ACTS04MS

Radiation Hardened Hex Inverter

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

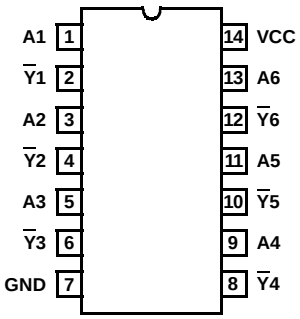
The Intersil ACTS04MS is a Radiation Hardened Hex Inverter.

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.

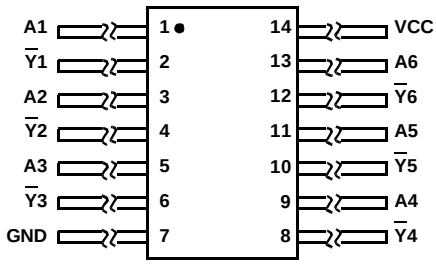
The ACTS04MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

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

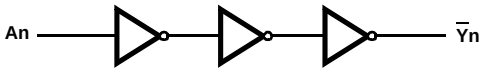


TRUTH TABLE

INPUTS	OUTPUTS
An	$\overline{Y}$n
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

CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.
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Spec Number **518782**
File Number **3383.1**

Die Characteristics

DIE DIMENSIONS:

88 mils x 88 mils
2240mm x 2240mm

METALLIZATION:

Type: AlSi
Metal 1 Thickness: 7.125kÅ ±1.125kÅ
Metal 2 Thickness: 9kÅ ±1kÅ

GLASSIVATION:

Type: SiO_2
Thickness: 8kÅ ±1kÅ

WORST CASE CURRENT DENSITY:

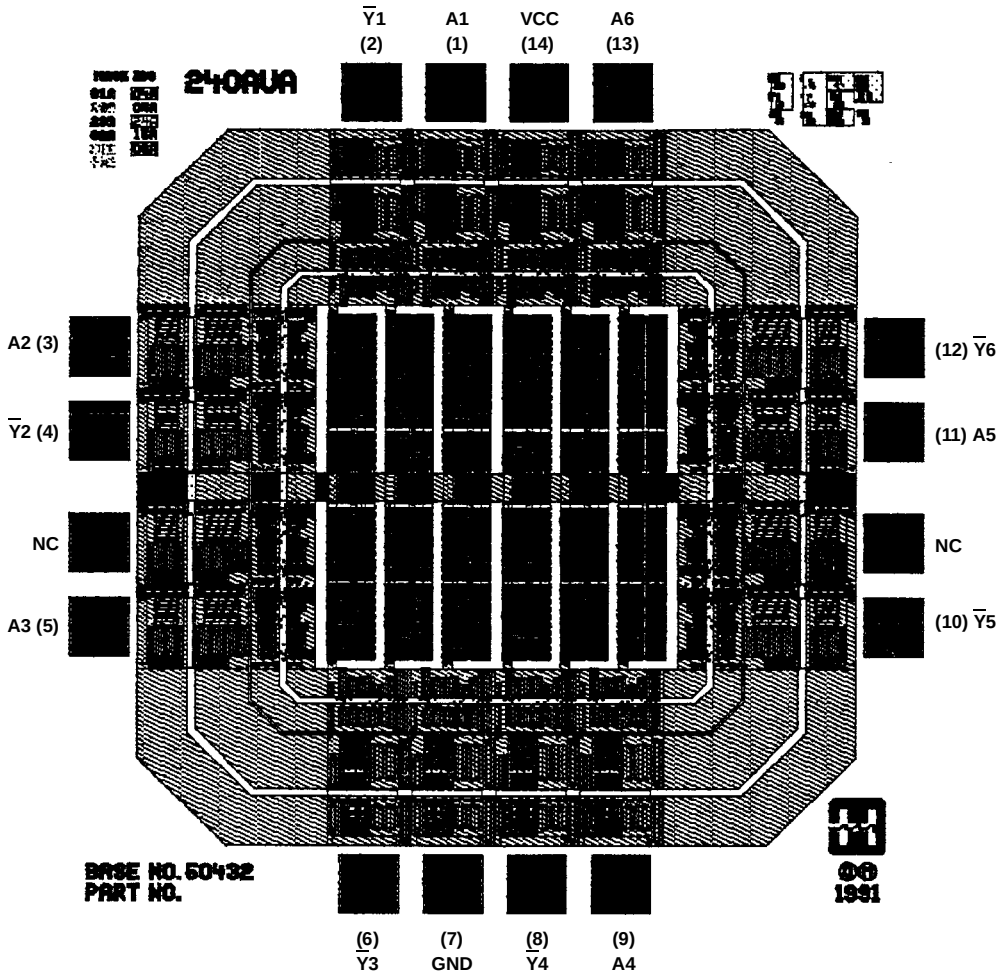
$<2.0 \times 10^5$ A/cm^2

BOND PAD SIZE:

4.3 mils x 4.3 mils
> 110µm x 110µm

Metallization Mask Layout

ACTS04MS



Spec Number **518782**

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