

January 1996

Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96715 and Intersil' QM Plan
- 1.25 Micron Radiation Hardened SOS CMOS
- Total Dose >300K RAD (Si)
- Single Event Upset (SEU) Immunity: <1 x 10⁻¹⁰ Errors/Bit/Day (Typ)
- SEU LET Threshold >100 MEV-cm²/mg
- Dose Rate Upset >10¹¹ RAD (Si)/s, 20ns Pulse
- Dose Rate Survivability >10¹² RAD (Si)/s, 20ns Pulse
- Latch-Up Free Under Any Conditions
- Military Temperature Range -55°C to +125°C
- Significant Power Reduction Compared to ALSTTL Logic
- DC Operating Voltage Range 4.5V to 5.5V
- Input Logic Levels
 - VIL = 0.8V Max
 - VIH = VCC/2 Min
- Input Current ≤ 1μA at VOL, VOH
- Fast Propagation Delay 17ns (Max), 11ns (Typ)

Description

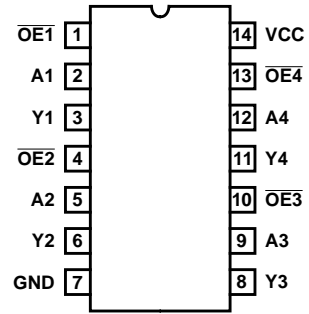
The Intersil ACTS125MS is a Radiation Hardened Quad Buffer with Three-State outputs. Each output has it's own enable input, which when "HIGH" puts the output in a high impedance state.

The ACTS125MS utilizes advanced CMOS/SOS technology to achieve high-speed operation. This device is a member of radiation hardened, high-speed, CMOS/SOS Logic Family.

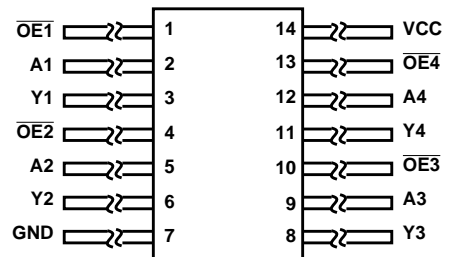
The ACTS125MS is supplied in a 14 lead Ceramic flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

Pinouts

14 PIN CERAMIC DUAL-IN-LINE
MIL-STD-1835 DESIGNATOR, CDIP2-T14,
LEAD FINISH C
TOP VIEW



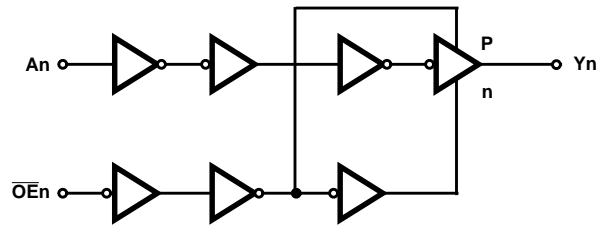
14 PIN CERAMIC FLATPACK
MIL-STD-1835 DESIGNATOR, CDFP3-F14
LEAD FINISH C
TOP VIEW



Ordering Information

| PART NUMBER | TEMPERATURE RANGE | SCREENING LEVEL | PACKAGE |
|-----------------|-------------------|-----------------------|--------------------------|
| 5962F9671501VCC | -55°C to +125°C | MIL-PRF-38535 Class V | 14 Lead SBDIP |
| 5962F9671501VXC | -55°C to +125°C | MIL-PRF-38535 Class V | 14 Lead Ceramic Flatpack |
| ACTS125D/Sample | 25°C | Sample | 14 Lead SBDIP |
| ACTS125K/Sample | 25°C | Sample | 14 Lead Ceramic Flatpack |
| ACTS125HMSR | 25°C | Die | Die |

Functional Diagram



TRUTH TABLE

| INPUTS | | OUTPUT |
|--------|------------------|--------|
| An | \overline{OEn} | Yn |
| L | L | L |
| H | L | H |
| X | H | Z |

NOTE: L = Low, H = High, X = Don't Care, Z = High Impedance

ACTS125MS

Die Characteristics

DIE DIMENSIONS:

88 x 88 (mils)
2.24 x 2.24 (mm)

METALLIZATION:

