

**Radiation Hardened, High Speed, Low Power, Current Feedback Op Amp with Output Disable**

The Radiation Hardened HS-1410RH is a high speed, low power current feedback amplifier built with Intersil's proprietary complementary bipolar UHF-1 (DI, bonded wafer) process. This technology provides an immunity to Single Event Latch-up and the capability of highly reliable performance in any radiation environment. These devices are QML approved and are manufactured and screened in full compliance with MIL-PRF-38535.

This amplifier features a TTL/CMOS compatible DISABLE control, pin 10, which when pulled low, reduces the supply current and forces the output into a high impedance state. This allows easy implementation of simple, low power multiplexing circuits in redundant spacecraft designs. The wide bandwidth and fast slew rate make these devices ideal for pulse and video amplifier and routing applications. The high output current and disable feature provide the perfect combination needed for A/D driver/multiplexer circuits.

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

Detailed Electrical Specifications for these devices are contained in SMD 5962-98518. A "hot-link" is provided on our homepage for downloading.  
<http://www.intersil.com/spacedefense/space.htm>

**Ordering Information**

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)
5962F9851801VXC	HS9-1410RH-Q	-55 to 125

**Features**

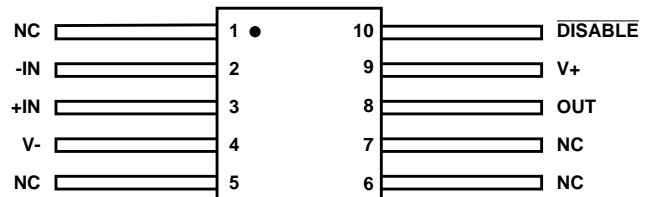
- Electrically Screened to SMD # 5962-98518
- QML Qualified per MIL-PRF-38535 Requirements
- Radiation Environment
  - Total Dose.....  $3 \times 10^5$  RAD(Si)
  - SEL..... None (Bonded Wafer DI Process)
- Wide 3dB Bandwidth (Typ)..... 360MHz
- High Slew Rate (Typ)..... 1000V/μS
- High Output Current (Typ)..... 60mA
- Low Supply Current (Typ)..... 5.9mA
- Output Enable/Disable Time (Typ)..... 180ns/35ns
- Upgrade for CLC410/411

**Applications**

- Multiplexing Flash A/D Drivers
- High Speed Signal Switching and Routing
- Pulse and Video Amplifiers
- Wideband Amplifiers
- Imaging Systems

**Pinout**

**HS9-1410RH (FLATPACK) CDFP3-F10  
TOP VIEW**



# HS-1410RH

## Die Characteristics

### DIE DIMENSIONS:

59 mils x 59 mils x 19 mils  $\pm 1$  mil  
(1500 $\mu$ m x 1500 $\mu$ m x 483 $\mu$ m  $\pm$  25.4 $\mu$ m)

### INTERFACE MATERIALS:

#### Glassivation:

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

#### Top Metallization:

Type: Metal 1: AlCu(2%)/TiW  
Thickness: Metal 1: 8k $\text{\AA}$   $\pm$  0.4k $\text{\AA}$   
Type: Metal 2: AlCu(2%)  
Thickness: Metal 2: 16k $\text{\AA}$   $\pm$  0.8k $\text{\AA}$

### Substrate:

UHF-1, Bonded Wafer, DI

### ASSEMBLY RELATED INFORMATION:

#### Substrate Potential (Powered Up):

Floating (Recommend Connection to V-)

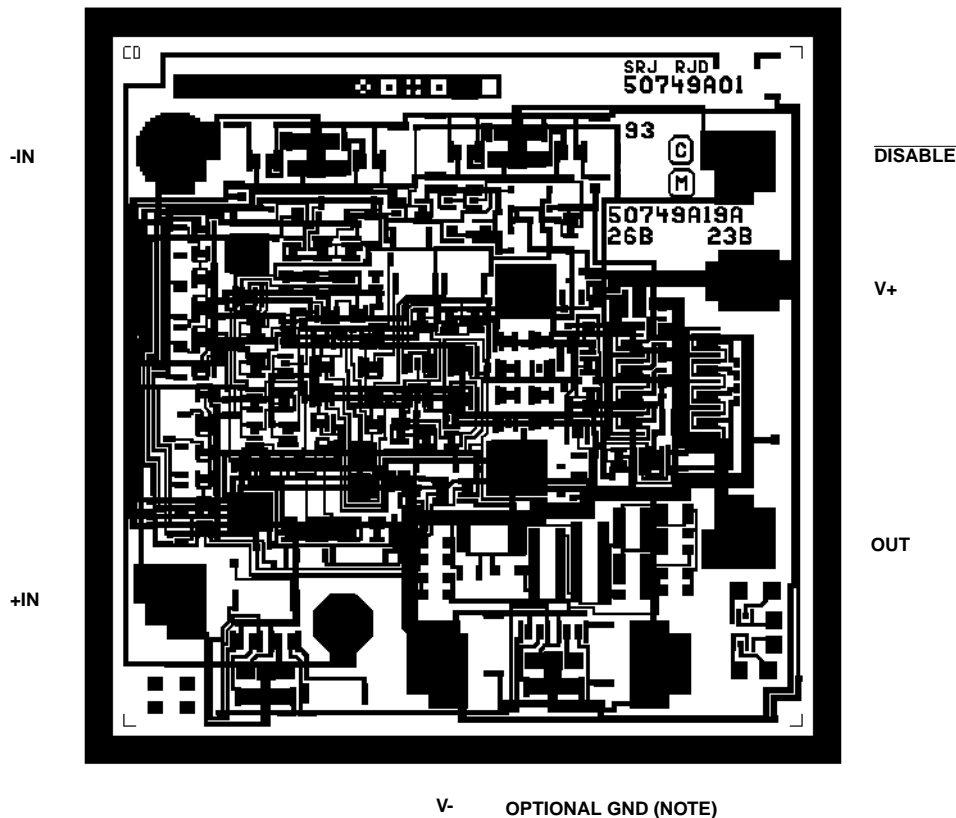
### ADDITIONAL INFORMATION:

#### Transistor Count:

75

## Metallization Mask Layout

HS-1410RH



NOTE: This pad is not bonded out on packaged units. Die users may set a GND reference, via this pad, to ensure the TTL compatibility of the  $\overline{\text{DIS}}$  input when using asymmetrical supplies (e.g. V+ = 10V, V- = 0V).

All Intersil semiconductor products are manufactured, assembled and tested under **ISO9000** quality systems certification.

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