ACS32MS

Radiation Hardened Quad 2-Input OR Gate

FN4545
Rev 0.00
November 1998

The Radiation Hardened ACS32MS is a Quad 2-Input OR Gate. For each gate, a HIGH level on either A or B input results in a HIGH level on the Y output. A LOW level on both the A and B inputs 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 ACS32MS 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 ACS32MS are contained in SMD 5962-98624.

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. . . . . .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)(V_{CC}), V_{IH} = (0.7)(V_{CC})
- Output Current . . . . . ±8mA (Min)
- Quiescent Supply Current . . . . . .100µA (Max)
- Propagation Delay . . . . . 12ns (Max)

Applications

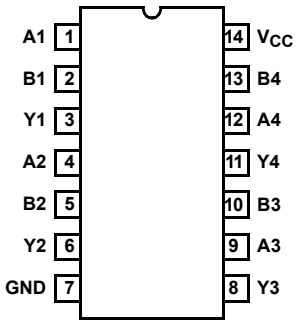
- High Speed Control Circuits
- Sensor Monitoring
- Low Power Designs

Ordering Information

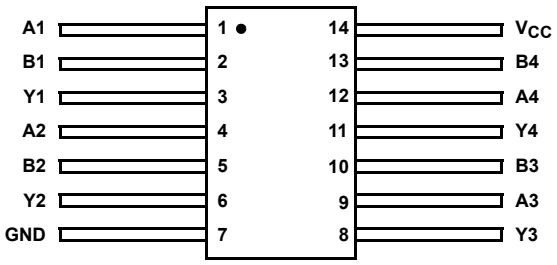
ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (^{o}C)	PACKAGE	DESIGNATOR
5962F9862401VCC	ACS32DMSR-03	-55 to 125	14 Ld SBDIP	CDIP2-T14
ACS32D/SAMPLE-03	ACS32D/SAMPLE-03	25	14 Ld SBDIP	CDIP2-T14
5962F9862401VXC	ACS32KMSR-03	-55 to 125	14 Ld Flatpack	CDFP4-F14
ACS32K/SAMPLE-03	ACS32K/SAMPLE-03	25	14 Ld Flatpack	CDFP4-F14
5962F9862401V9A	ACS32HMSR-03	25	Die	N/A

Pinouts

ACS32MS
(SBDIP)
TOP VIEW



ACS32MS
(FLATPACK)
TOP VIEW



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:

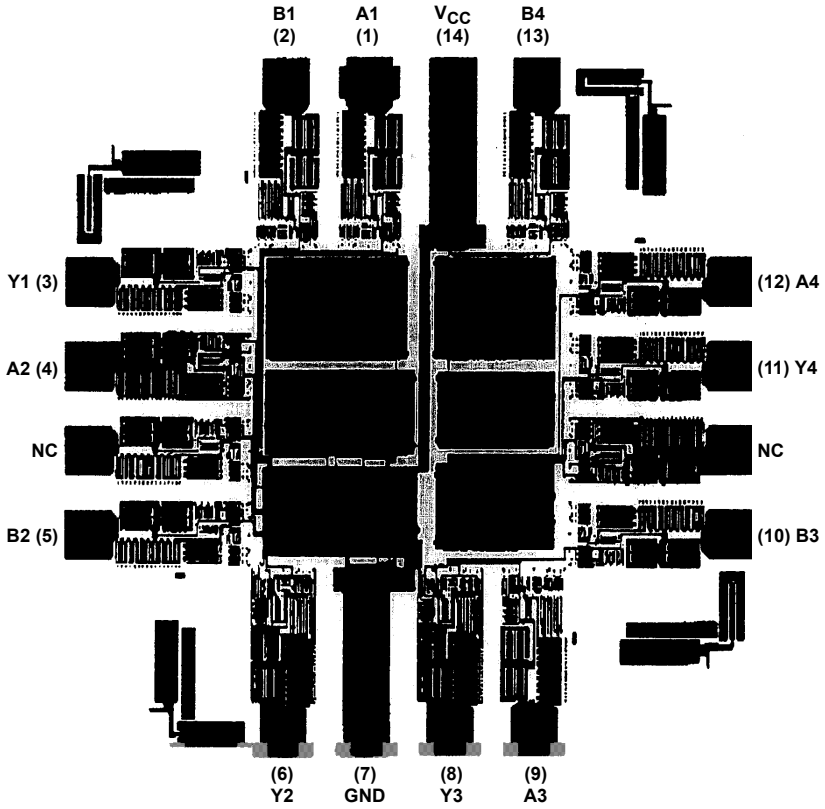
Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Current Density: $<2.0 \times 10^5$ A/cm^2
Transistor Count: 116

Metallization Mask Layout

ACS32MS



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