

ACS541MS

Radiation Hardened Octal Buffer/Line Driver Three-State

FN4085
Rev.0.00
January 1996

Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96710 and Intersil's QM Plan
- 1.25 Micron Radiation Hardened SOS CMOS
- Total Dose >300K RAD (Si)
- Single Event Upset (SEU) Immunity: $<1 \times 10^{-10}$ 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 $\leq 1\mu\text{A}$ at VOL, VOH
- Fast Propagation Delay 17ns (Max), 12ns (Typ)

Description

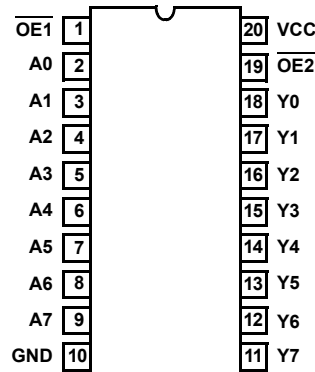
The Intersil ACS541MS is a Radiation Hardened Octal Buffer/Line Driver, with three-state outputs. The output enable pins $\overline{\text{OE1}}$, $\overline{\text{OE2}}$ control the Three-State outputs. If either enable is high the output will be in a high impedance state. For data output both enables must be low.

The ACS541MS 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.

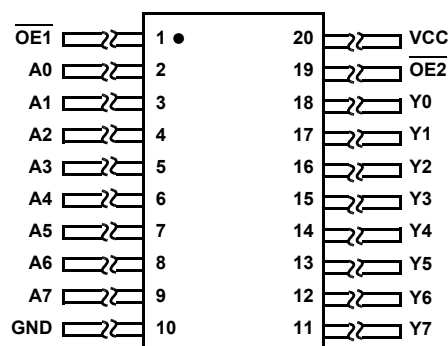
The ACS541MS is supplied in a 20 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line package (D suffix).

Pinouts

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



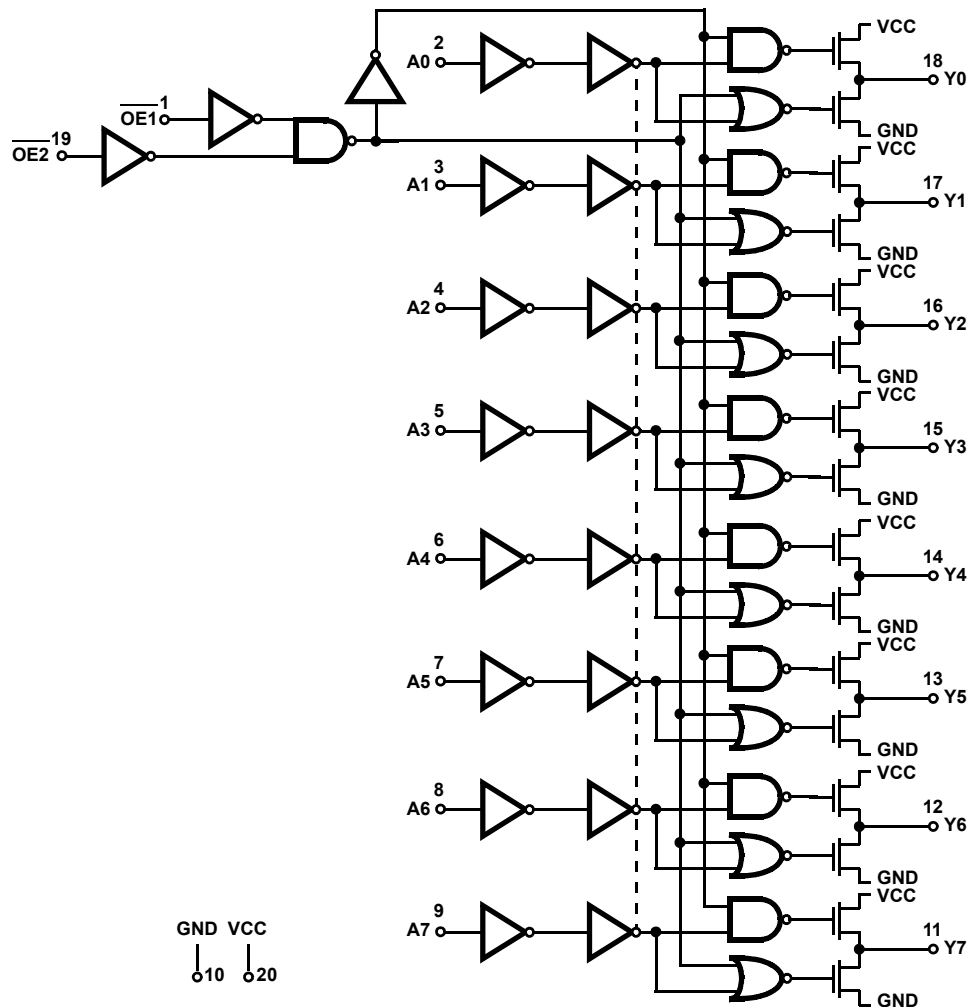
20 LEAD CERAMIC FLATPACK
MIL-STD-1835 DESIGNATOR,
CDFP4-F20, LEAD FINISH C
TOP VIEW



Ordering Information

PART NUMBER	TEMPERATURE RANGE	SCREENING LEVEL	PACKAGE
5962F9671001VRC	-55°C to +125°C	MIL-PRF-38535 Class V	20 Lead SBDIP
5962F9671001VXC	-55°C to +125°C	MIL-PRF-38535 Class V	20 Lead Ceramic Flatpack
ACS541D/Sample	25°C	Sample	20 Lead SBDIP
ACS541K/Sample	25°C	Sample	20 Lead Ceramic Flatpack
ACS541HMSR	25°C	Die	Die

Functional Diagram



TRUTH TABLE

INPUTS			OUTPUTS
OE1	OE2	An	Yn
L	L	H	H
L	L	L	L
H	X	X	Z
X	H	X	Z

NOTE: L = Low Logic Level, H = High Logic Level, Z = High Impedance

© Copyright Intersil Americas LLC 1999. All Rights Reserved.
All trademarks and registered trademarks are the property of their respective owners.

For additional products, see www.intersil.com/en/products.html

Intersil products are manufactured, assembled and tested utilizing ISO9001 quality systems as noted in the quality certifications found at www.intersil.com/en/support/qualandreliability.html

Intersil products are sold by description only. Intersil may modify the circuit design and/or specifications of products at any time without notice, provided that such modification does not, in Intersil's sole judgment, affect the form, fit or function of the product. Accordingly, the reader is cautioned to verify that datasheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.

For information regarding Intersil Corporation and its products, see www.intersil.com

Die Characteristics

DIE DIMENSIONS:

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

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: 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:

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

Metallization Mask Layout

ACS541MS

