

**PRELIMINARY**

**Radiation Hardened, High Speed, Low Power  
Dual Operational Amplifier with Disable**

April 1998

**Features**

- QML Qualified Per MIL-PRF-38535 Requirements
- Radiation Environment
  - Total Dose .....  $3 \times 10^5$  RAD(Si)
  - SEL Immune ..... Bonded Wafer DI Process
- Low Quiescent Current (per amp) ..... 6.1mA (Max)
- Disabled Supply Current (per amp) ..... 4.0mA (Max)
- Low Offset Voltage..... 5.0mV (Max)
- Output Enable/Disable Time ..... 160ns/20ns (Typ)
- High Slew Rate ..... 1050V/ $\mu$ s (Typ)
- Wide -3dB Bandwidth ( $A_V = +2$ ) ..... 530MHz (Typ)

**Applications**

- High Speed A/D Drivers
- Cable Drivers
- Wideband Signal Switching and Routing
- Redundant Circuit Multiplexing
- Pulse Amplifiers

**Description**

The HS-1254RH is a  $\pm 5V$ , Rad Hard, monolithic, dual, current feedback amplifier that provides highly reliable performance in harsh radiation environments. Dielectric isolation and bonded wafer processing make this device immune to latch-up (SEL).

Excellent dynamic characteristics, coupled with the disable function, make this amplifier well-suited for a variety of satellite system applications. The outputs have individual disable control pins that make it easy to multiplex wideband signals, putting the outputs in a high impedance mode and reducing the supply current per op amp down to 3mA (typical).

Post radiation limits are fully specified and guaranteed to 300kRAD(Si) total dose to ensure predictable performance in any space application.

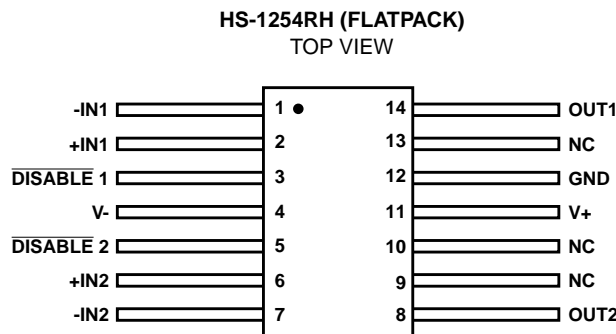
Specifications for Rad Hard QML devices are controlled by the Defense Supply Center in Columbus (DSCC). SMD numbers must be used when ordering.

Detailed Electrical Specifications for the HS-1254RH are contained in SMD 5962-98581, which is easily downloadable from our website, via a DSCC "hot-link".  
<http://www.semi.intersil.com/data/sm/index.htm>

**Ordering Information**

SMD PART NUMBER	INTERSIL PART NUMBER	TEMP. RANGE (°C)	PACKAGE	CASE OUTLINE
5962R9858101VXC	HS9-1254RH-Q	-55 to 125	14 Ld Flatpack	CDFP3-F14
N/A	HS9-1254RH/Sample	25	14 Ld Flatpack	CDFP3-F14

**Pinout**



# HS-1254RH

## Die Characteristics

### DIE DIMENSIONS

Size: 1750 $\mu$ m x 2330 $\mu$ m (69 mils x 92 mils)  
Thickness: 483 $\mu$ m (19 mils)

### GLASSIVATION

Type: Nitride  
Thickness: 4k $\text{\AA}$   $\pm$  0.5k $\text{\AA}$

### METALLIZATION

#### Metal 1

Type: AlCu(2%)/TiW  
Thickness: 8k $\text{\AA}$   $\pm$  0.4k $\text{\AA}$

#### Metal 2

Type: AlCu(2%)  
Thickness: 16k $\text{\AA}$   $\pm$  0.8k $\text{\AA}$

### SUBSTRATE

DI, Bonded Wafer

### BACKSIDE FINISH

Silicon

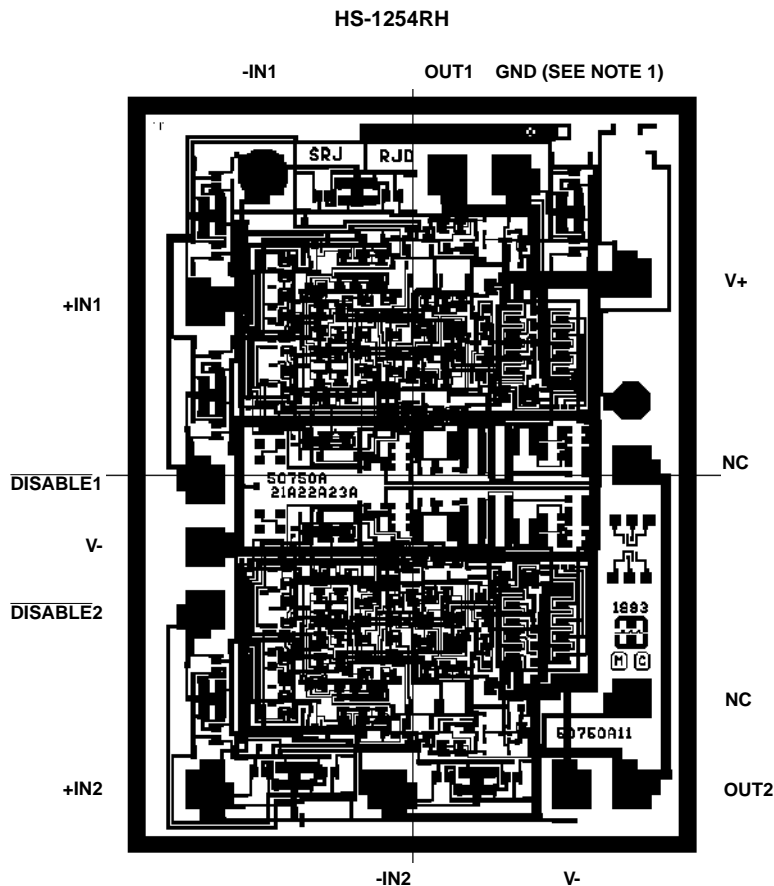
### SUBSTRATE POTENTIAL

Floating (Recommend connection to V-)

### TRANSISTOR COUNT:

180

## Metallization Mask Layout



### NOTE:

1. This is an optional GND pad. Users may set a GND reference, via this pad, to ensure the TTL compatibility of the DISABLE inputs when using asymmetrical supplies (e.g., V+ = 10V, V- = 0V).

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