

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-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 = 30% of VCC Max
 - VIH = 70% of VCC Min
- Input Current \leq 1 μA at VOL, VOH
- Fast Propagation Delay15ns (Max), 10ns (Typ)

Description

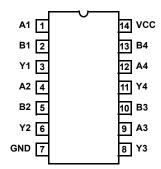
The Intersil ACS03MS is a Radiation Hardened quad 2-input NAND gate with open drain outputs. The open drain output can drive resistive loads from a separate supply voltage.

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.

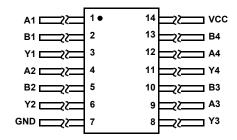
The ACS03MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

Pinouts

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



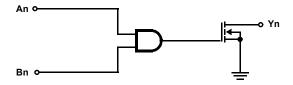
14 PIN CERAMIC FLATPACK
MIL-STD-1835 DESIGNATOR CDFP3-F14,
LEAD FINISH C
TOP VIEW



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		ОИТРИТ	
An	Bn	Yn	
L	L	Z (Note 2), H (Note 3)	
L	Н	Z (Note 2), H (Note 3)	
Н	L	Z (Note 2), H (Note 3)	
Н	Н	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: AISi

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

GLASSIVATION:

Type: SiO₂

Thickness: 8kÅ ±1kÅ

WORST CASE CURRENT DENSITY:

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

BOND PAD SIZE:

 $110\mu m$ x $110\mu m$ 4.3 mils x 4.3 mils

Metallization Mask Layout

ACS03MS A1 (1) vcc В1 В4 (13) (2) (14) Y1 (3) (12) A4 (11) Y4 A2 (4) B2 (5) (10) B3 Y2 (6) (9) A3 (8) (7) GND