ISL7119RH, ISL7119EH

Radiation Hardened High Speed Dual Voltage Comparators

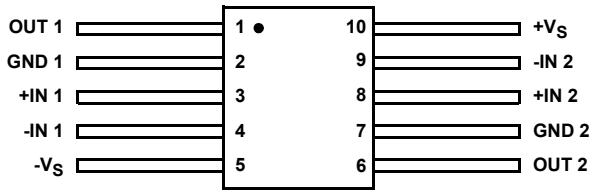
FN6607
Rev 5.00
April 15, 2016

The ISL7119RH, ISL7119EH are radiation hardened, high speed, dual voltage comparators fabricated on a single monolithic chip. They are designed to operate over a wide dual supply voltage range as well as a single 5V logic supply and ground. The open collector output stage facilitates interfacing with a variety of logic devices and has the ability to drive relays and lamps at output currents up to 25mA.

The ISL7119RH, ISL7119EH are fabricated on our dielectrically isolated Radiation Hardened Silicon Gate (RSG) process, which provides immunity to Single Event Latch-Up (SEL) and highly reliable performance in the natural space environment.

Pin Configuration

ISL7119RH, ISL7119EH
(10 LD FLATPACK GDFP1-F10 OR CDFP2-F10)
TOP VIEW



Features

- Electrically screened to DLA SMD # 5962-07215
- QML qualified per MIL-PRF-38535 requirements
- Radiation environment
  - Total dose . . . . . 3×10^5 rad(Si)
  - SEL/SEB . . . . . Immune
- Input offset voltage (V_{IO}) . . . . . 8mV (max)
- Input bias current (I_{BIAS}) . . . . . 1000nA (max)
- Input offset current (I_{IO}) . . . . . 150nA (max)
- Saturation voltage at I_{SINK} = 3.2mA (V_{SAT}) . . . . 0.65V (max)
- Saturation voltage at I_{SINK} = 25mA (V_{SAT}) . . . . . 1.8V (max)
- Response time (t_{PD}) . . . . . 160ns (max)

Applications

- Window detector
- Level shifter
- Relay driver
- Lamp driver

Ordering Information

SMD/ORDERING NUMBER (Note 2)	INTERNAL MKT. NUMBER	PART MARKING	TEMP. RANGE (°C)	PACKAGE (RoHS Compliant)	PKG. DWG. #
5962F0721501QXC	ISL7119RHQF (Note 1)	Q 5962F07 21501QXC	-55 to +125	10 Lead Ceramic Metal Seal Flatpack	K10.A
5962F0721501VXC	ISL7119RHVF (Note 1)	Q 5962F07 21501VXC	-55 to +125	10 Lead Ceramic Metal Seal Flatpack	K10.A
5962F0721502VXC	ISL7119EHVF (Note 1)	Q 5962F07 21502VXC	-55 to +125	10 Lead Ceramic Metal Seal Flatpack	K10.A
5962F0721501V9A	ISL7119RHVX		-55 to +125	Die	
5962F0721502V9A	ISL7119EHVX		-55 to +125	Die	
ISL7119RHF/PROTO	ISL7119RHF/PROTO (Note 1)	ISL7 119RHF /PROTO	-55 to +125	10 Lead Ceramic Metal Seal Flatpack	K10.A
ISL7119RHX/SAMPLE	ISL7119RHX/SAMPLE		-55 to +125	Die	

NOTES:

1. These Intersil Pb-free Hermetic packaged products employ 100% Au plate - e4 termination finish, which is RoHS compliant and compatible with both SnPb and Pb-free soldering operations.
2. Specifications for Rad Hard QML devices are controlled by the Defense Logistics Agency Land and Maritime (DLA). The SMD numbers listed in the "Ordering Information" table must be used when ordering.

