

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<sup>-10</sup> Errors/Bit/Day (Typ)
- SEU LET Threshold ..... >100 MEV-cm<sup>2</sup>/mg
- Dose Rate Upset ..... >10<sup>11</sup> RAD (Si)/s, 20ns Pulse
- Dose Rate Survivability ..... >10<sup>12</sup> 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

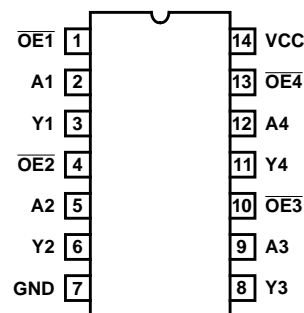
The Intersil ACTS125MS is a Radiation Hardened Quad Buffer with Three-State outputs. Each output has it's own enable input, which when "HIGH" puts the output in a high impedance state.

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.

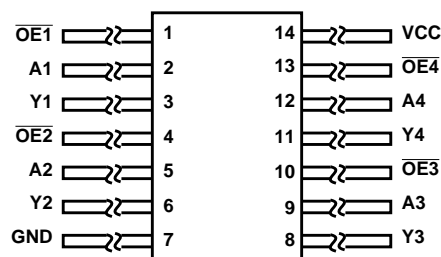
The ACTS125MS is supplied in a 14 lead Ceramic flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

### Pinouts

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



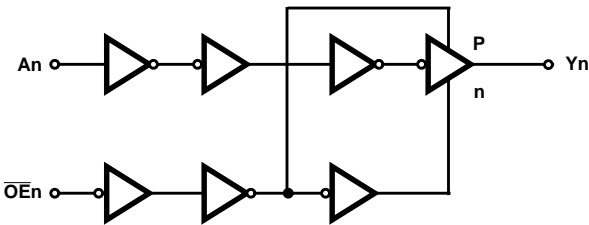
14 PIN CERAMIC FLATPACK  
MIL-STD-1835 DESIGNATOR, CDFF3-F14  
LEAD FINISH C  
TOP VIEW



### 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
$A_n$	$\overline{OE}_n$	$Y_n$
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:  $7.125\text{k}\text{\AA} \pm 1.125\text{k}\text{\AA}$   
Metal 2 Thickness:  $9\text{k}\text{\AA} \pm 1\text{k}\text{\AA}$

#### GLASSIVATION:

Type:  $\text{SiO}_2$   
Thickness:  $8\text{k}\text{\AA} \pm 1\text{k}\text{\AA}$

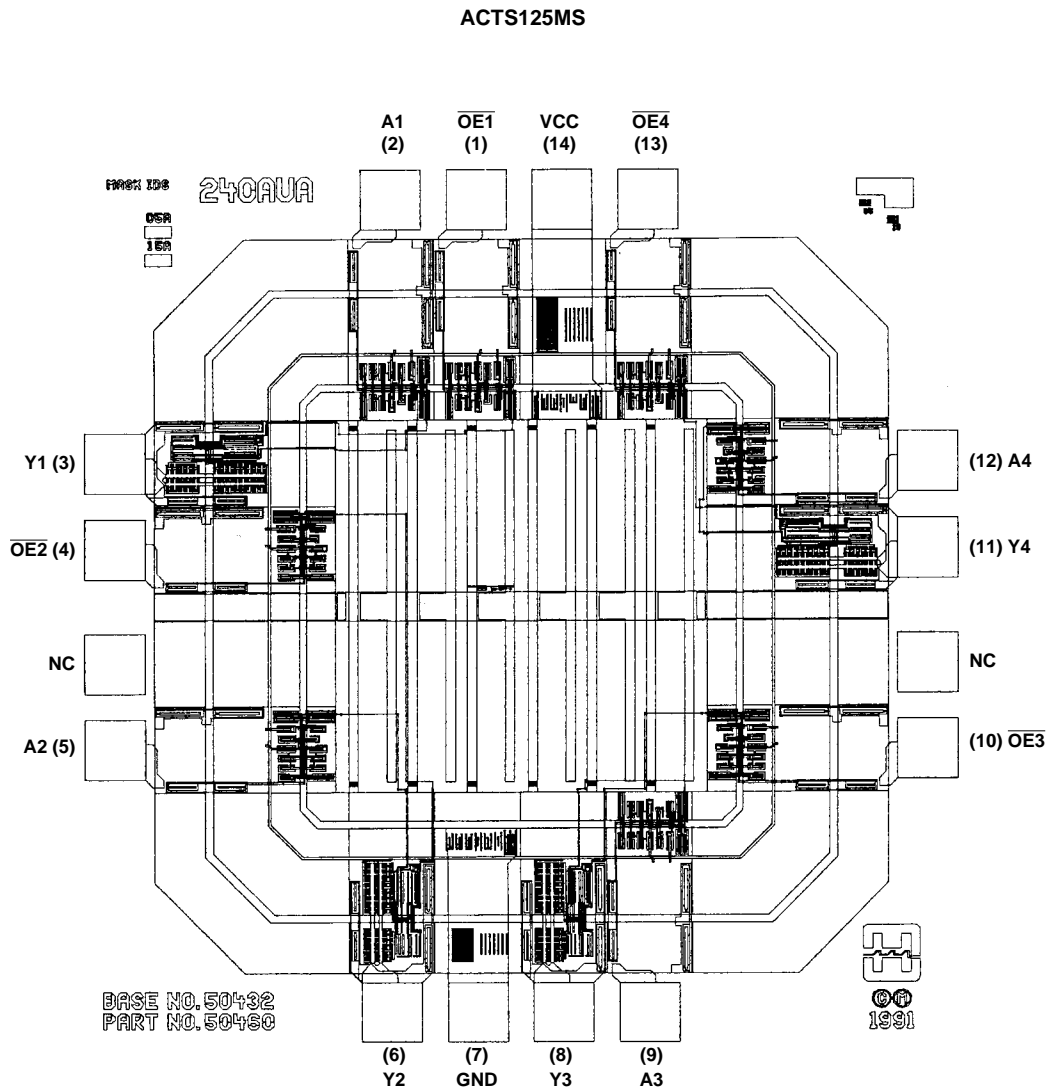
#### WORST CASE CURRENT DENSITY:

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

#### BOND PAD SIZE:

$> 4.3 \times 4.3$  (mils)  
 $> 110 \times 110$  ( $\mu\text{m}$ )

### Metallization Mask Layout



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