

## IS-139ASRH, IS-139ASEH

Single Event Radiation Hardened Quad Voltage Comparators

FN9000  
Rev 4.00  
April 6, 2012

The single event effects and total dose radiation hardened IS-139ASRH, IS-139ASEH consist 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.

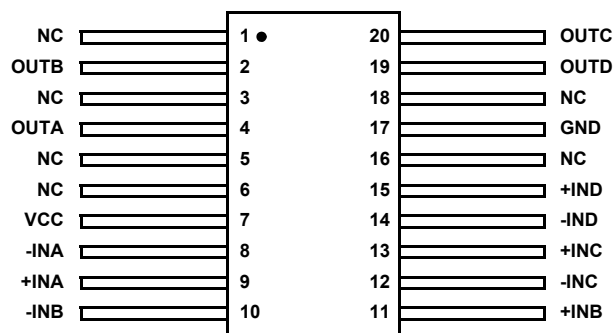
The IS-139ASRH, IS-139ASEH are fabricated on our dielectrically isolated Rad Hard Silicon Gate (RSG) process, which provides immunity to single event latch-up and the capability of highly reliable performance in any radiation environment.

**Specifications for Rad Hard QML devices are controlled by the Defense Logistics Agency Land and Maritime (DLA). The SMD numbers listed below must be used when ordering.**

Detailed Electrical Specifications for the IS-139ASRH, IS-139ASEH are contained in [SMD 5962-01510](#).

### Pin Configuration

IS9-139ASRH, IS9-139ASEH  
(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
5962F0151002VXC	IS9-139ASEH-Q	-55 to +125	K20.A
IS9-139ASRH/PROTO	IS9-139ASRH/PROTO	-55 to +125	K20.A

## Die Characteristics

### DIE DIMENSIONS

3750µm x 4510µm (148 mils x 178 mils)  
483µm ± 25.4µm (19 mils ± 1 mil)

### INTERFACE MATERIALS

#### Glassivation

Type: Silox (SiO<sub>2</sub>)  
Thickness: 8.0kÅ ± 1.0kÅ

#### Top Metallization

Type: AlSiCu  
Thickness: 16.0kÅ ± 2kÅ

#### Substrate

Radiation Hardened Silicon Gate, Dielectric Isolation

### Backside Finish

Silicon

### ASSEMBLY RELATED INFORMATION

#### Substrate Potential

Unbiased (DI)

### ADDITIONAL INFORMATION

#### Worst Case Current Density

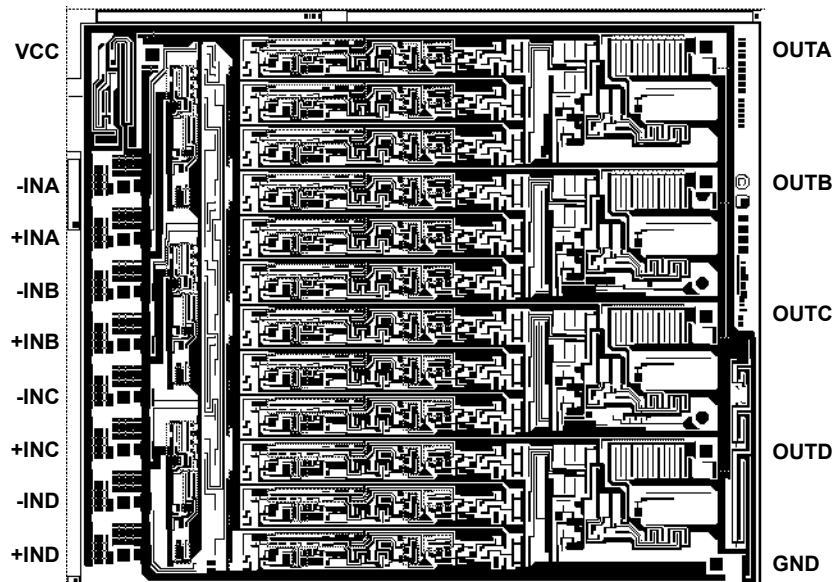
<2.0 x 10<sup>5</sup> A/cm<sup>2</sup>

#### Transistor Count

644

## Metallization Mask Layout

IS-139ASRH, IS-139ASEH



© Copyright Intersil Americas LLC 2001-2012. All Rights Reserved.  
All trademarks and registered trademarks are the property of their respective owners.

For additional products, see [www.intersil.com/en/products.html](http://www.intersil.com/en/products.html)

Intersil products are manufactured, assembled and tested utilizing ISO9001 quality systems as noted in the quality certifications found at [www.intersil.com/en/support/qualandreliability.html](http://www.intersil.com/en/support/qualandreliability.html)

*Intersil products are sold by description only. Intersil may modify the circuit design and/or specifications of products at any time without notice, provided that such modification does not, in Intersil's sole judgment, affect the form, fit or function of the product. Accordingly, the reader is cautioned to verify that datasheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.*

For information regarding Intersil Corporation and its products, see [www.intersil.com](http://www.intersil.com)