

Radiation Hardened Programmable Low Power Op Amps

HS-3530ARH, HS-3530AEH

The HS-3530ARH, HS-3530AEH are Low Power Operational Amplifiers, which are internally compensated monolithic devices offering a wide range of performance specifications. Parameters such as power dissipation, slew rate, bandwidth, noise and input DC parameters are programmed by selecting an external resistor or current source. Supply voltages as low as $\pm 3V$ may be used with little degradation of AC performance. The HS-3530ARH, HS-3530AEH have been specifically designed to meet exposure to space radiation environments. Operation from $-55^{\circ}C$ to $+125^{\circ}C$ is guaranteed.

A major advantage of the HS-3530ARH, HS-3530AEH is that operating characteristics remain virtually constant over a wide supply range ($\pm 3V$ to $\pm 15V$), allowing the amplifiers to offer maximum performance in almost any system, including battery operated equipment. A primary application for these devices is in active filtering and conditioning for a wide variety of signals that differ in frequency and amplitude. Also, by modulating the set current, they can be used for designs such as current controlled oscillators/modulators, sample and hold circuits and variable active filters.

Specifications

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 HS-3530ARH, HS-3530AEH are contained in SMD [5962-95687](https://www.intersil.com/products/deviceinfo.asp?pn=HS-3530ARH). A "hot-link" to the DLA website is also provided on the Product Information page for downloading the document.

www.intersil.com/products/deviceinfo.asp?pn=HS-3530ARH

The Intersil Quality Management Plan, listing all screening operations, is available on our website.

www.intersil.com/design/quality/manuals.asp

Ordering Information

| ORDERING NUMBER | PART NUMBER | TEMP. RANGE ($^{\circ}C$) |
|-------------------|-------------------|-----------------------------|
| 5962F9568701QGA | HS2-3530ARH-8 | -55 to +125 |
| 5962F9568701VGA | HS2-3530ARH-Q | -55 to +125 |
| 5962F9568702VGA | HS2-3530AEH-Q | -55 to +125 |
| 5962F9568701VXC | HS9-3530ARH-Q | -55 to +125 |
| 5962F9568702VXC | HS9-3530AEH-Q | -55 to +125 |
| 5962F9568701V9A | HS0-3530ARH-Q | -55 to +125 |
| 5962F9568702V9A | HS0-3530AEH-Q | -55 to +125 |
| HS2-3530ARH/PROTO | HS2-3530ARH/Proto | -55 to +125 |
| HS9-3530ARH/PROTO | HS9-3530ARH/Proto | -55 to +125 |

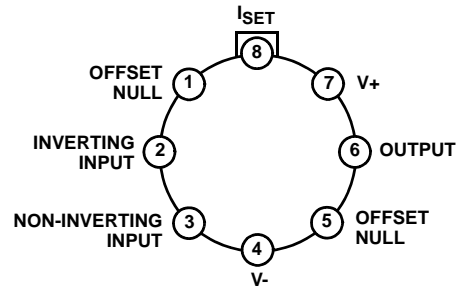
Features

- Radiation Performance
 - Gamma Dose 3×10^5 RAD(Si)
 - SEL Immune (RSG DI Process)
 - Low dose rate 100krad(Si)*

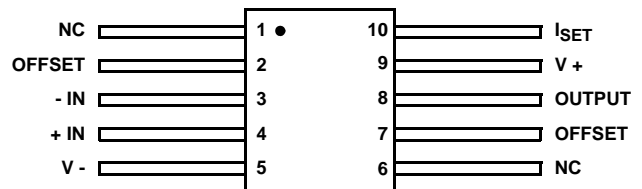
*Product capability established by initial characterization. The EH version is acceptance tested on a wafer by wafer basis to 50krad(Si) at low dose rate.
- Wide Range AC Programming
 - Slew Rate 0.025 to 0.1V/ μ s
 - Gain X Bandwidth 30kHz to 750kHz
- Wide Range DC Programming
 - Power Supply Range $\pm 3.0V$ to $\pm 15V$
- Supply Current 15 μ A to 150 μ A
- Output Current 0.25mA to 2.5mA
- Quiescent Power 4.8mW (Max)
- Dielectrically Isolated Device Islands
- Short Circuit Protection
- Full $-55^{\circ}C$ to $+125^{\circ}C$ Military Temperature Range

