

PRELIMINARY

April 1998

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

Features

- QML Qualified Per MIL-PRF-38535 Requirements
- Radiation Environment
 - Total Dose 3×10^5 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/ μ 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.

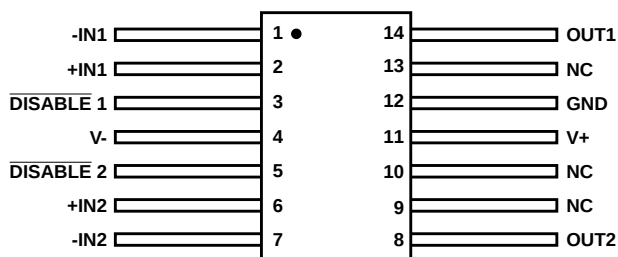
Detailed Electrical Specifications for the HS-1254RH are contained in SMD 5962-98581, which is easily downloadable from our website, via a DSCC "hot-link".
<http://www.semi.intersil.com/data/sm/index.htm>

Ordering Information

SMD PART NUMBER	INTERSIL PART NUMBER	TEMP. RANGE ($^{\circ}$ 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 (FLATPACK)
TOP VIEW



HS-1254RH

Die Characteristics

DIE DIMENSIONS

Size: 1750 μ m x 2330 μ m (69 mils x 92 mils)

Thickness: 483 μ 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

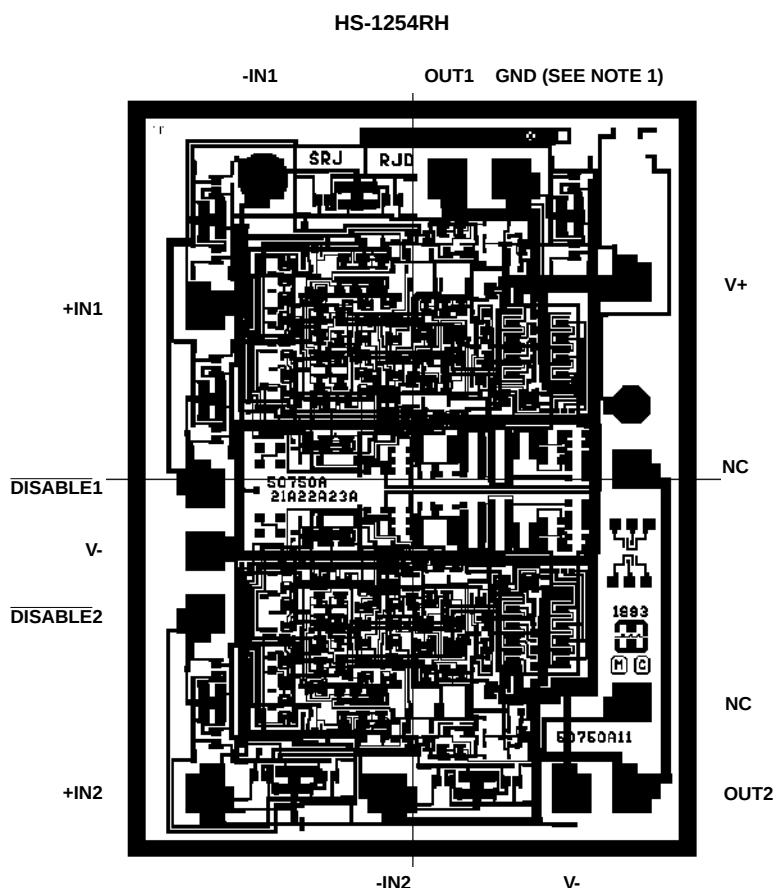
SUBSTRATE POTENTIAL

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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Sales Office Headquarters

NORTH AMERICA

Intersil Corporation
P. O. Box 883, Mail Stop 53-204
Melbourne, FL 32902
TEL: (407) 724-7000
FAX: (407) 724-7240

EUROPE

Intersil SA
Mercure Center
100, Rue de la Fusee
1130 Brussels, Belgium
TEL: (32) 2.724.2111
FAX: (32) 2.724.22.05

ASIA

Intersil (Taiwan) Ltd.
Taiwan Limited
7F-6, No. 101 Fu Hsing North Road
Taipei, Taiwan
Republic of China
TEL: (886) 2 2716 9310
FAX: (886) 2 2715 3029