

## 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 Intersil' QM Plan
- 1.25 Micron Radiation Hardened SOS CMOS
- Total Dose ..... >300K RAD (Si)
- Single Event Upset (SEU) Immunity: <math> <1 \times 10^{-10}</math> Errors/Bit/Day (Typ)
- SEU LET Threshold ..... >100 MEV-cm<sup>2</sup>/mg
- Dose Rate Upset ..... >10<sup>11</sup> RAD (Si)/s, 20ns Pulse
- Dose Rate Survivability ..... >10<sup>12</sup> 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

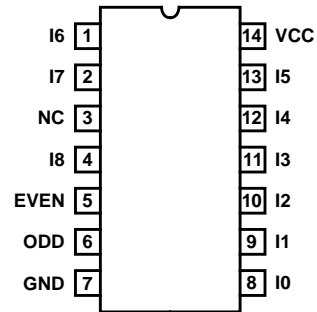
The Intersil ACS280MS is a Radiation Hardened 9-bit odd/even parity generator checker device. Both odd and even parity outputs are available for generating or checking parity for words up to 9 bits long. Even parity is indicated (EVEN output high) when an even number of data inputs are high. Odd parity 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.

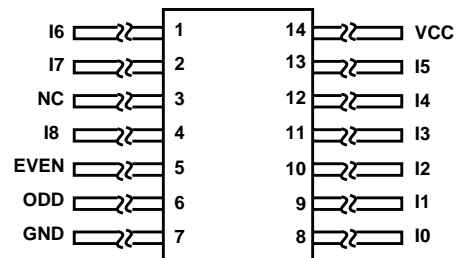
The ACS280MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

### Pinouts

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



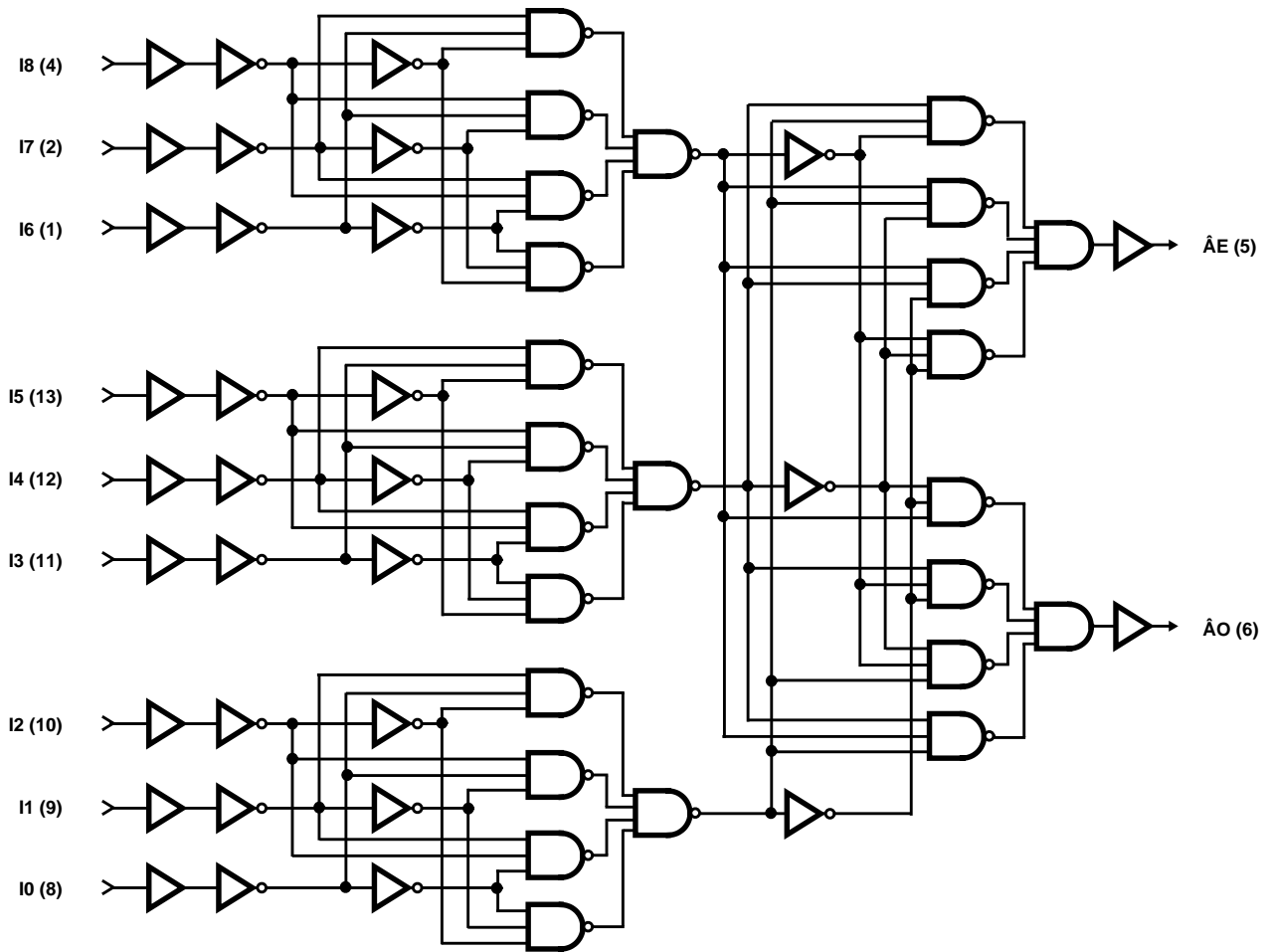
14 PIN CERAMIC FLATPACK  
MIL-STD-1835 DESIGNATOR, CDFP3-F14  
LEAD FINISH C  
TOP VIEW



### 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

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# 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:  $\text{SiO}_2$   
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