Pin Configurations

HS2-3530ARH (CAN), MACY1-X8
TOP VIEW



HS9-3530ARH, HS9-3530AEH (FLATPACK), CDFP3-F10
TOP VIEW



HS-3530ARH, HS-3530AEH

Die Characteristics

DIE DIMENSIONS:

1720 μ m x 1390 μ m x 533 μ m \pm 25.4 μ m
(68 mils x 55 mils x 21 mils \pm 1 mil)

INTERFACE MATERIALS

GLASSIVATION

Type: Silox (SiO₂)
Thickness: 8.0kÅ \pm 1.0kÅ

TOP METALLIZATION

Type: AlSiCu
Thickness: 16.0kÅ \pm 2kÅ

SUBSTRATE:

Radiation Hardened Silicon Gate,
Dielectric Isolation

BACKSIDE FINISH:

Silicon

ASSEMBLY RELATED INFORMATION

SUBSTRATE POTENTIAL:

Unbiased (DI)

ADDITIONAL INFORMATION

WORST CASE CURRENT DENSITY:

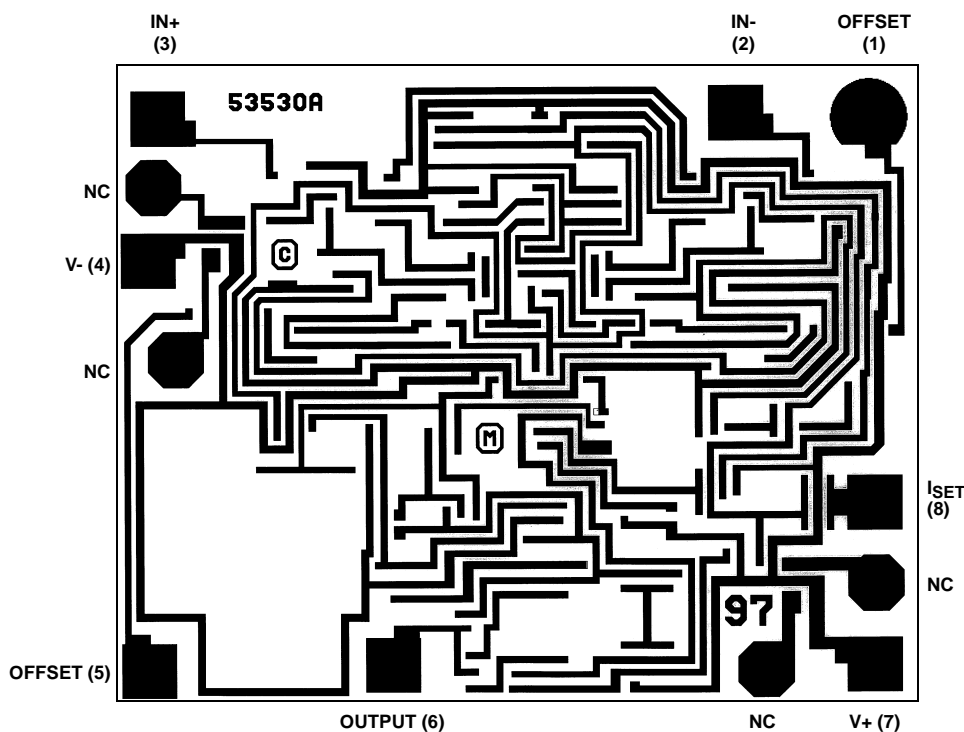
$<2.0 \times 10^5$ A/cm²

TRANSISTOR COUNT:

49

Metallization Mask Layout

Pin Numbers shown are for the Can Package
HS-3530ARH, HS-3530AEH



For additional products, see www.intersil.com/product_tree

Intersil products are manufactured, assembled and tested utilizing ISO9000 quality systems as noted in the quality certifications found at www.intersil.com/design/quality

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