Data Sheet | June 2000 | File Number 4874

Radiation Hardened High Speed, Quad SPST, CMOS Analog Switch

The HS-201HSRH is a monolithic CMOS analog switch featuring power-off high input impedance, very fast switching speeds and low ON resistance. Fabrication on our DI RSG process assures SEL immunity and only very slight sensitivity to low dose rate (ELDRS). These Class V/Q devices are tested and guaranteed for 300krad (Si) total dose performance.

Power-off high input impedance enables the use of this device in redundant circuits without causing data bus signal degradation. ESD protection, overvoltage protection, fast switching times, low ON resistance, and guaranteed radiation hardness, make the HS-201HSRH ideal for any space application where improved switching performance is required.

Specifications for Rad Hard QML devices are controlled by the Defense Supply Center (DSCC). The SMD numbers listed here must be used when ordering flight units.

Detailed electrical specifications for this device are contained in SMD 5962-99618. A "hot-link" is provided on our homepage for downloading.
www.intersil.com/spacedefense/space.asp

Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (^{O}C)
5962F9961801VEC	HS1-201HSRH-Q	-55 to 125
5962F9961801QEC	HS1-201HSRH-8	-55 to 125
5962F9961801VXC	HS9-201HSRH-Q	-55 to 125
5962F9961801QXC	HS9-201HSRH-8	-55 to 125
5962F9961801V9A	HS0-201HSRH-Q	-55 to 125
HS1-201HSRH/PROTO	HS1-201HSRH/PROTO	-55 to 125

Features

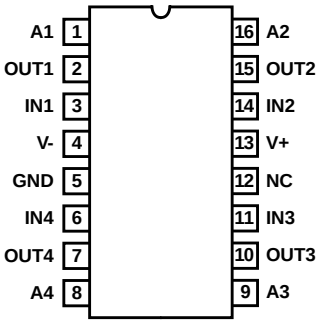
- Electrically Screened to DSCC SMD 5962-99618
- QML Qualified per MIL-PRF-38535
- Radiation Performance
  - Guaranteed Total Dose Performance . . . . . 300krad (Si)
  - SEL Immune . . . . . .DI RSG Process
  - Only Very Slightly Sensitive to Low Dose Rates (Vertical PNP and NPN device architectures)
- Overvoltage Protection (Power On, Switch Off) . . . . . ±30V
- Power Off High Impedance . . . . . ±17V
- Fast Switching Times
  - t_{ON} . . . . . 110ns (Max)
  - t_{OFF} . . . . . 80ns (Max)
- Low "ON" Resistance . . . . . 50Ω (Max)
- Pin Compatible with Industry Standard 201 Types
- Operating Supply Range . . . . . ±10V to ±15V
- Wide Analog Voltage Range (±15V Supplies) . . . . . ±15V
- TTL Compatible

Applications

- High Speed Multiplexing
- Sample and Hold Circuits
- Digital Filters
- Operational Amplifier Gain Switching Networks
- Integrator Reset Circuits

Pinout

HS1-201HSRH, SBDIP (CDIP2-T16)
HS9-201HSRH, FLATPACK (CDFP4-F16)
TOP VIEW



CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.
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Die Characteristics

DIE DIMENSIONS

2667µm x 4623µm (105 mils x 182 mils)
Thickness: 483µm ±25.4µm (19 mils ±1 mil)

INTERFACE MATERIALS

Glassivation

Type: Phosphorus Silicon Glass (PSG)
Thickness: 8.0kÅ +/-1.0kÅ

Metallization

Type: Ti/AlCu
Thickness: 16.0kÅ +/- 2kÅ

Substrate

Rad Hard Silicon Gate, Dielectric Isolation

Backside Finish

Silicon

ASSEMBLY RELATED INFORMATION

Substrate Potential

Unbiased (DI)

ADDITIONAL INFORMATION

Worst Case Current Density

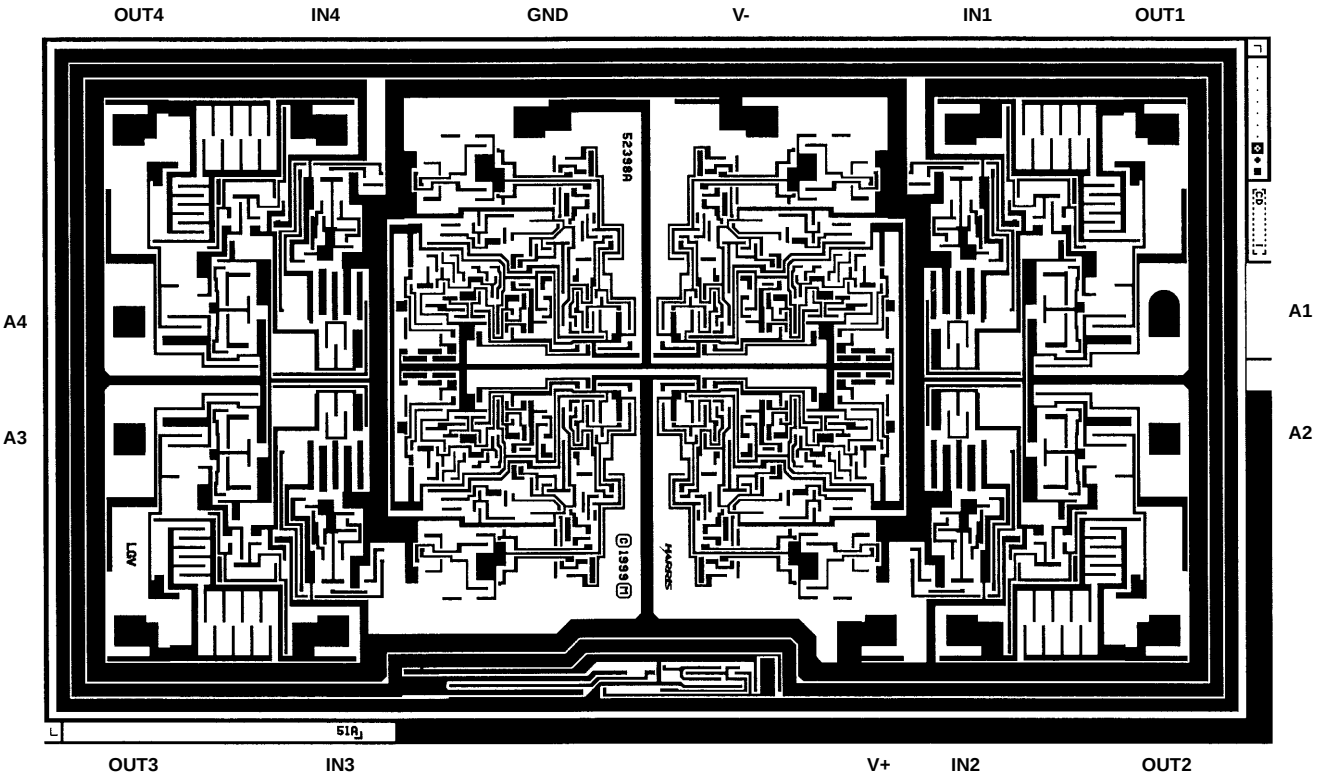
$<2.0 \times 10^5$ A/cm^2

Transistor Count

328

Metallization Mask Layout

HS-201HSRH



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