

January 1996

### Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96712 and Intersil's 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 ..... 14ns (Max), 9ns (Typ)

### Description

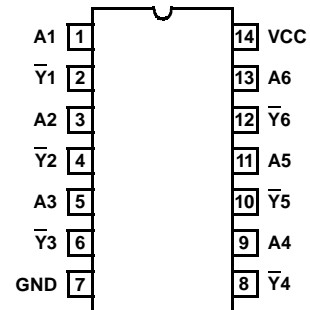
The Intersil ACTS04MS is a Radiation Hardened Hex Inverter.

The ACTS04MS utilizes advanced CMOS/SOS technology to achieve high-speed operation. This device is a member of radiation hardened, high-speed, CMOS/SOS Logic Family.

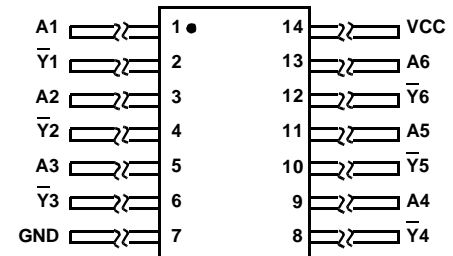
The ACTS04MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

### 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



### TRUTH TABLE

INPUTS	OUTPUTS
An	Yn
L	H
H	L

NOTE: L = Logic Level Low, H = Logic level High

### Functional Diagram



### Ordering Information

PART NUMBER	TEMPERATURE RANGE	SCREENING LEVEL	PACKAGE
5962F9671201VCC	-55°C to +125°C	MIL-PRF-38535 Class V	14 Lead SBDIP
5962F9671201VXC	-55°C to +125°C	MIL-PRF-38535 Class V	14 Lead Ceramic Flatpack
ACTS04D/Sample	25°C	Sample	14 Lead SBDIP
ACTS04K/Sample	25°C	Sample	14 Lead Ceramic Flatpack
ACTS04HMSR	25°C	Die	Die

# ACTS04MS

## Die Characteristics

### DIE DIMENSIONS:

88 mils x 88 mils  
2240mm x 2240mm

### 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:  $8\text{k}\text{\AA} \pm 1\text{k}\text{\AA}$

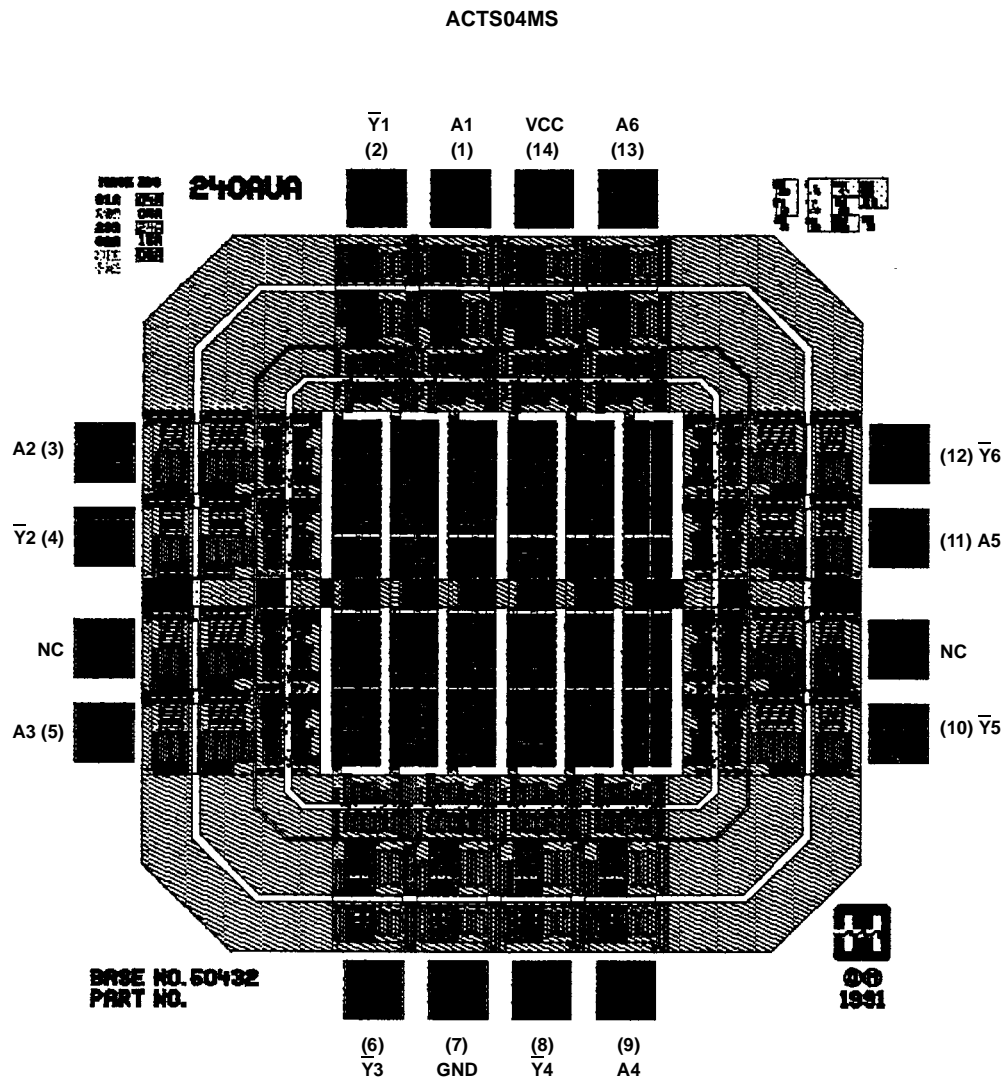
### WORST CASE CURRENT DENSITY:

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

### BOND PAD SIZE:

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

## Metallization Mask Layout



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