

HS-26CT32RH-T

Radiation Hardened Quad Differential Line Receiver

FN4593  
Rev 1.00  
July 1999

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-26CT32RH-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-26CT32RH-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. TTL compatible 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.

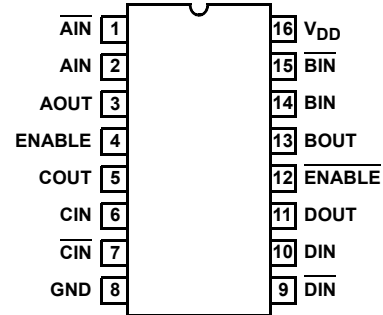
**Detailed Electrical Specifications for the HS-26CT32RH-T are contained in SMD 5962-95631.** A "hot-link" is provided from our website for downloading.

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

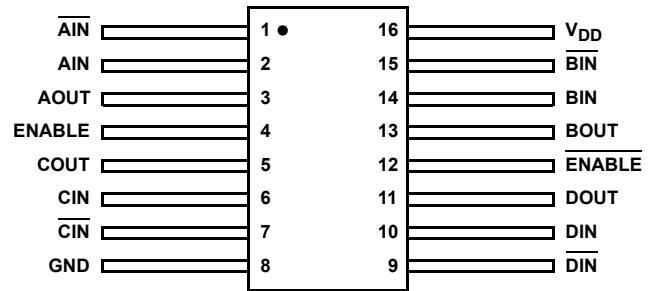
- QML Class T, Per MIL-PRF-38535
- Radiation Performance
  - Gamma Dose . . . . .  $1 \times 10^5$  RAD(Si)
  - SEU and SEL . . . . . Immune to 100MeV/mg/cm<sup>2</sup>
- EIA RS-422 Compatible Inputs
- TTL Compatible Enable Inputs
- Input Fail Safe Circuitry
- High Impedance Inputs when Disabled or Powered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

**Pinouts**

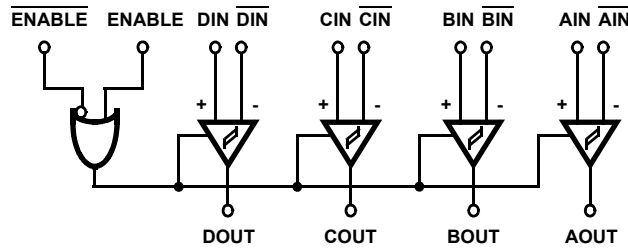
HS1-26CT32RH-T (SBDIP) CDIP2-T16  
TOP VIEW



HS9-26CT32RH-T (FLATPACK), CDFP4-F16  
TOP VIEW



**Functional Diagram**



**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

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**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**

