Radiation Hardened 3.3V Quad Differential Line Drivers

HS-26CLV31RH, HS-26CLV31EH

The Intersil HS-26CLV31RH, HS-26CLV31EH are radiation hardened 3.3V quad differential line drivers designed for digital data transmission over balanced lines, in low voltage, RS-422 protocol applications. CMOS processing assures low power consumption, high speed, and reliable operation in the most severe radiation environments.

The HS-26CLV31RH, HS-26CLV31EH accept CMOS level inputs and converts them to differential outputs. Enable pins allow several devices to be connected to the same data source and addressed independently. These devices have unique outputs that become high impedance when the driver is disabled or powered-down, maintaining signal integrity in multi-driver applications.

Specifications for Rad Hard QML devices are controlled by the Defense Logistics Agency Land and Maritime (DLA). The SMD numbers listed here must be used when ordering.

Detailed Electrical Specifications for these devices are contained in SMD 5962-96663. A "hot-link" is also provided on our homepage for downloading.

Features

- Electrically screened to SMD # 5962-96663
- QML qualified per MIL-PRF-38535 requirements
- 1.2 micron radiation hardened CMOS
  - Total dose . . . . . 300 krad(Si)(max)
  - Single event upset LET . . . . . 100MeV/mg/cm^2)
  - Single event latch-up immune
- Extremely low stand-by current . . . . . 100µA (max)
- Operating supply range . . . . . 3.0V to 3.6V
- CMOS level inputs . . . . . V_{IH} > (0.7)(V_{DD}); V_{IL} < (0.3)(V_{DD})
- Differential outputs . . . . . V_{OH} > 1.8V; V_{OL} < 0.5V
- High impedance outputs when disabled or powered down
- Low output impedance . . . . . 10Ω or less
- Full -55°C to +125°C military temperature range
- Pb-Free (RoHS Compliant)

Applications

- Line transmitter for MIL-STD-1553 serial data bus

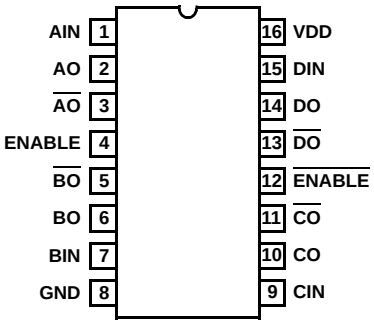
Ordering Information

ORDERING NUMBER (Note)	INTERNAL MKT. NUMBER	PART MARKING	TEMP. RANGE (°C)	PACKAGE (RoHS Compliant)	PKG. DWG. #
5962F9666302QEC	HS1-26CLV31RH-8	Q 5962F96 66302QEC	-55 to +125	16 Ld SBDIP	D16.3
5962F9666302QXC	HS9-26CLV31RH-8	Q 5962F96 66302QXC	-55 to +125	16 Ld FLATPACK	K16.A
5962F9666302VEC	HS1-26CLV31RH-Q	Q 5962F96 66302VEC	-55 to +125	16 Ld SBDIP	D16.3
5962F9666302VXC	HS9-26CLV31RH-Q	Q 5962F96 66302VXC	-55 to +125	16 Ld FLATPACK	K16.A
5962F9666302V9A	HS0-26CLV31RH-Q		-55 to +125	Die	
HS1-26CLV31RH/PROTO	HS1-26CLV31RH/PROTO	HS1-26CLV31RH/PROTO	-55 to +125	16 Ld SBDIP	D16.3
HS9-26CLV31RH/PROTO	HS9-26CLV31RH/PROTO	HS9-26CLV31RH/PROTO	-55 to +125	16 Ld FLATPACK	K16.A
5962F9666304VEC	HS1-26CLV31EH-Q	Q 5962F96 66304VEC	-55 to +125	16 Ld SBDIP	D16.3
5962F9666304VXC	HS9-26CLV31EH-Q	Q 5962F96 66304VXC	-55 to +125	16 Ld FLATPACK	K16.A
5962F9666304V9A	HS0-26CLV31EH-Q		-55 to +125	Die	
HS0-26CLV31RH/SAMPLE	HS0-26CLV31RH/SAMPLE		-55 to +125	Die	

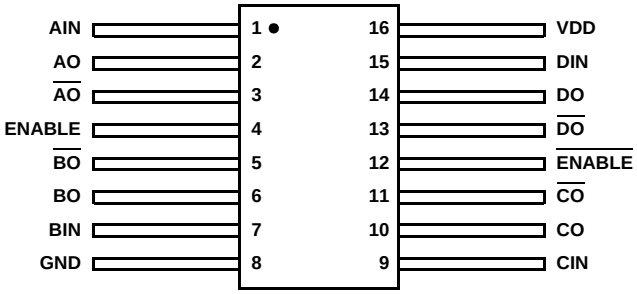
NOTE: These Intersil Pb-free Hermetic packaged products employ 100% Au plate - e4 termination finish, which is RoHS compliant and compatible with both SnPb and Pb-free soldering operations.