Type: AlSi
Metal 1 Thickness: $7.125k\text{\AA} \pm 1.125k\text{\AA}$
Metal 2 Thickness: $9k\text{\AA} \pm 1k\text{\AA}$

GLASSIVATION:

Type: SiO₂
Thickness: $8k\text{\AA} \pm 1k\text{\AA}$

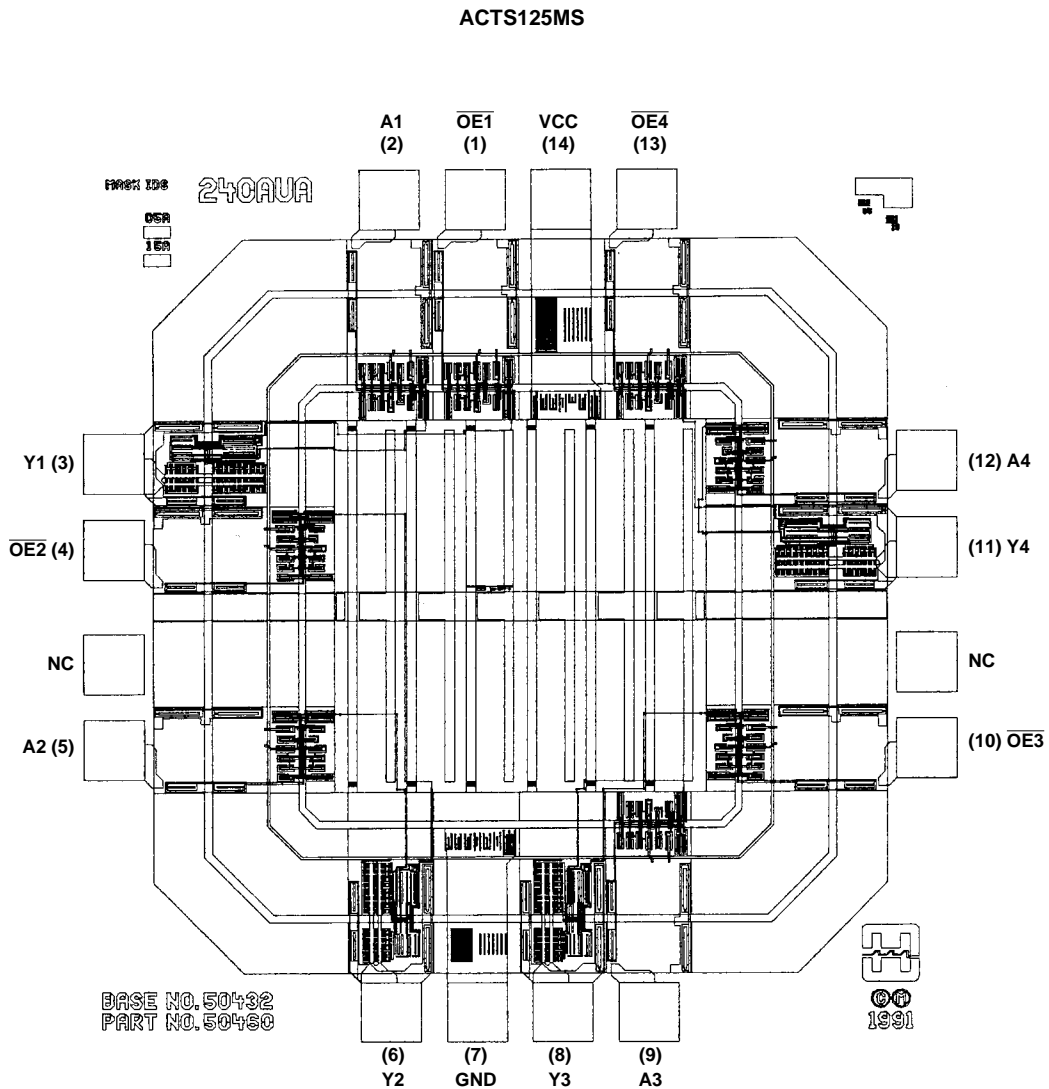
WORST CASE CURRENT DENSITY:

$< 2.0 \times 10^5 \text{ A/cm}^2$

BOND PAD SIZE:

$> 4.3 \times 4.3$ (mils)
 $> 110 \times 110$ (μm)

Metallization Mask Layout



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