

HS-26C31RH-T

Radiation Hardened Quad Differential Line Driver

FN4591
Rev 2.00
August 1, 2008

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-26C31RH-T is a Quad Differential Line Driver 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-26C31RH-T accepts CMOS inputs and converts them to RS-422 compatible outputs. This circuit uses special outputs that enable the drivers to power-down without loading down the bus. Enable and disable pins allow several devices to be connected to the same data source and addressed independently.

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-1840ARH-T are contained in SMD 5962-96663. A "hot-link" is provided from our website for downloading.

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>

Features

- QML Class T, Per MIL-PRF-38535
- Radiation Performance
 - Gamma Dose 1×10^5 RAD(Si)
 - SEU and SEL Immune to 100MeV/mg/cm²
- EIA RS-422 Compatible Outputs (Except for IOS)
- CMOS Compatible Inputs
- High Impedance Outputs when Disabled or Powered Down
- Low Power Dissipation 2.75mW Standby (Max)
- Single 5V Supply
- Low Output Impedance 10Ω or Less
- Full -55°C to +125°C Military Temperature Range

Applications

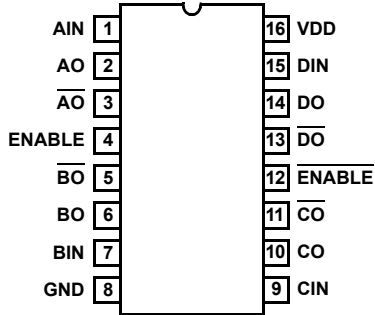
- Line Transmitter for MIL-STD-1553 Serial Data Bus

Ordering Information

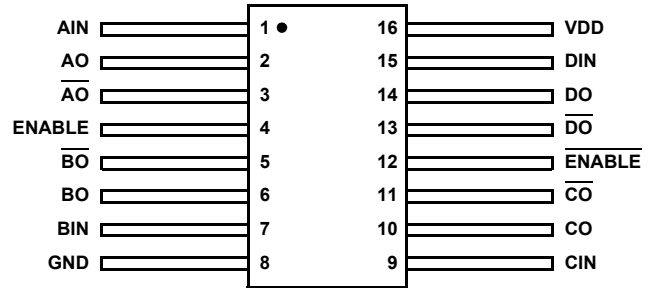
| ORDERING NUMBER | INTERNAL MKT. NUMBER | PART MARKING # | TEMP. RANGE (°C) | PACKAGE | PKG. DWG. # |
|-------------------|----------------------|---------------------|------------------|----------------|-------------|
| 5962R9666301TEC | HS1-26C31RH-T | Q 5962R96 66301TEC | -55 to +125 | 16 LD SBDIP | D16.3 |
| HS1-26C31RH/PROTO | HS1-26C31RH/PROTO | HSI - 26C31RH/PROTO | -55 to +125 | 16 LD SBDIP | D16.3 |
| 5962R9666301TXC | HS9-26C31RH-T | Q 5962R96 63201TEC | -55 to +125 | 16 LD FLATPACK | K16.A |
| HS9-26C31RH/PROTO | HS9-26C31RH/PROTO | HS9 - 26C31RH/PROTO | -55 to +125 | 16 LD FLATPACK | K16.A |

Pinouts

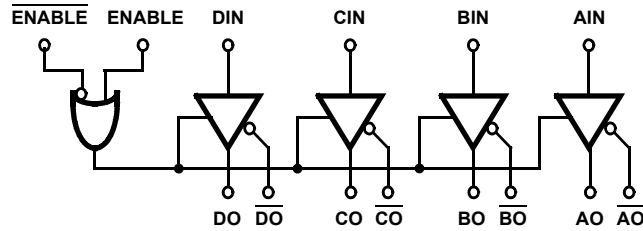
HS1-26C31RH-T
(16 LD SBDIP), CDIP-T16
TOP VIEW



HS9-26C31RH-T
(16 LD FLATPACK), CDIP4-F16
TOP VIEW



Logic Diagram



TRUTH TABLE

| DEVICE POWER ON/OFF | INPUTS | | | OUTPUT | |
|---------------------|--------|----------------------------|----|--------|-------------------------|
| | ENABLE | $\overline{\text{ENABLE}}$ | IN | OUT | $\overline{\text{OUT}}$ |
| ON | 0 | 1 | X | HI-Z | HI-Z |
| ON | 1 | X | 0 | 0 | 1 |
| ON | X | 0 | 0 | 0 | 1 |
| ON | 1 | X | 1 | 1 | 0 |
| ON | X | 0 | 1 | 1 | 0 |
| OFF (0V) | X | X | X | HI-Z | HI-Z |

Die Characteristics

DIE DIMENSIONS:

2450µm x 4950µm x 533µm ±25.4µm
 (97 x 195 x 21mils ±1mil)

METALLIZATION:

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

SUBSTRATE POTENTIAL:

Internally connected to V_{DD}.
 May be left floating.

BACKSIDE FINISH:

Silicon

PASSIVATION:

Type: SiO₂
 Thickness: 8kÅ ±1kÅ

WORST CASE CURRENT DENSITY:

< 2.0e5 A/cm²

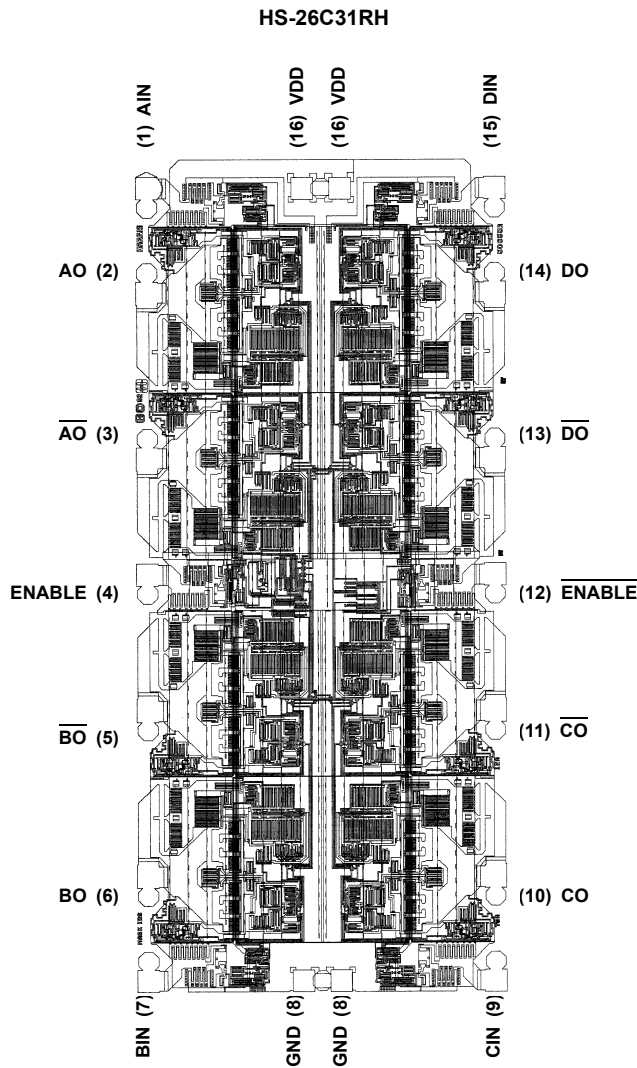
TRANSISTOR COUNT:

285

PROCESS:

Radiation Hardened CMOS, AVLSI

Metallization Mask Layout



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