Pin Configurations

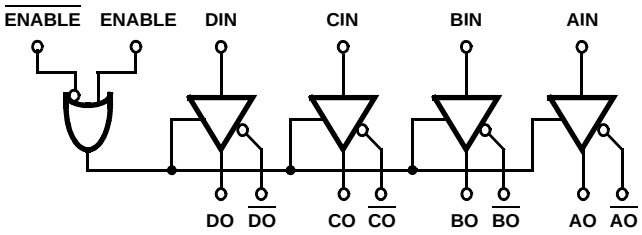
HS1-26CLV31RH, HS1-26CLV31EH
(16 LD SBDIP)
CDIP2-T16
TOP VIEW



HS9-26CLV31RH, HS9-26CLV31EH
(16 LD FLATPACK)
CDFP4-F16
TOP VIEW



Logic Diagram



Die Characteristics

DIE DIMENSIONS:

96.5 mil x 195 mils x 21 mils
(2450 x 4950)

INTERFACE MATERIALS:

Glassivation:

Type: PSG (Phosphorus Silicon Glass)
Thickness: 8kÅ ±1kÅ

Metallization:

Bottom: Mo/TiW
Thickness: 5800Å ±1kÅ
Top: AlSiCu (Top)
Thickness: 10kÅ ±1kÅ

Substrate:

AVLSI1RA

Backside Finish:

Silicon

ASSEMBLY RELATED INFORMATION:

Substrate Potential (Powered Up):

V_{DD}

ADDITIONAL INFORMATION:

Worst Case Current Density:

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

Bond Pad Size:

110µm x 100µm

Metallization Mask Layout

HS-26CLV31RH, HS-26CLV31EH

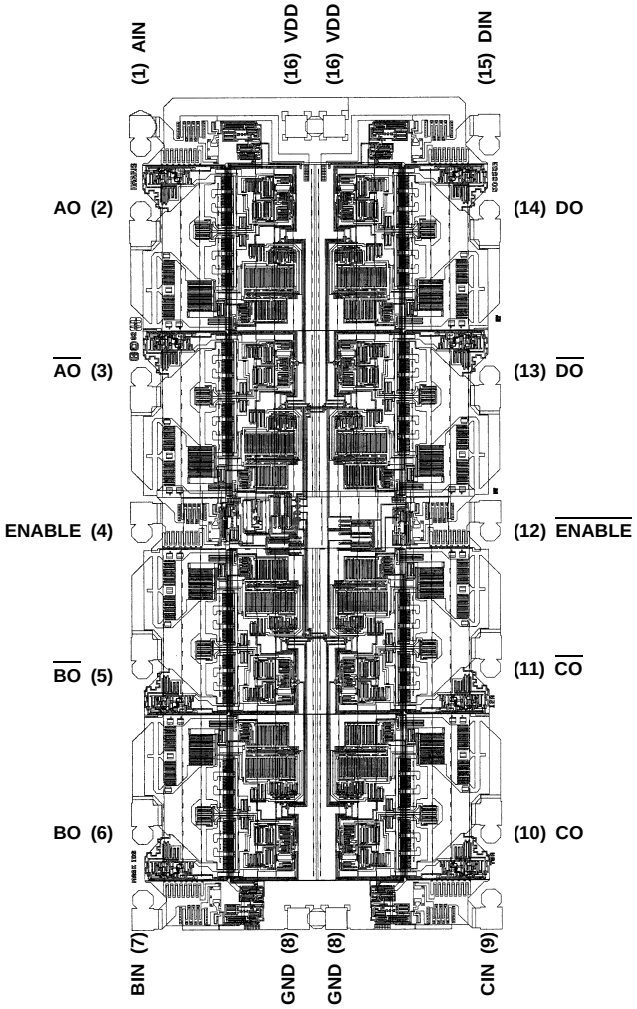


TABLE 1. HS-26CLV31RH, HS-26CLV31EH PAD COORDINATES

		RELATIVE TO PIN 1	
PIN NUMBER	PAD NAME	X COORDINATES	Y COORDINATES
1	AIN	0	0
2	A0	0	-570.7
3	$\overline{A0}$	0	-1483.5
4	ENABLE	0	-2124.8
5	$\overline{B0}$	0	-2873.5
6	B0	0	-3786.3
7	BIN	0	-4357
8	GND	852.4	-4357
8	GND	1062.4	-4357
9	CIN	1912.8	-4357
10	$\overline{C0}$	1912.8	-3786.3
11	C0	1912.8	-2873.5
12	$\overline{ENABLE}$	1912.8	-2124.8
13	$\overline{D0}$	1912.8	-1483.5
14	D0	1912.8	-570.7
15	DIN	1912.8	0
16	VIN	1062.4	0
16	VIN	852.4	0

NOTE: Dimensions in microns