

ACS541MS

Radiation Hardened Octal Buffer/ **Line Driver Three-State**

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
- Single Event Upset (SEU) Immunity: <1 x 10⁻¹⁰ Errors/Bit/Day
- 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 ≤ 1μA at VOL, VOH
- Fast Propagation Delay 17ns (Max), 12ns (Typ)

Description

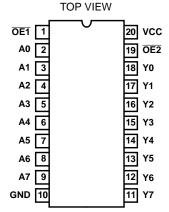
The Intersil ACS541MS is a Radiation Hardened Octal Buffer/Line Driver, with three-state outputs. The output enable pins OE1, OE2 control the Three-State outputs. If either enable is high the output will be in a high impedance state. For data output both enables must be low.

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.

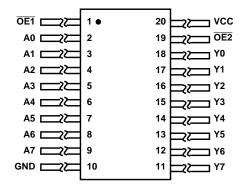
The ACS541MS is supplied in a 20 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line package (D suffix).

Pinouts

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



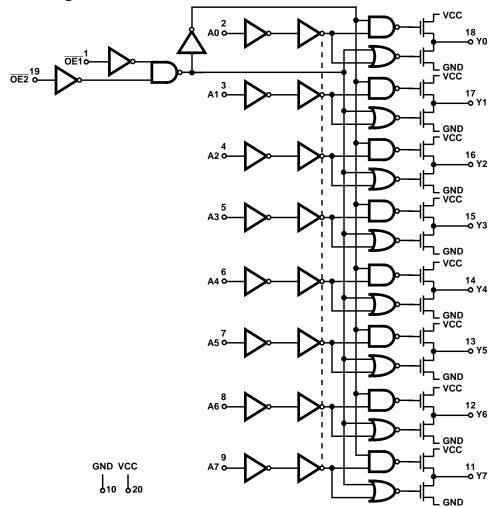
20 LEAD CERAMIC FLATPACK MIL-STD-1835 DESIGNATOR, CDFP4-F20, LEAD FINISH C TOP VIEW



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

	OUTPUTS		
ŌE1	OE2	An	Yn
L	L	Н	Н
L	L	L	L
Н	Х	Х	Z
Х	Н	Х	Z

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

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ACS541MS

Die Characteristics

DIE DIMENSIONS:

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

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:

> 4.3 mils x 4.3 mils > 110μm x 110μm

Metallization Mask Layout

ACS541MS

