ACTS245MS

Radiation Hardened Octal Non-Inverting Bidirectional Bus Transceiver

January 1996

Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96719 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 = 0.8V Max
  - VIH = VCC/2 Min
- Input Current ≤ 1μA at VOL, VOH
- Fast Propagation Delay . . . . . 18ns (Max), 12ns (Typ)

Description

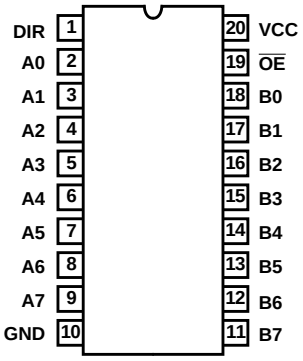
The Intersil ACTS245MS is a Radiation Hardened octal non-inverting bidirectional bus transceiver intended for two-way asynchronous communication between data busses.

The ACTS245MS 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.

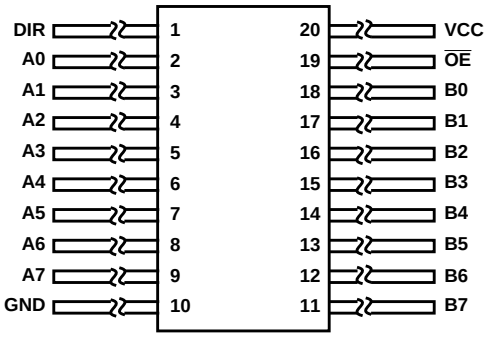
The ACTS245MS is supplied in a 20 lead Ceramic Flatpack (K suffix) or a Dual-In-Line Ceramic Package (D suffix).

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
5962F9671901VRC	-55°C to +125°C	MIL-PRF-38535 Class V	20 Lead SBDIP
5962F9671901VXC	-55°C to +125°C	MIL-PRF-38535 Class V	20 Lead Ceramic Flatpack
ACTS245D/Sample	25°C	Sample	20 Lead SBDIP
ACTS245K/Sample	25°C	Sample	20 Lead Ceramic Flatpack
ACTS245HMSR	25°C	Die	Die

CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.
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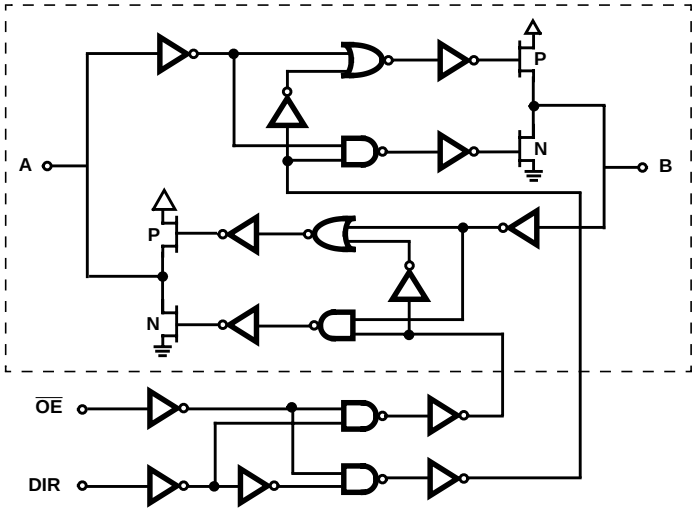
Spec Number **518785**
File Number **3188.1**

Functional Diagram

NOTE: (1 of 8)



TRUTH TABLE

INPUTS		OPERATION
$\overline{OE}$	DIR	
L	L	B Data to A Bus
L	H	A Data to B Bus
H	X	Isolation

NOTE:

H = High Voltage Level, L = Low Voltage Level, X = Immaterial

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Die Characteristics

DIE DIMENSIONS:

96 mils x 117 mils
2.44 x 2.97 mm

METALLIZATION:

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

GLASSIVATION:

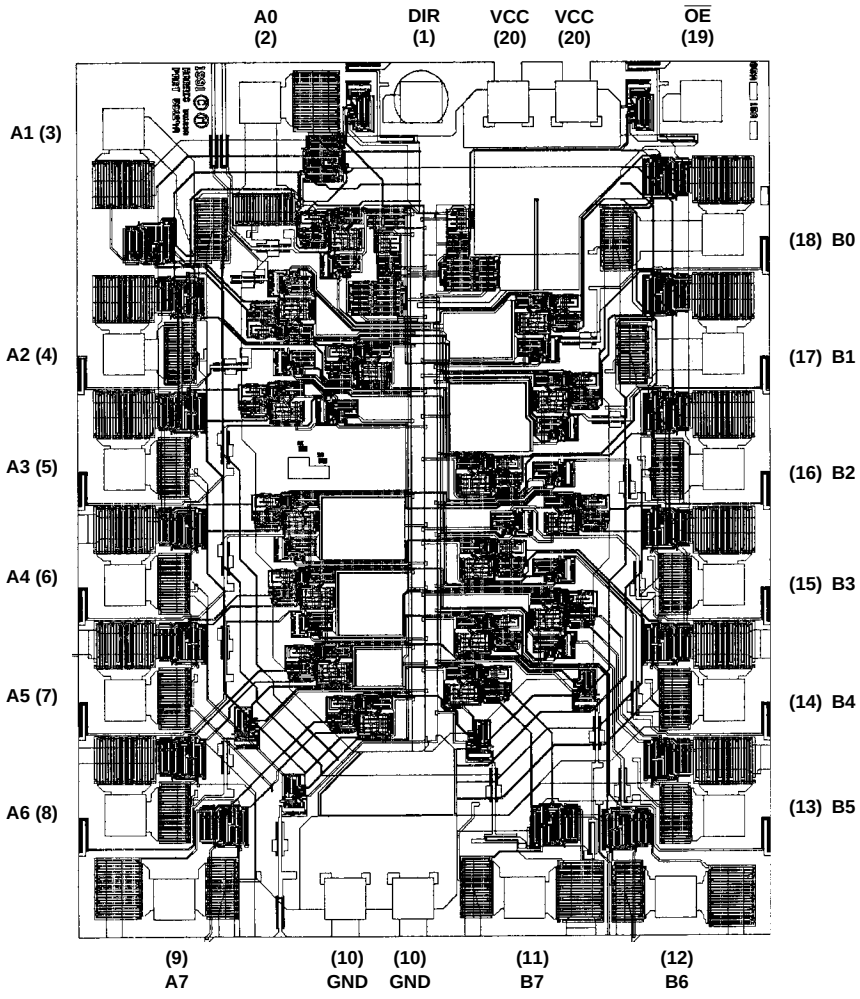
Type: SiO_2
Thickness: 8kÅ ±1kÅ

WORST CASE CURRENT DENSITY:

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

BOND PAD SIZE:

110µm x 110µm
4.4 mils x 4.4 mils

Metallization Mask Layout

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