

## Radiation Hardened Quad Differential Line Receiver

Intersil's Satellite Applications Flow™ (SAF) devices are fully tested and guaranteed to 100kRAD total dose. These QML Class T devices are processed to a standard flow intended to meet the cost and shorter lead-time needs of large volume satellite manufacturers, while maintaining a high level of reliability.

The Intersil HS-26C32RH-T is a Quad Differential Line Receiver designed for digital data transmission over balanced lines and meets the requirements of EIA Standard RS-422. Radiation Hardened CMOS processing assures low power consumption, high speed, and reliable operation in the most severe radiation environments.

The HS-26C32RH-T has an input sensitivity of 200mV (typ). over the common mode input voltage range of ±7V. The receivers are also equipped with input fail safe circuitry, which causes the outputs to go to a logic "1" when the inputs are open. Enable and Disable functions are common to all four receivers.

### Specifications

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

**Detailed Electrical Specifications for the HS-26C32RH-T are contained in SMD 5962-95689.** A "hot-link" is provided from our website for downloading.

<http://www.intersil.com/military/>

Intersil's Quality Management Plan (QM Plan), listing all Class T screening operations, is also available on our website.

<http://rel.intersil.com/reports/search.php>

### Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	PART MARKING	TEMP. RANGE (°C)	PACKAGE	PKG. DWG. #
5962R9568901TEC	HS1-26C32RH-T	Q 5962R95 68901TEC	-55 to +125	16 Ld SBDIP	D16.3
HS1-26C32RH/PROTO	HS1-26C32RH/PROTO	HS1- 26C32RH /PROTO	-55 to +125	16 Ld SBDIP	D16.3
5962R9568901TXC	HS9-26C32RH-T	Q 5962R95 68901TXC	-55 to +125	16 Ld FLATPACK	K16.A
HS9-26C32RH/PROTO	HS9-26C32RH/PROTO	HS9- 26C32RH /PROTO	-55 to +125	16 Ld FLATPACK	K16.A

NOTE: Minimum order quantity for -T is 150 units through distribution, or 450 units direct.

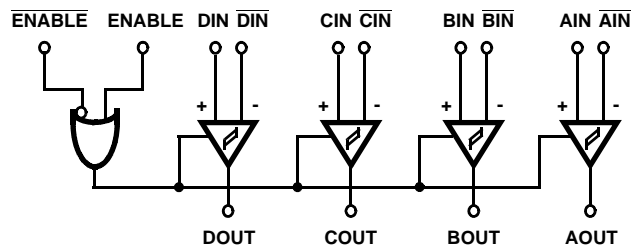
### Features

- QML Class T, Per MIL-PRF-38535
- Radiation Performance
  - Gamma Dose . . . . .  $1 \times 10^5$  RAD(Si)
  - SEU and SEL . . . . . Immune to 100MeV/mg/cm<sup>2</sup>
- EIA RS-422 Compatible Inputs
- CMOS Compatible Enable Inputs
- Input Fail Safe Circuitry
- High Impedance Inputs when Disabled or Powered Down
- Low Power Dissipation 138mW Standby (Max)
- Single 5V Supply
- Full -55°C to +125°C Military Temperature Range

### Applications

- Line Receiver for MIL-STD-1553 Serial Data Bus

### Functional Diagram



Pinouts

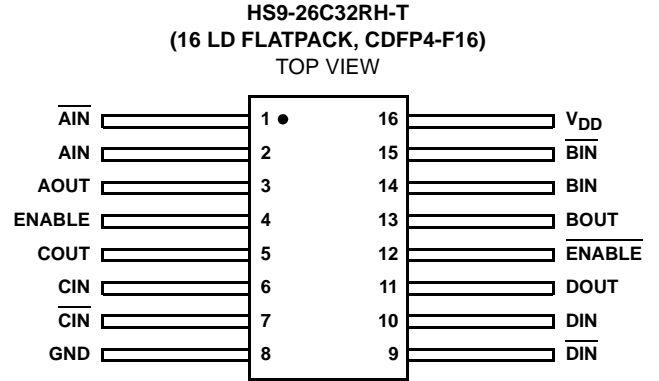
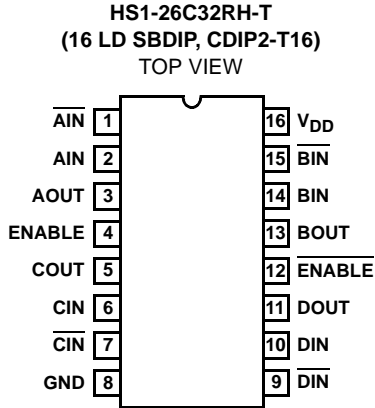


