Data Sheet | March 1999 | File Number 4653

Radiation Hardened Programmable Low Power Op Amp

The HS-3530ARH is a Low Power Operational Amplifier which is an internally compensated monolithic device 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 ±3V may be used with little degradation of AC performance. The HS-3530ARH has been specifically designed to meet exposure to space radiation environments. Operation from -55^{o}C to 125^{o}C is guaranteed.

A major advantage of the HS-3530ARH is that operating characteristics remain virtually constant over a wide supply range (±3V to ±15V), allowing the amplifier to offer maximum performance in almost any system, including battery operated equipment. A primary application for this device is in active filtering and conditioning for a wide variety of signals that differ in frequency and amplitude. Also, by modulating the set current, it 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 Supply Center in Columbus (DSCC). The SMD numbers listed below must be used when ordering.

Detailed Electrical Specifications for the HS-3530ARH are contained in SMD 5962-95687. A “hot-link” to the DSCC website is provided on our homepage for downloading the document.
www.intersil.com/spacedefense/newsafclasst.asp

The Intersil Quality Management Plan, listing all screening operations, is available on our website.
www.intersil.com/quality/manuals.asp

Ordering Information

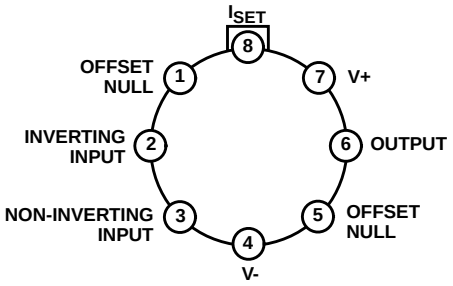
ORDERING NUMBER	PART NUMBER	TEMP. RANGE (^{o}C)
5962F9568701QGA	HS2-3530ARH-8	-55 to 125
5962F9568701VGA	HS2-3530ARH-Q	-55 to 125
5962F9568701VXC	HS9-3530ARH-Q	-55 to 125
5962F9568701V9A	HS0-3530ARH-Q	-55 to 125
NA	HS2-3530ARH/Proto	-55 to 125
NA	HS9-3530ARH/Proto	-55 to 125

Features

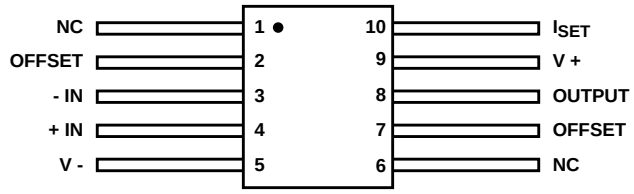
- Radiation Performance
  - Gamma Dose . . . . . 3 x 10^{5} RAD(Si)
  - SEL . . . . . Immune (RSG DI Process)
- Wide Range AC Programming
  - Slew Rate . . . . . 0.025 to 0.1V/µs
  - Gain X Bandwidth . . . . . 30kHz to 750kHz
- Wide Range DC Programming
  - Power Supply Range . . . . . ±3.0V to ±15V
- Supply Current . . . . . 15µA to 150µA
- Output Current . . . . . 0.25mA to 2.5mA
- Quiescent Power . . . . . 4.8mW (Max)
- Dielectrically Isolated Device Islands
- Short Circuit Protection
- Full -55^{o}C to 125^{o}C Military Temperature Range

Pinouts

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



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



Die Characteristics

DIE DIMENSIONS:

1720µm x 1390µm x 533µm ±25.4µm
(68 mils x 55 mils x 21 mils ±1 mil)

INTERFACE MATERIALS

GLASSIVATION

Type: Silox (SiO_2)
Thickness: 8.0kA ±1.0kA

TOP METALLIZATION

Type: AlSiCu
Thickness: 16.0kA ±2kA

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/cm^2

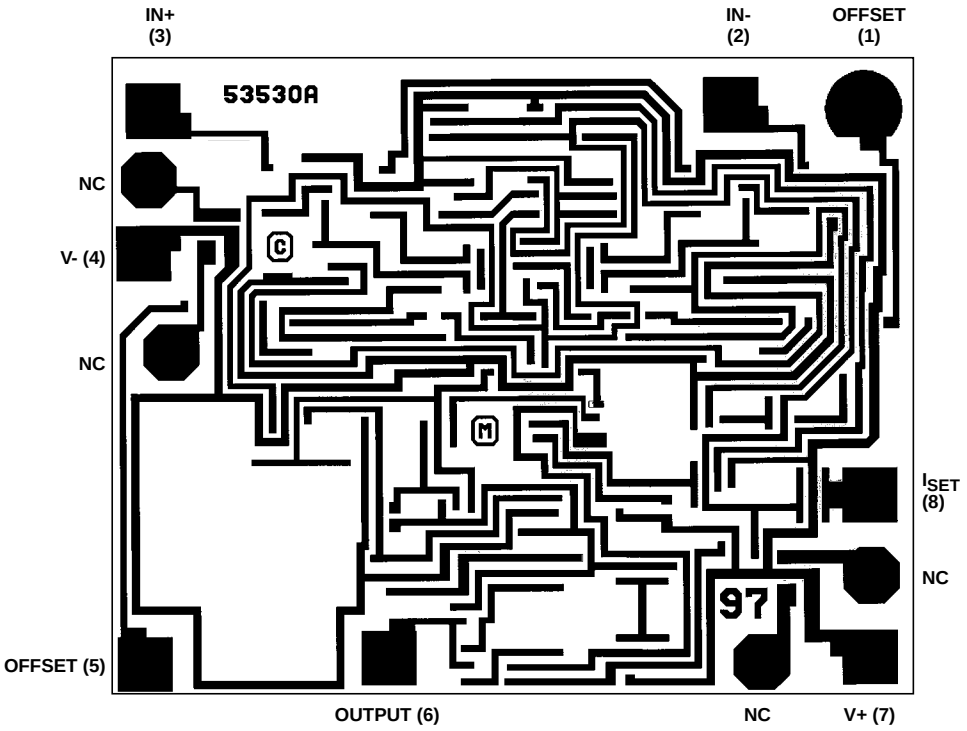
TRANSISTOR COUNT:

49

Metallization Mask Layout

Pin Numbers shown are for the Can Package

HS-3530ARH



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For information regarding Intersil Corporation and its products, see web site **www.intersil.com**

Sales Office Headquarters

NORTH AMERICA
Intersil Corporation
P. O. Box 883, Mail Stop 53-204
Melbourne, FL 32902
TEL: (321) 724-7000
FAX: (321) 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.
7F-6, No. 101 Fu Hsing North Road
Taipei, Taiwan
Republic of China
TEL: (886) 2 2716 9310
FAX: (886) 2 2715 3029