Die Characteristics

DIE DIMENSIONS:

2030µm x 2030µm (~80 mils x 80 mils)
Thickness: 483µm ± 25.4µm (19 mils ±1 mil)

INTERFACE MATERIAL:

Glassivation:

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

Top Metallization:

Type: AlSiCu
Thickness: 16.0kÅ ±2kÅ

Substrate:

Radiation Hardened Silicon Gate, Dielectric Isolation

Backside Finish:

Silicon

ASSEMBLY RELATED INFORMATION:

Substrate Potential:

Unbiased (DI)

ADDITIONAL INFORMATION:

Worst Case Current Density:

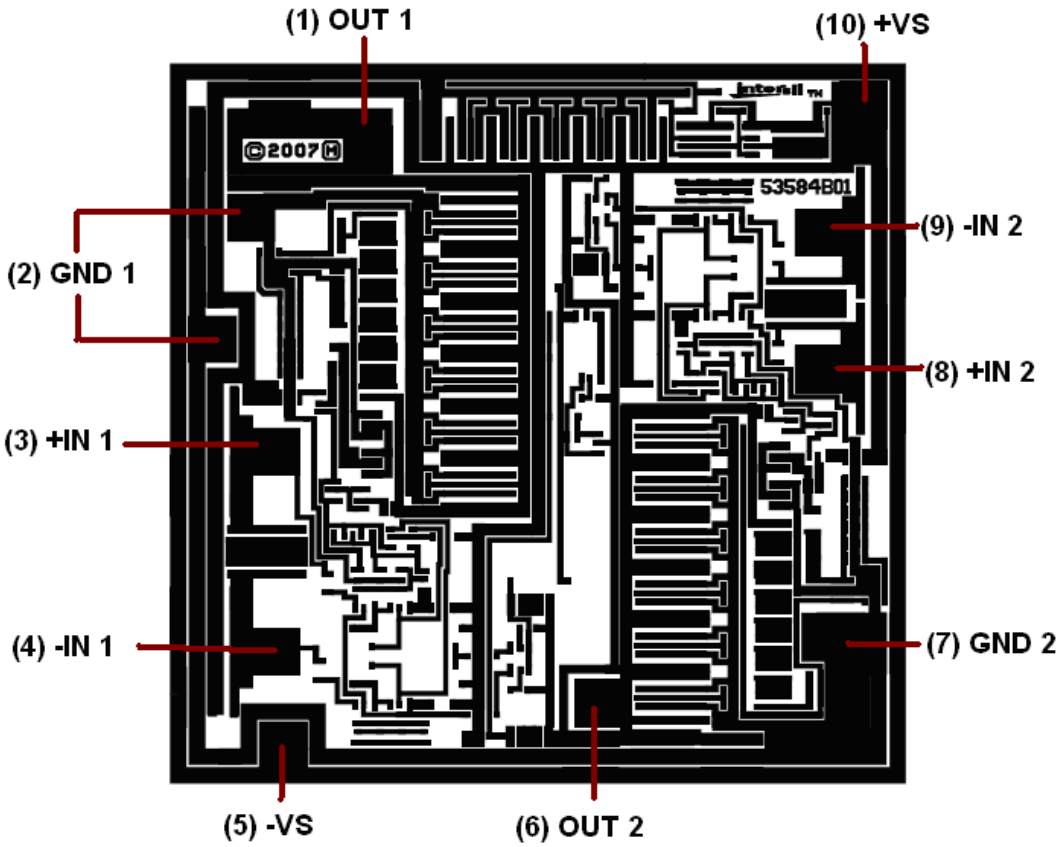
$<2.0 \times 10^5$ A/cm^2

Transistor Count:

66

Metallization Mask Layout

ISL7119RH, ISL7119EH



Revision History

The revision history provided is for informational purposes only and is believed to be accurate, but not warranted. Please go to the web to make sure that you have the latest revision.

DATE	REVISION	CHANGE
April 15, 2016	FN6607.5	Updated package info in ordering information for parts ending in X from 10 Lead Ceramic Metal Seal Flatpack to Die. Added Revision History and About Intersil sections. Added POD K10.A.