TABLE 1. TRUTH TABLE

DEVICE POWER ON/OFF	INPUTS			OUTPUT
	ENABLE	$\overline{\text{ENABLE}}$	INPUT	OUT
ON	0	1	X	HI-Z
ON	1	X	$\text{VID} \geq \text{VTH (Max)}$	1
ON	1	X	$\text{VID} \leq \text{VTH (Min)}$	0
ON	X	0	$\text{VID} \geq \text{VTH (Max)}$	1
ON	X	0	$\text{VID} \leq \text{VTH (Min)}$	0
ON	1	X	Open	1
ON	X	0	Open	1

**Die Characteristics**

**DIE DIMENSIONS:**

2140µm x 3290µm x 533µm ±25.4µm  
(85 x 130 x 21mils ±1mil)

**METALLIZATION:**

M1: Mo/TiW  
Thickness: 5800Å  
M2: Al/Si/Cu  
Thickness: 10kÅ ±1kÅ

**SUBSTRATE POTENTIAL:**

Internally connected to V<sub>DD</sub>. May be left floating.

**BACKSIDE FINISH:**

Silicon

**PASSIVATION:**

Type: SiO<sub>2</sub>  
Thickness: 8kÅ ±1kÅ

**WORST CASE CURRENT DENSITY:**

< 2.0e5 A/cm<sup>2</sup>

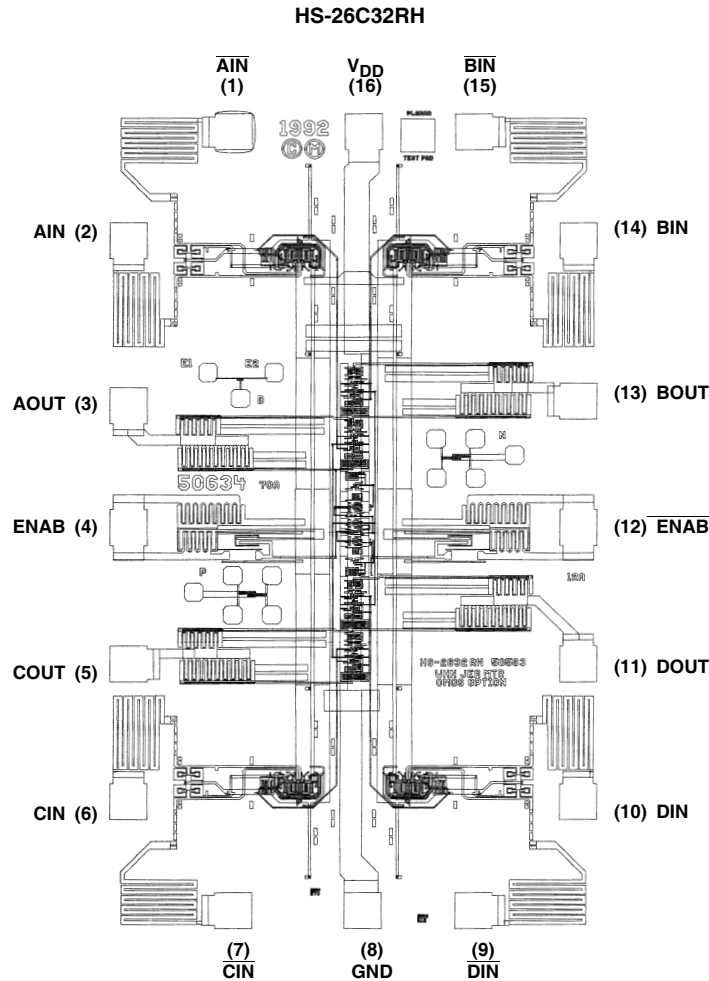
**TRANSISTOR COUNT:**

315

**PROCESS:**

Radiation Hardened CMOS, AVLSI

**Metallization Mask Layout**



All Intersil U.S. products are manufactured, assembled and tested utilizing ISO9000 quality systems. Intersil Corporation's quality certifications can be viewed at [www.intersil.com/design/quality](http://www.intersil.com/design/quality)

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