

**Radiation Hardened Ultra High Frequency NPN-PNP Transistor Array**

The ISL73096RH is a radiation hardened transistor array consisting of three NPN transistors and two PNP transistors on a common substrate. One of our bonded wafer, dielectrically isolated fabrication processes provides an immunity to Single Event Latch-up and the capability of highly reliable performance in any radiation environment.

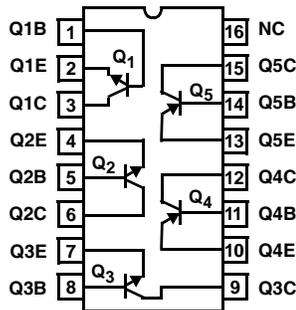
The high gain-bandwidth product and low noise figure of these transistors make them ideal for use in high frequency amplifier and mixer applications. Monolithic construction of the NPN and PNP transistors provides the closest electrical and thermal matching possible. Access is provided to each terminal of the transistors for maximum application flexibility.

**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 5962-07218. A “hot-link” is provided on our website for downloading.**

**Pinout**

**ISL73096RH**  
**(16 LD SBDIP) CDIP2-T16**  
**TOP VIEW**



**Features**

- Electrically Screened to SMD # 5962-07218
- QML Qualified per MIL-PRF-38535 Requirements
- Radiation Environment
  - Gamma Dose ( $\gamma$ ) . . . . .  $3 \times 10^5$ RAD(Si)
  - SEL Immune . . . . . Bonded Wafer Dielectric Isolation
- NPN Gain Bandwidth Product ( $F_T$ ) . . . . . 8GHz (Typ)
- NPN Current Gain ( $h_{FE}$ ) . . . . . 130 (Typ)
- NPN Early Voltage ( $V_A$ ) . . . . . 50V (Typ)
- PNP Gain Bandwidth Product ( $F_T$ ) . . . . . 5.5GHz (Typ)
- PNP Current Gain ( $h_{FE}$ ) . . . . . 60 (Typ)
- PNP Early Voltage ( $V_A$ ) . . . . . 20V (Typ)
- Noise Figure (50 $\Omega$ ) at 1GHz . . . . . 3.5dB (Typ)
- Collector-to-Collector Leakage . . . . . <1pA (Typ)

**Applications**

- High Frequency Amplifiers and Mixers
  - Refer to Application Note AN9315
- High Frequency Converters
- Synchronous Detectors

**Ordering Information**

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)
5962F0721801V9A	ISL73096RHVX	-55 to +125

**Die Characteristics**

**DIE DIMENSIONS:**

52.8 mils x 52.0 mils x 14 mils ±1 mil  
 1340µm x 1320µm x 355.6µm ±25.4µm

**INTERFACE MATERIALS:**

**Glassivation:**

Type: Nitride  
 Thickness: 4kÅ ±0.5kÅ

**Top Metallization:**

Type: Metal 1: AlCu (2%)/TiW  
 Thickness: Metal 1: 8kÅ ±0.5kÅ  
 Type: Metal 2: AlCu (2%)  
 Thickness: Metal 2: 16kÅ ±0.8kÅ

**Substrate:**

UHF-1X Bonded Wafer, DI

**Backside Finish:**

Silicon

**ASSEMBLY RELATED INFORMATION:**

**Substrate Potential:**

Floating

**ADDITIONAL INFORMATION:**

**Worst Case Current Density:**

3.04 x 10<sup>5</sup>A/cm<sup>2</sup>

**Transistor Count:**

5

**Metallization Mask Layout**

ISL73096RH.



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