

ACS08MS

Radiation Hardened Quad 2-Input AND Gate

FN3993
Rev.1.00
July 1998

Features

- QML Qualified Per MIL-PRF-38535 Requirements
- 1.25Micron Radiation Hardened SOS CMOS
- Radiation Environment
 - Latch-up Free Under any Conditions
 - Total Dose 3×10^5 RAD(Si)
 - SEU Immunity $<1 \times 10^{-10}$ Errors/Bit/Day
 - SEU LET Threshold..... $>100\text{MeV}/(\text{mg}/\text{cm}^2)$
- Input Logic Levels .. $V_{IL} = (0.3)(V_{CC})$, $V_{IH} = (0.7)(V_{CC})$
- Output Current $\pm 8\text{mA}$ (Min)
- Quiescent Supply Current $100\mu\text{A}$ (Max)
- Propagation Delay 15ns (Max)

Applications

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

Description

The Radiation Hardened ACS08MS is a Quad 2-Input AND Gate. For each gate, a HIGH level on both the A and B inputs results in a HIGH level on the Y output. A LOW level on either the A or B 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 ACS08MS 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.

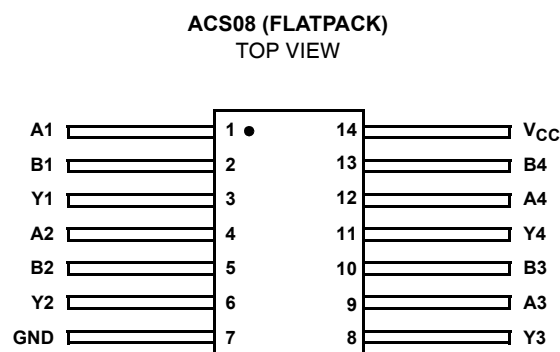
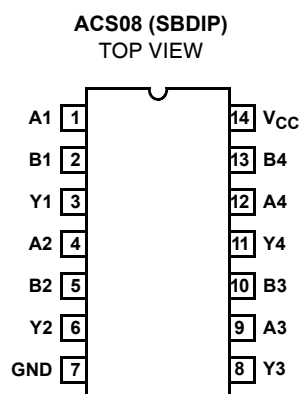
Specifications for Rad Hard QML devices are controlled by the Defense Supply Center in Columbus (DSCC). The SMD numbers listed below must be used when ordering.

Detailed Electrical Specifications for the ACS08 are contained in SMD [5962-95651](#).

Ordering Information

ORDERING NUMBER	INTERNAL MARKETING NUMBER	TEMP. RANGE (°C)	PACKAGE	DESIGNATOR
5962F9565101VCC	ACS08DMSR	-55 to 125	14 Ld SBDIP	CDIP2-T14
ACS08D/SAMPLE	ACS08D/SAMPLE	25	14 Ld SBDIP	CDIP2-T14
5962F9565101VXC	ACS08KMSR	-55 to 125	14 Ld Flatpack	CDFP4-F14
ACS08K/SAMPLE	ACS08K/SAMPLE	25	14 Ld Flatpack	CDFP4-F14
5962F9565101V9A	ACS08HMSR	25	Die	N/A

Pinouts



Die Characteristics

DIE DIMENSIONS:

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

METALLIZATION: Al

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

SUBSTRATE POTENTIAL:

Unbiased Insulator

PASSIVATION

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

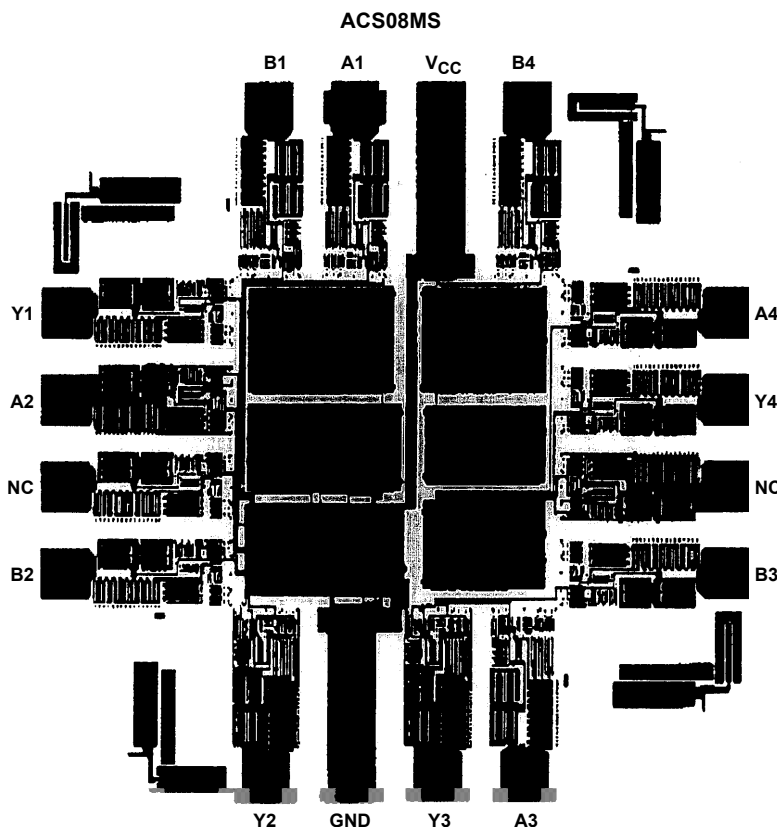
SPECIAL INSTRUCTIONS:

Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Density: <2.0 x 10⁵ A/cm²
 Transistor Count: 176

Metallization Mask Layout



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