

ISL7124SRH, ISL7124SEH

Single-Event Hardened, Single Supply, Quad Operational Amplifiers

FN9090
Rev 1.00
February 23, 2012

The single-event radiation hardened ISL7124SRH, ISL7124SEH consist 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. These devices are 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.

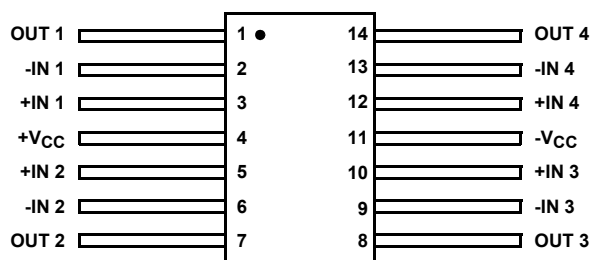
The ISL7124SRH, ISL7124SEH have been specifically designed and manufactured to provide highly reliable performance in harsh radiation environments. They are total dose hardened to 300krad(Si) and offer guaranteed performance over the full -55°C to +125°C military temperature range.

Specifications for Rad Hard QML devices are controlled by the Defense Logistics Agency Land and Maritime (DLA). 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.

Pin Configuration

ISL7124SRH, ISL7124SEH (FLATPACK CDFFP3-F14)
TOP VIEW



Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	PART MARKING	TEMP. RANGE (°C)	PACKAGE	PKG. DWG. #
5962F0254201VXC	ISL7124SRHVF	Q 5962F02 54201VXC	-55 to 125	14 Lead Ceramic Metal Seal Flatpack	K14.A
5962F0254201QXC	ISL7124SRHQF	Q 5962F02 54201QXC	-55 to 125	14 Lead Ceramic Metal Seal Flatpack	K14.A
5962F0254202VXC	ISL7124SEHVF	Q 5962F02 54202VXC	-55 to 125	14 Lead Ceramic Metal Seal Flatpack	K14.A
ISL7124SRHF/Proto	ISL7124SRHF/Proto	ISL7 /PROTO 124SRHF	-55 to 125	14 Lead Ceramic Metal Seal Flatpack	K14.A

Features

- QML Qualified per MIL-PRF-38535 Requirements
- Electrically Screened to DLA SMD # 5962-02542
- Radiation Environment
 - Total Dose300krad(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

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:

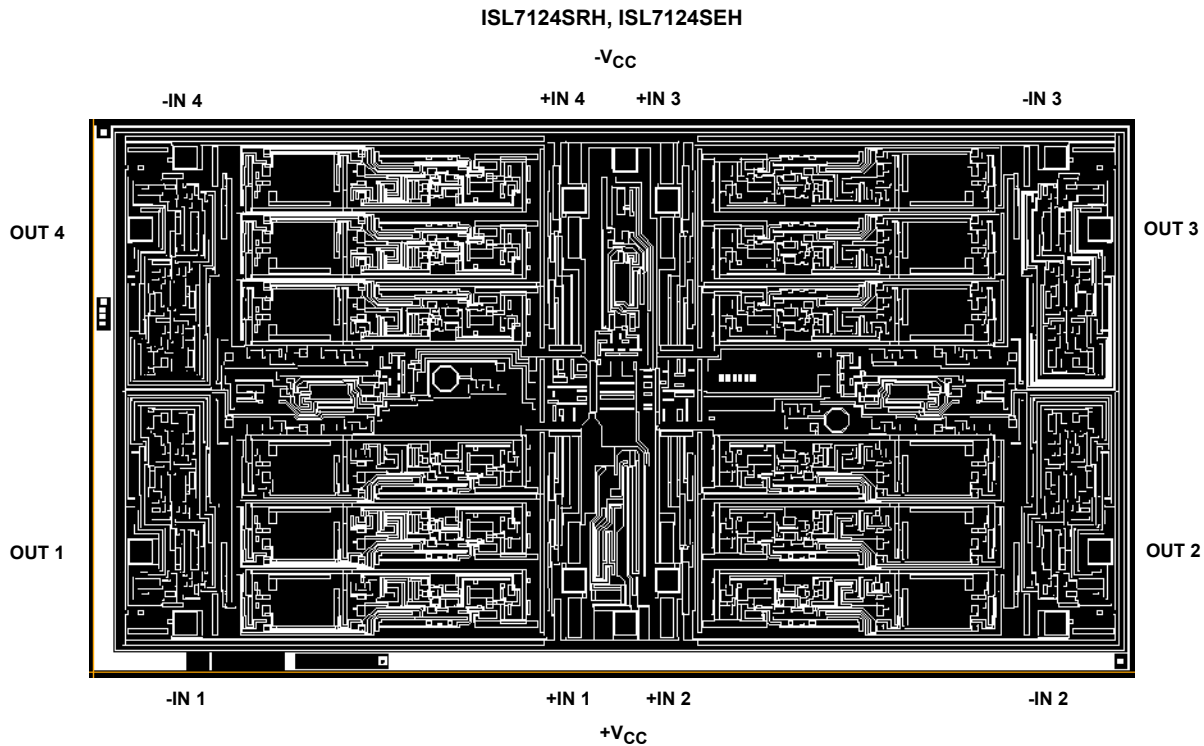
Worst Case Current Density:

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

Transistor Count:

276

Metallization Mask Layout



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