

**Single Event Radiation Hardened Quad Voltage Comparator**



The single event effects and total dose radiation hardened IS-139ASRH consists of four independent single or dual supply

voltage comparators on a single monolithic substrate. The common mode input voltage range includes ground, even when operated from a single supply, and the low supply current makes these comparators suitable for low power applications. These types were designed to directly interface with TTL and CMOS inputs.

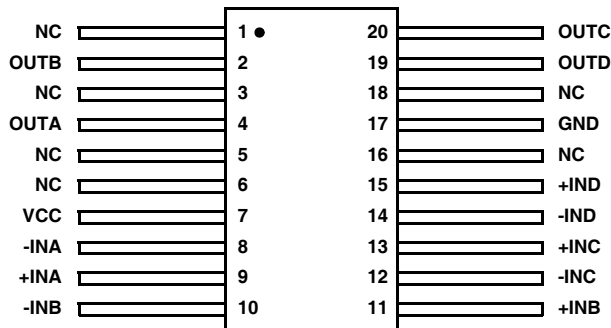
The IS-139ASRH is fabricated on our dielectrically isolated Rad Hard Silicon Gate (RSG) process, which provides immunity to single event latch-up and the capability of highly reliable performance in any radiation environment.

**Specifications for Rad Hard QML devices are controlled by the Defense Supply Center in Columbus (DSCC). The SMD numbers listed below must be used when ordering.**

**Detailed Electrical Specifications for the IS-139ASRH are contained in SMD 5962-01510. A “hot-link” is provided on the Intersil website for downloading.**

**Pinout**

**IS9-139ASRH  
(FLATPACK CDFP4-F20)  
TOP VIEW**



**Features**

- Electrically Screened to SMD # 5962-01510
- QML Qualified per MIL-PRF-38535 Requirements
- Radiation Hardness
  - Total Dose. . . . . 300krad(Si) (Max)
  - Single Event Latch-up . . . . . >84MeV/mg/cm<sup>2</sup>
  - Single Event Upset . . . . . >84MeV/mg/cm<sup>2</sup>
- Operating Supply Voltage Range. . . . . 9V to 30V
- Input Offset Voltage (V<sub>IO</sub>). . . . . 5mV (Max)
- Quiescent Supply Current . . . . . 3mA (Max)
- Differential Input Voltage Range Equal to the Supply Voltage

**Applications**

- DC-DC Power Conversion
- Pulse Generators
- Timing Circuitry
- Level Shifting
- Analog to Digital Conversion

**Ordering Information**

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)	PACKAGE DRAWING NUMBER
5962F0151001VXC	IS9-139ASRH-Q	-55 to +125	K20.A
5962F0151001QXC	IS9-139ASRH-8	-55 to +125	K20.A
IS9-139ASRH/PROTO	IS9-139ASRH/PROTO	-55 to +125	K20.A

## Die Characteristics

### DIE DIMENSIONS

3750 $\mu\text{m}$  x 4510 $\mu\text{m}$  (148 mils x 178 mils)  
483 $\mu\text{m}$   $\pm$  25.4 $\mu\text{m}$  (19 mils  $\pm$  1 mil)

### INTERFACE MATERIALS

#### Glassivation

Type: Silox (SiO<sub>2</sub>)  
Thickness: 8.0k $\text{Å}$   $\pm$  1.0k $\text{Å}$

#### Top Metallization

Type: AlSiCu  
Thickness: 16.0k $\text{Å}$   $\pm$  2k $\text{Å}$

#### Substrate

Radiation Hardened Silicon Gate, Dielectric Isolation

### Backside Finish

Silicon

### ASSEMBLY RELATED INFORMATION

#### Substrate Potential

Unbiased (DI)

### ADDITIONAL INFORMATION

#### Worst Case Current Density

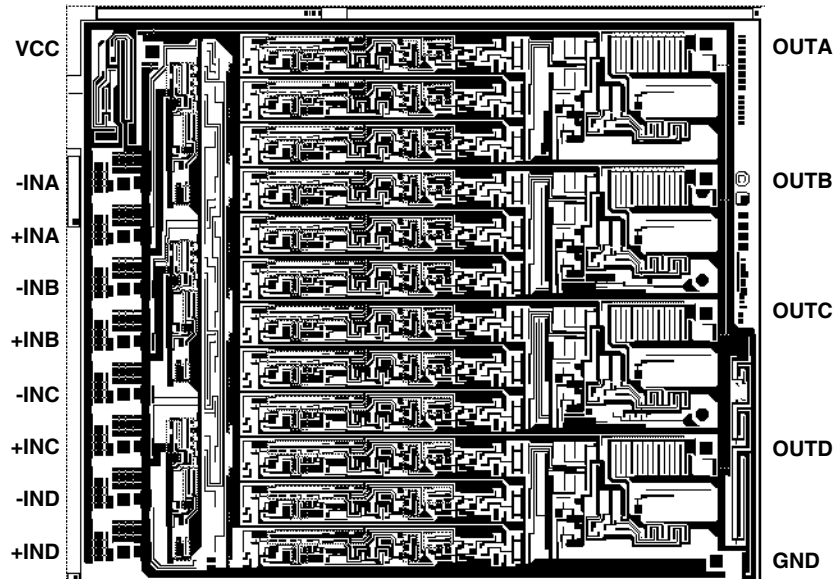
$<2.0 \times 10^5 \text{ A/cm}^2$

#### Transistor Count

644

## Metallization Mask Layout

IS-139ASRH



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Intersil Corporation's quality certifications can be viewed at [www.intersil.com/design/quality](http://www.intersil.com/design/quality)

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