About Intersil

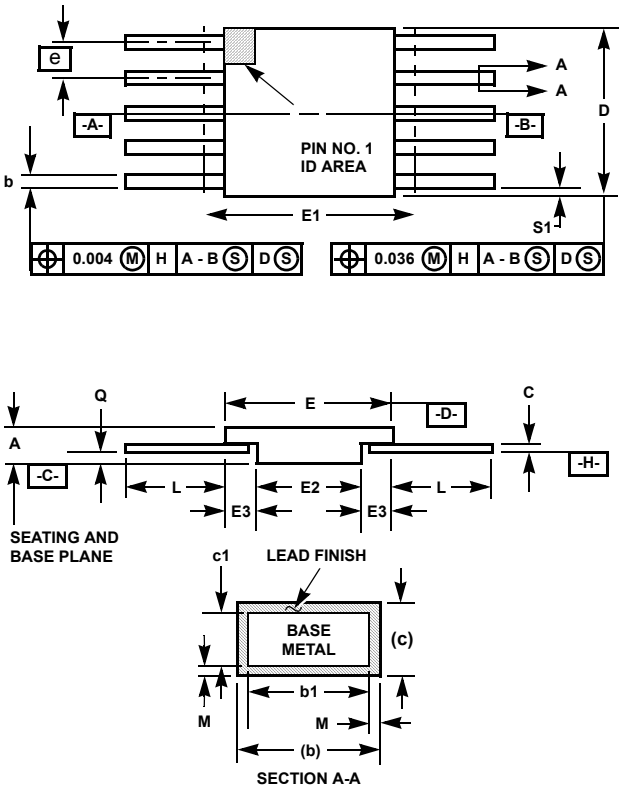
Intersil Corporation is a leading provider of innovative power management and precision analog solutions. The company's products address some of the largest markets within the industrial and infrastructure, mobile computing and high-end consumer markets.

For the most updated datasheet, application notes, related documentation and related parts, please see the respective product information page found at www.intersil.com.

You may report errors or suggestions for improving this datasheet by visiting www.intersil.com/ask.

Reliability reports are also available from our website at www.intersil.com/support.

Ceramic Metal Seal Flatpack Packages (Flatpack)



K10.A MIL-STD-1835 CDFP3-F10 (F-4A, CONFIGURATION B)
10 LEAD CERAMIC METAL SEAL FLATPACK PACKAGE

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.045	0.115	1.14	2.92	-
b	0.015	0.022	0.38	0.56	-
b1	0.015	0.019	0.38	0.48	-
c	0.004	0.009	0.10	0.23	-
c1	0.004	0.006	0.10	0.15	-
D	-	0.290	-	7.37	3
E	0.240	0.260	6.10	6.60	-
E1	-	0.280	-	7.11	3
E2	0.125	-	3.18	-	-
E3	0.030	-	0.76	-	7
e	0.050 BSC		1.27 BSC		-
k	0.008	0.015	0.20	0.38	2
L	0.250	0.370	6.35	9.40	-
Q	0.026	0.045	0.66	1.14	8
S1	0.005	-	0.13	-	6
M	-	0.0015	-	0.04	-
N	10		10		-

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NOTES:

1. Index area: A notch or a pin one identification mark shall be located adjacent to pin one and shall be located within the shaded area shown. The manufacturer's identification shall not be used as a pin one identification mark. Alternately, a tab (dimension k) may be used to identify pin one.
2. If a pin one identification mark is used in addition to a tab, the limits of dimension k do not apply.
3. This dimension allows for off-center lid, meniscus, and glass overrun.
4. Dimensions b1 and c1 apply to lead base metal only. Dimension M applies to lead plating and finish thickness. The maximum limits of lead dimensions b and c or M shall be measured at the centroid of the finished lead surfaces, when solder dip or tin plate lead finish is applied.
5. N is the maximum number of terminal positions.
6. Measure dimension S1 at all four corners.
7. For bottom-brazed lead packages, no organic or polymeric materials shall be molded to the bottom of the package to cover the leads.
8. Dimension Q shall be measured at the point of exit (beyond the meniscus) of the lead from the body. Dimension Q minimum shall be reduced by 0.0015 inch (0.038mm) maximum when solder dip lead finish is applied.
9. Dimensioning and tolerancing per ANSI Y14.5M - 1982.
10. Controlling dimension: INCH.