ACS03MS

Radiation Hardened Quad 2-InputNAND Gate with Open Drain

FN3064
Rev 1.00
January 1996

Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96703 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 = 30% of VCC Max
  - VIH = 70% of VCC Min
- Input Current ≤ 1µA at VOL, VOH
- Fast Propagation Delay15ns (Max), 10ns (Typ)

Description

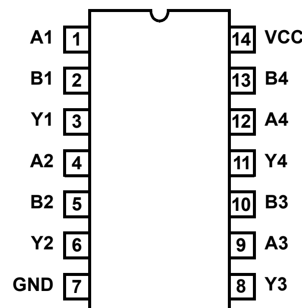
The Intersil ACS03MS is a Radiation Hardened quad 2-input NAND gate with open drain outputs. The open drain output can drive resistive loads from a separate supply voltage.

The ACS03MS utilizes advanced CMOS/SOS technology to achieve high-speed operation. This device is a member of a radiation hardened, high-speed, CMOS/SOS Logic Family.

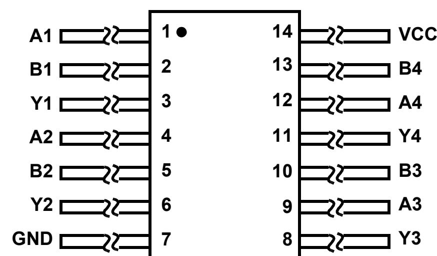
The ACS03MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

Pinouts

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



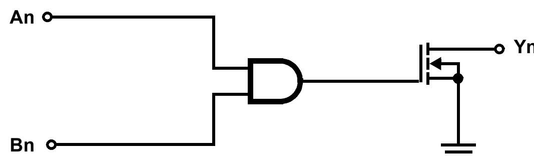
14 PIN CERAMIC FLATPACK
MIL-STD-1835 DESIGNATOR CDFP3-F14,
LEAD FINISH C
TOP VIEW



Ordering Information

PART NUMBER	TEMPERATURE RANGE	SCREENING LEVEL	PACKAGE
5962F9670301VCC	-55°C to +125°C	MIL-PRF-38535 Class V	14 Lead SBDIP
5962F9670301VXC	-55°C to +125°C	MIL-PRF-38535 Class V	14 Lead Ceramic Flatpack
ACS03D/Sample	25°C	Sample	14 Lead SBDIP
ACS03K/Sample	25°C	Sample	14 Lead Ceramic Flatpack
ACS03HMSR	25°C	Die	Die

Functional Diagram



TRUTH TABLE

INPUTS		OUTPUT
An	**Bn**	**Yn**
L	L	Z (Note 2), H (Note 3)
L	H	Z (Note 2), H (Note 3)
H	L	Z (Note 2), H (Note 3)
H	H	L

NOTES:

1. L = Low, H = High, Z = High Impedance
2. Without Pull-up Resistor
3. With Pull-up Resistor

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Die Characteristics

DIE DIMENSIONS:
68 mils x 79 mils
1730mm x 2010mm

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:
110µm x 110µm
4.3 mils x 4.3 mils

Metallization Mask Layout