

Single-Event Hardened, Single Supply, Quad Operational Amplifier

The single-event radiation hardened ISL7124SRH consists of four independent, high gain, internally frequency compensated operational amplifiers, specifically designed to operate from a single power supply over a wide range of voltages. The device is functionally equivalent to industry standard 124 types, offering improvements in supply current and power supply rejection ratio.

Constructed with Intersil's dielectrically isolated, radiation hardened silicon gate (RSG) BiCMOS process, these devices are immune to single event latchup. Additionally, the design has been hardened to prevent single event transients (SETs) in excess of 1V for LETs up to 36MeV/mg/cm².

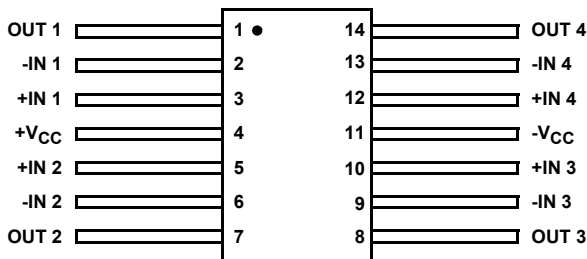
The ISL7124SRH has been specifically designed and manufactured to provide highly reliable performance in harsh radiation environments. It is total dose hardened to 300krad(Si) and offers guaranteed performance over the full -55C to +125C military temperature range.

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 5962-02542. A "hot-link" is provided on our website for downloading.

Pinout

ISL7124SRHF (FLATPACK CDFP3-F14)
TOP VIEW



Features

- QML Qualified per MIL-PRF-38535 Requirements
- Electrically Screened to DSCC SMD # 5962-02542
- Radiation Environment
 - Total Dose 300krad(Si)(Max)
 - Latch-Up Immune
 - SET Threshold (Delta Vo<1V) . . . 36MeV/mg/cm²(Min)
- Single Supply Voltage Range (5V to 30V)
- Input Common Mode Voltage Range Includes Ground
- Input Offset Voltage +/-10mV(Max)
- Input Offset Current +/-150nA(Max)
- Input Bias Current 400nA(Max)
- Open Loop Voltage Gain 20V/mV(Min)
- Power Supply Rejection Ratio 70dB(Min)
- Common Mode Rejection Ratio 70dB(Min)
- ESD (HBM) 3000V(Min)

Applications

- Single Supply Operation of Op-Amp Circuits
- General Analog Signal Processing

Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)
5962F0254201VXC	ISL7124SRHVF	-55 to 125
5962F0254201QXC	ISL7124SRHQF	-55 to 125
ISL7124SRHF/Proto	ISL7124SRHF/Proto	-55 to 125

Die Characteristics

DIE DIMENSIONS:

2640µm x 5020µm (104 mils x 198mils)
 Thickness: 483µm ± 25.4µm (19 mils ± 1 mil)

INTERFACE MATERIALS:

Glassivation:

Type: PSG (Phosphorous Silicon Glass)
 Thickness: 8.0kÅ ± 1.0kÅ

Top Metallization:

Type: AlSiCu
 Thickness: 16.0kÅ ± 2kÅ

Substrate:

Radiation Hardened Silicon Gate
 Dielectrically Isolated

Backside Finish:

Silicon

ASSEMBLY RELATED INFORMATION:

Substrate Potential:

Unbiased (DI)

ADDITIONAL INFORMATION:

Worst Case Current Density:

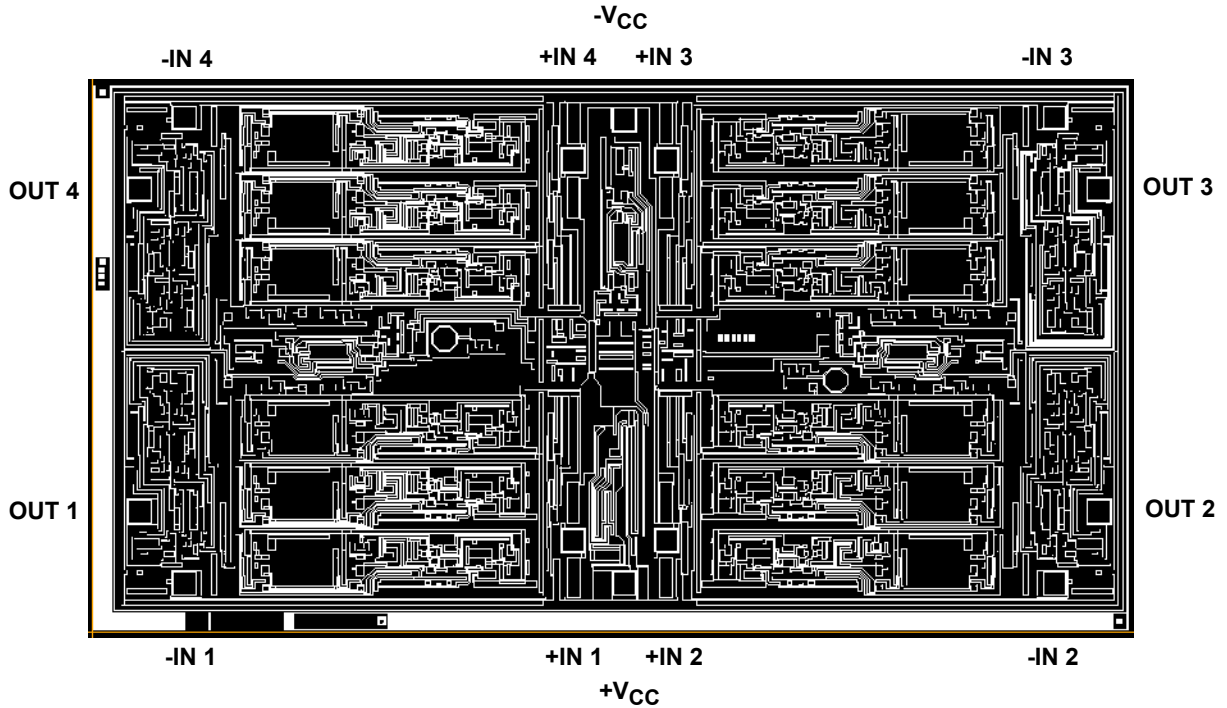
$<2.0 \times 10^5 \text{ A/cm}^2$

Transistor Count:

276

Metallization Mask Layout

ISL7124SRH



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