ACS521MS

Radiation Hardened 8-Bit Magnitude Comparator

January 1996

Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96709 and Intersil' 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 Delay . . . . . 15ns (Max), 10ns (Typ)

Description

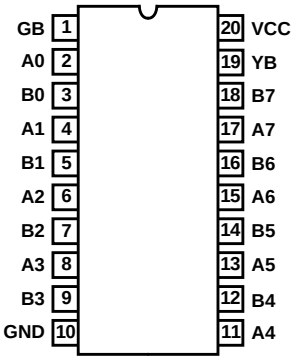
The Intersil ACS521MS is a Radiation Hardened 8 bit magnitude comparator device. It provides a low output YB when Word A equals word B and input GB is low. All other input states cause a high output.

The ACS521MS utilizes advanced CMOS/SOS technology to achieve high-speed operation. This device is a member of radiation hardened, high-speed, CMOS/SOS Logic Family.

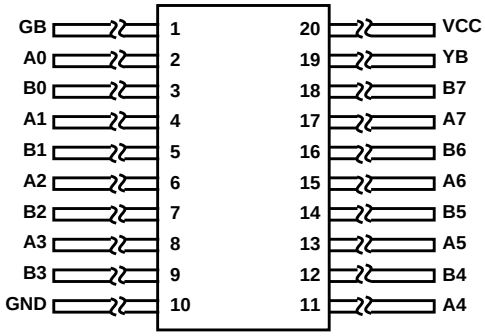
The ACS521MS is supplied in a 20 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

Pinouts

20 PIN CERAMIC DUAL-IN-LINE
MIL-STD-1835 DESIGNATOR CDIP2-T20,
LEAD FINISH C
TOP VIEW



20 PIN CERAMIC FLATPACK
MIL-STD-1835 DESIGNATOR CDFP4-F20,
LEAD FINISH C
TOP VIEW

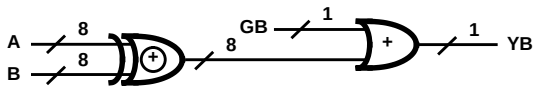


Ordering Information

PART NUMBER	TEMPERATURE RANGE	SCREENING LEVEL	PACKAGE
5962F9670901VRC	-55°C to +125°C	MIL-PRF-38535 Class V	20 Lead SBDIP
5962F9670901VXC	-55°C to +125°C	MIL-PRF-38535 Class V	20 Lead Ceramic Flatpack
ACS521D/Sample	25°C	Sample	20 Lead SBDIP
ACS521K/Sample	25°C	Sample	20 Lead Ceramic Flatpack
ACS521HMSR	25°C	Die	Die

Spec Number **518821**
File Number **3111.1**

Functional Diagram



TRUTH TABLE

INPUTS			OUTPUT
GB	**A**	**B**	**YB**
0	A = B		L
0	A ≠ B		H
1	X	X	H

NOTE: L = Low, H = High, X = Don't Care

Die Characteristics

DIE DIMENSIONS:

102mils x 102mils
2,600mm x 2,600mm

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:

> 4.3mils x 4.3mils
> 110µm x 110µm

Metallization Mask Layout

ACS521MS