot-link" is provided on our homepage for downloading.
www.intersil.com/spacedefense/newsafclasst.asp

Features

- QML Qualified Per MIL-PRF-38535 Requirements
- 1.25 Micron Radiation Hardened SOS CMOS
- Radiation Environment
  - Latch-Up Free Under Any Conditions
  - Total Dose (Max.) . . . . . 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 . . . . . ±12mA (Min)
- Quiescent Supply Current . . . . . 5.0µA (Max)
- Propagation Delay . . . . . 15ns (Max)

Applications

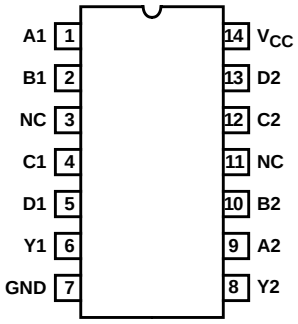
- High Speed Control Circuits
- Sensor Monitoring
- Low Power Designs

Ordering Information

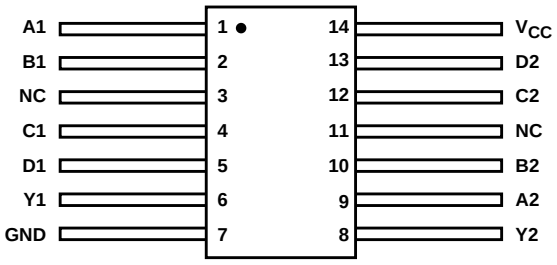
ORDERING NUMBER	INTERNAL MARKETING NUMBER	TEMP. RANGE (^{o}C)	PACKAGE	DESIGNATOR
5962F9862901VCC	ACS21DMSR-03	-55 to 125	14 Ld SBDIP	CDIP2-T14
ACS21D/SAMPLE-03	ACS21D/SAMPLE-03	25	14 Ld SBDIP	CDIP2-T14
5962F9862901VXC	ACS21KMSR-03	-55 to 125	14 Ld Flatpack	CDFP3-F14
ACS21K/SAMPLE-03	ACS21K/SAMPLE-03	25	14 Ld Flatpack	CDFP3-F14
5962F9862901V9A	ACS21HMSR-03	25	Die	NA

Pinouts

ACS21MS
(SBDIP)
TOP VIEW



ACS21MS
(FLATPACK)
TOP VIEW



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 x 4.3 mils)

METALLIZATION: AI

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

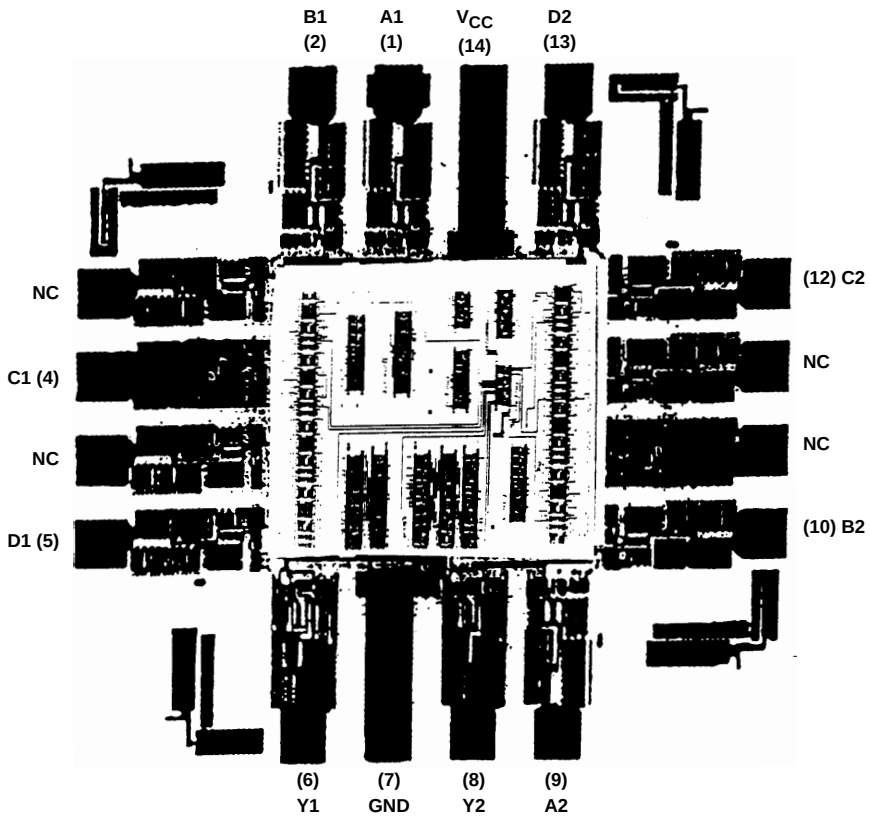
Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Current Density: $<2.0 \times 10^5$ A/cm^2
Transistor Count: 92

Metallization Mask Layout

ACS21MS



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

Intersil semiconductor products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.

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

Sales Office Headquarters

NORTH AMERICA
Intersil Corporation
P. O. Box 883, Mail Stop 53-204
Melbourne, FL 32902
TEL: (321) 724-7000
FAX: (321) 724-7240

EUROPE
Intersil SA
Mercure Center
100, Rue de la Fusee
1130 Brussels, Belgium
TEL: (32) 2.724.2111
FAX: (32) 2.724.22.05

ASIA
Intersil (Taiwan) Ltd.
7F-6, No. 101 Fu Hsing North Road
Taipei, Taiwan
Republic of China
TEL: (886) 2 2716 9310
FAX: (886) 2 2715 3029