

Radiation Hardened 9-Bit Odd/ Even Parity Generator Checker

January 1996

Features

- Devices QML Qualified in Accordance with MIL-PRF-38535
- Detailed Electrical and Screening Requirements are Contained in SMD# 5962-96708 and Harris' 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 ≤ 1μA at VOL, VOH
- Fast Propagation Delay 23ns (Max), 15ns (Typ)

Description

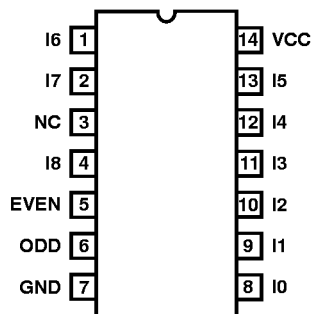
The Harris ACS280MS is a Radiation Hardened 9-bit odd/even parity generator checker device. Both odd and even parity outputs are available for generating or checking parity for words up to 9 bits long. Even parity is indicated (EVEN output high) when an even number of data inputs are high. Odd parity is indicated (ODD output high) when an odd number of data inputs are high. Parity checking for larger words can be accomplished by tying EVEN output to any input of an additional ACS280MS.

The ACS280MS 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.

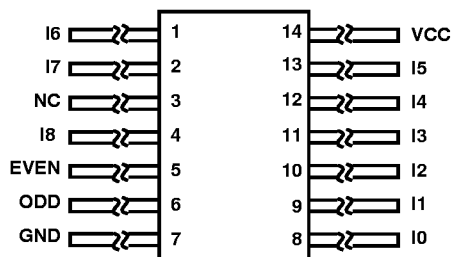
The ACS280MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

Pinouts

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



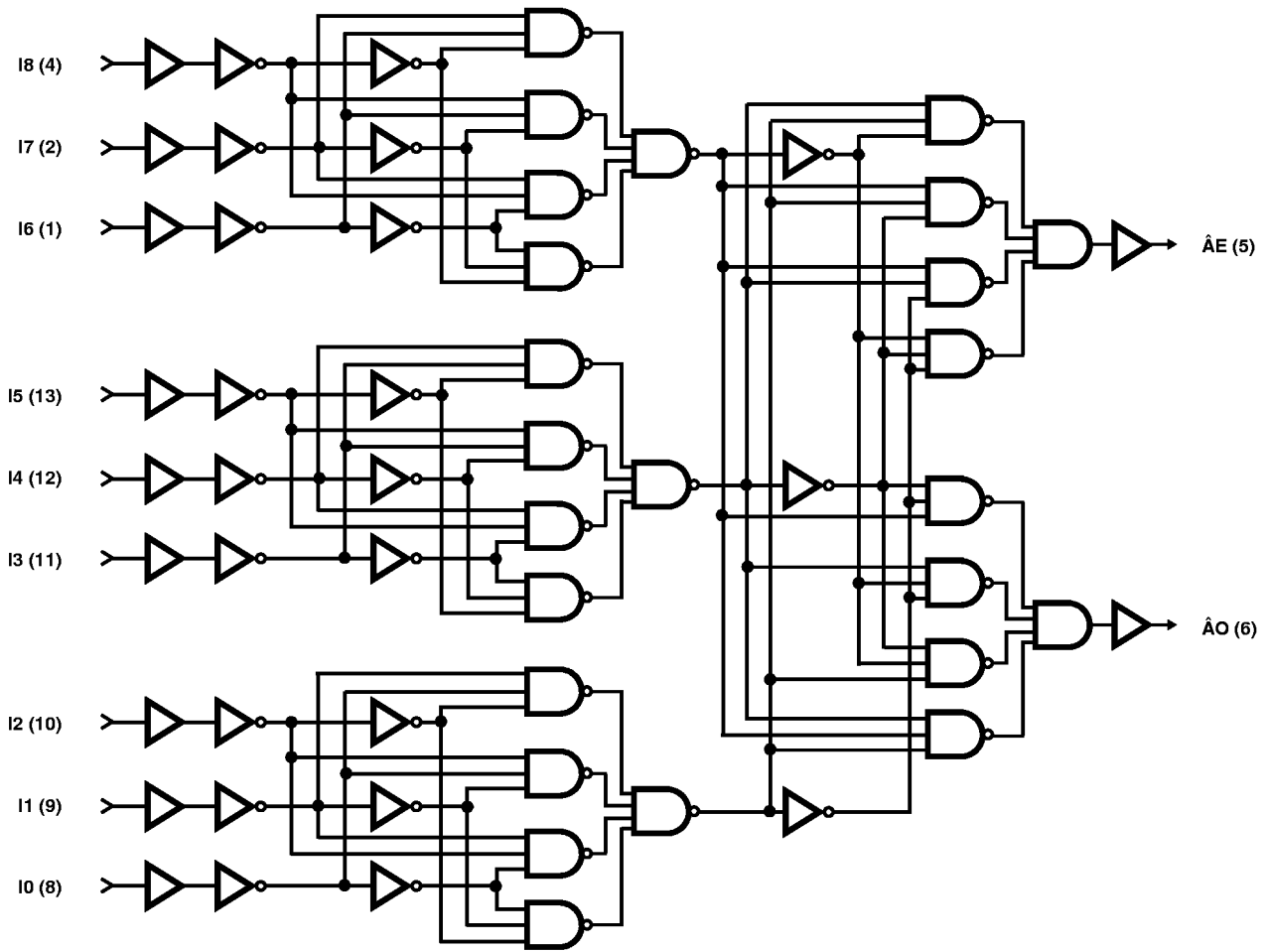
14 PIN CERAMIC FLATPACK
MIL-STD-1835 DESIGNATOR, CDFP3-F14
LEAD FINISH C
TOP VIEW



Ordering Information

| PART NUMBER | TEMPERATURE RANGE | SCREENING LEVEL | PACKAGE |
|-----------------|-------------------|-----------------------|--------------------------|
| 5962F9670801VCC | -55°C to +125°C | MIL-PRF-38535 Class V | 14 Lead SBDIP |
| 5962F9670801VXC | -55°C to +125°C | MIL-PRF-38535 Class V | 14 Lead Ceramic Flatpack |
| ACS280D/Sample | 25°C | Sample | 14 Lead SBDIP |
| ACS280K/Sample | 25°C | Sample | 14 Lead Ceramic Flatpack |
| ACS280HMSR | 25°C | Die | Die |

Functional Diagram



NC = 3
VDD = 14
GND = 7

ACS280MS

Die Characteristics

DIE DIMENSIONS

88 mils x 88 mils
2.24mm x 2.24mm

METALLIZATION:

Type: AlSi
Metal 1 Thickness: $7.125k\text{\AA} \pm 1.125k\text{\AA}$
Metal 2 Thickness: $9k\text{\AA} \pm 1k\text{\AA}$

GLASSIVATION:

Type: SiO₂
Thickness: $8k\text{\AA} \pm 1k\text{\AA}$

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

