

## 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# 5962-96720 and Harris' 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 = 0.8V Max
  - VIH = VCC/2 Min
- Input Current ≤ 1μA at VOL, VOH
- Fast Propagation Delay ..... 24ns (Max), 16ns (Typ)

### Description

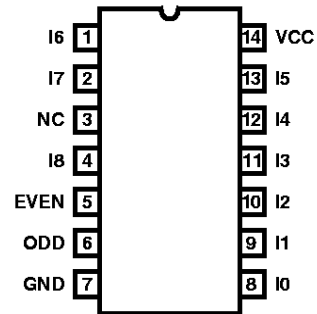
The Harris ACTS280MS is a Radiation Hardened 9-bit odd/even parity generator checker device. Both odd and even parity outputs are available for generating or checking parity for words up to 9 bits long. Even parity is indicated (EVEN output high) when an even number of data inputs are high. Odd parity 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 ACTS280MS.

The ACTS280MS 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.

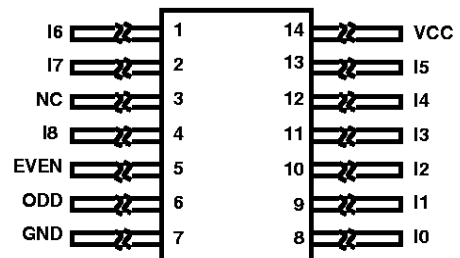
The ACTS280MS is supplied in a 14 lead Ceramic Flatpack (K suffix) or a Ceramic Dual-In-Line Package (D suffix).

### Pinouts

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



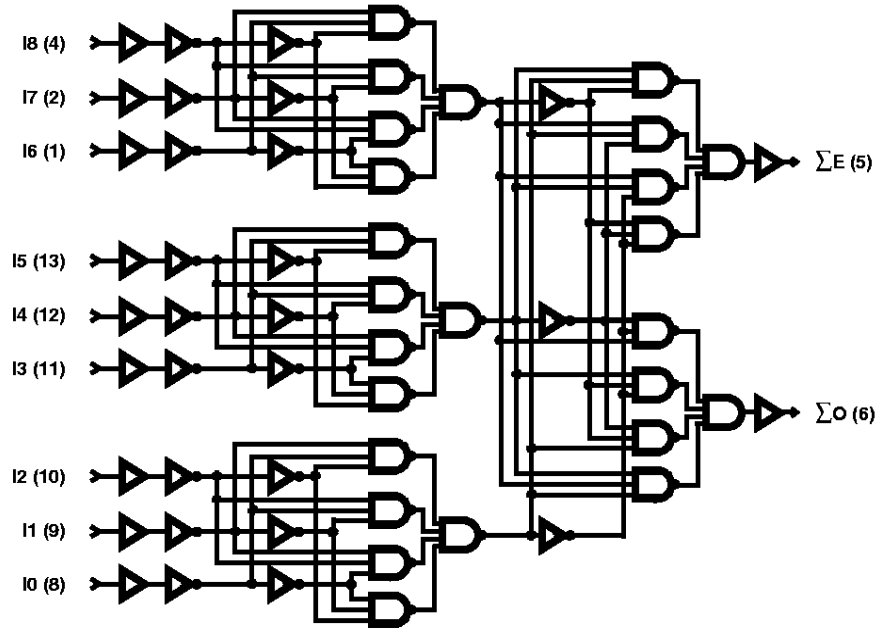
14 PIN CERAMIC FLATPACK  
MIL-STD-1835 DESIGNATOR, CDFP3-F14  
LEAD FINISH C  
TOP VIEW



### Ordering Information

PART NUMBER	TEMPERATURE RANGE	SCREENING LEVEL	PACKAGE
5962F9672001VCC	-55°C to +125°C	MIL-PRF-38535 Class V	14 Lead SBDIP
5962F9672001VXC	-55°C to +125°C	MIL-PRF-38535 Class V	14 Lead Ceramic Flatpack
ACTS280D/Sample	25°C	Sample	14 Lead SBDIP
ACTS280K/Sample	25°C	Sample	14 Lead Ceramic Flatpack
ACTS280HMSR	25°C	Die	Die

**Functional Diagram**



NC = 3  
VDD = 14  
GND = 7

# ACTS280MS

## Die Characteristics

### DIE DIMENSIONS:

88 mils x 88 mils  
2.24mm x 2.24mm

### 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:  $\text{SiO}_2$   
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

