Data Sheet | November 1998 | File Number 4543

Radiation Hardened Triple 3-Input AND Gate

The Radiation Hardened ACS11MS is a Triple 3-Input AND Gate. When all three inputs to one of the gates are at a HIGH level, the corresponding Y output will be HIGH. A LOW level on any input will cause the output for that gate to be LOW. All inputs are buffered and the outputs are designed for balanced propagation delay and transition times.

The ACS11MS 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 ACS11MS are contained in SMD 5962-98622. A "hot-link" is provided on our homepage with instructions 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 . . . . . 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 . . . . . ±8mA (Min)
- Quiescent Supply Current . . . . . 100µA (Max)
- Propagation Delay . . . . . .12ns (Max)

Applications

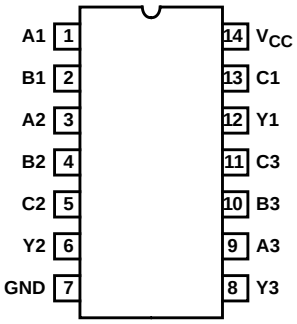
- High Speed Control Circuits
- Sensor Monitoring
- Low Power Designs

Ordering Information

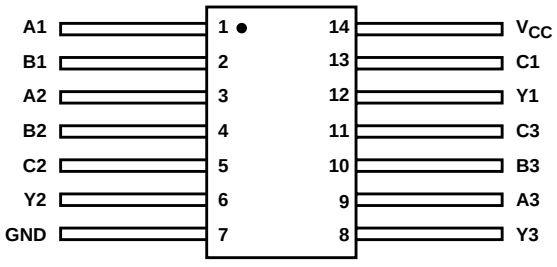
ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (^{o}C)	PACKAGE	DESIGNATOR
5962F9862201VCC	ACS11DMSR-03	-55 to 125	14 Ld SBDIP	CDIP2-T14
ACS11D/SAMPLE-03	ACS11D/SAMPLE-03	25	14 Ld SBDIP	CDIP2-T14
5962F9862201VXC	ACS11KMSR-03	-55 to 125	14 Ld Flatpack	CDFP4-F14
ACS11K/SAMPLE-03	ACS11K/SAMPLE-03	25	14 Ld Flatpack	CDFP4-F14
5962F9862201V9A	ACS11HMSR-03	25	Die	N/A

Pinouts

ACS11MS
(SBDIP)
TOP VIEW



ACS11MS
(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: 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

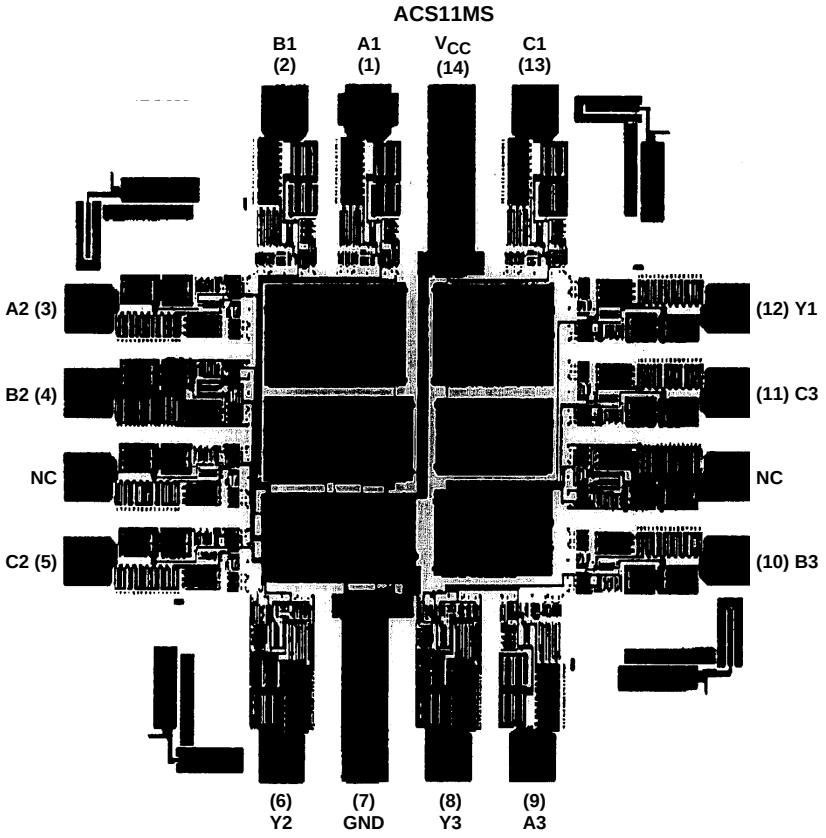
SPECIAL INSTRUCTIONS:

Bond V_{CC} First

ADDITIONAL INFORMATION:

Worst Case Current Density: $<2.0 \times 10^5$ A/cm^2
Transistor Count: 97

Metallization Mask Layout



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