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HS-26C32RH, HS-26C32EH

Radiation Hardened Quad Differential Line Receiver

The Intersil HS-26C32RH, HS-26C32EH are differential line receivers 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, HS-26C32EH have an input sensitivity typically of 200mV over the common mode input voltage range of \pm 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 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.

Detailed Electrical Specifications for these devices are contained in SMD<u>5962-95689</u>. A "hot-link" is provided on our homepage for downloading

Features

- Electrically screened to SMD #<u>5962-95689</u>
- QML qualified per MIL-PRF-38535 requirements
- 1.2 micron radiation hardened CMOS
- Total dose 300 krad(Si) (max)
- Latch-up free
- EIA RS-422 compatible inputs
- CMOS compatible outputs
- · 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

INTERNAL MKT. NUMBER	PART MARKING	TEMP. RANGE (°C)	PACKAGE (Pb-free)	PKG. DWG. #		
HS1-26C32RH-8	Q 5962F95 68901QEC	-55 to +125	16 Ld SBDIP	D16.3		
HS9-26C32RH-8	Q 5962F95 68901QXC	-55 to +125	16 Ld FLATPACK	K16.A		
HS0-26C32RH-Q		-55 to +125	Die			
HS0-26C32RH/SAMPLE		-55 to +125	Die			
HS1-26C32RH-Q	Q 5962F95 68901VEC	-55 to +125	16 Ld SBDIP	D16.3		
HS9-26C32RH-Q	Q 5962F95 68901VXC	-55 to +125	16 Ld FLATPACK	K16.A		
HS1-26C32RH/PROTO	HS1- 26C32RH / PROTO	-55 to +125	16 Ld SBDIP	D16.3		
HS9-26C32RH/PROTO	HS9-26C32RH/PROTO	-55 to +125	16 Ld FLATPACK	K16.A		
HS1-26C32EH-Q	Q 5962F95 68903VEC	-55 to +125	16 Ld SBDIP	D16.3		
HS9-26C32EH-Q	Q 5962F95 68903VXC	-55 to +125	16 Ld FLATPACK	K16.A		
HS0-26C32EH-Q	Q 5962F95 68903V9A	-55 to +125	Die			
HS9G-26C32RH-Q (Note 2)	Q 5962F95 68901VYC	-55 to +125	16 Ld FLATPACK	K16.A		
HS9G-26C32RH/PROTO (Note 2)	HS9G-26C32RH/PROTO	-55 to +125	16 Ld FLATPACK	K16.A		
	INTERNAL MKT. NUMBER HS1-26C32RH-8 HS9-26C32RH-Q HS0-26C32RH-Q HS0-26C32RH-Q HS1-26C32RH-Q HS1-26C32RH-Q HS1-26C32RH-Q HS1-26C32RH-Q HS1-26C32RH-Q HS1-26C32RH/PROTO HS1-26C32RH/PROTO HS1-26C32RH/PROTO HS1-26C32RH/PROTO HS1-26C32RH/PROTO HS1-26C32EH-Q HS0-26C32EH-Q HS9-26C32RH-Q (Note 2) HS9G-26C32RH/PROTO (Note 2)	INTERNAL MKT. NUMBER PART MARKING HS1-26C32RH-8 Q 5962F95 68901QEC HS9-26C32RH-8 Q 5962F95 68901QXC HS0-26C32RH-Q HS0-26C32RH-Q HS0-26C32RH-Q Q 5962F95 68901QXC HS0-26C32RH-Q Q 5962F95 68901VEC HS1-26C32RH-Q Q 5962F95 68901VXC HS1-26C32RH/PROTO HS1- 26C32RH / PROTO HS1-26C32RH/PROTO HS1- 26C32RH / PROTO HS1-26C32RH/PROTO HS9- 26C32RH / PROTO HS1-26C32EH-Q Q 5962F95 68903VEC HS9-26C32EH-Q Q 5962F95 68903VXC HS0-26C32EH-Q Q 5962F95 68903VYAC HS9-26C32EH-Q Q 5962F95 68903VYAC HS9-26C32EH-Q Q 5962F95 68903VYC HS9-26C32EH-Q Q 5962F95 68903VYAC HS9G-26C32EH-Q (Note 2) Q 5962F95 68903VYAC HS9G-26C32RH/PROTO (Note 2) HS9G-26C32RH/PROTO	INTERNAL MKT. NUMBER PART MARKING TEMP. RANGE (°C) HS1-26C32RH-8 Q 5962F95 68901QEC -55 to +125 HS9-26C32RH-8 Q 5962F95 68901QXC -55 to +125 HS0-26C32RH-Q -55 to +125 HS0-26C32RH/Q -55 to +125 HS0-26C32RH/Q -55 to +125 HS0-26C32RH/Q Q 5962F95 68901VEC -55 to +125 HS1-26C32RH-Q Q 5962F95 68901VEC -55 to +125 HS9-26C32RH/PROTO HS1- 26C32RH /PROTO -55 to +125 HS9-26C32RH/PROTO HS1- 26C32RH /PROTO -55 to +125 HS9-26C32RH/PROTO U 5962F95 68903VEC -55 to +125 HS9-26C32RH/PROTO Q 5962F95 68903VEC -55 to +125 HS9-26C32EH-Q Q 5962F95 68903VEC -55 to +125 HS9-26C32EH-Q Q 5962F95 68903VXC -55 to +125 HS9-26C32EH-Q Q 5962F95 68903VPA -55 to +125 HS9-26C32EH-Q Q 5962F95 68903VPA -55 to +125 HS9-26C32RH-Q (Note 2) Q 5962F95 68901VYC -55 to +125 HS96-26C32RH-Q (Note 2) Q 5962F95 68901VYC -55 to +125<	INTERNAL MKT. NUMBER PART MARKING TEMP. RANGE (°C) PACKAGE (Pb-free) HS1-26C32RH-8 Q 5962F95 68901QEC -55 to +125 16 Ld SBDIP HS9-26C32RH-8 Q 5962F95 68901QXC -55 to +125 16 Ld FLATPACK HS0-26C32RH-Q - -55 to +125 16 Ld FLATPACK HS0-26C32RH/Q Q 5962F95 68901VEC -55 to +125 Die HS0-26C32RH/SAMPLE Q 5962F95 68901VEC -55 to +125 16 Ld SBDIP HS9-26C32RH-Q Q 5962F95 68901VEC -55 to +125 16 Ld SBDIP HS9-26C32RH-Q Q 5962F95 68901VEC -55 to +125 16 Ld SBDIP HS9-26C32RH-Q Q 5962F95 68901VXC -55 to +125 16 Ld SBDIP HS9-26C32RH/PROTO HS1- 26C32RH /PROTO -55 to +125 16 Ld FLATPACK HS1-26C32RH/PROTO HS9- 26C32RH /PROTO -55 to +125 16 Ld FLATPACK HS1-26C32EH-Q Q 5962F95 68903VXC -55 to +125 16 Ld FLATPACK HS0-26C32EH-Q Q 5962F95 68903VXC -55 to +125 16 Ld FLATPACK HS0-26C32EH-Q Q 5962F95 68903VYA -55 to +125 16 Ld FLATPACK <		

Ordering Information

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.

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2. The lid of these packages are connected to the ground pin of the device.



DATASHEET

FN3402 Rev 5.00 May 28, 2013

Logic Diagram



Pin Configurations



Propagation Delay Timing Diagram



HS9-26C32RH, HS9-26C32EH (16 LD FLATPACK) MIL-STD-1835: CDFP4-F16 TOP VIEW 1. 16 J VDD 2 BIN 15 3 BIN 14 ENABLE 4 13 BOUT COUT E 5 12 6 11 CIN 10 DIN 7 GND C 8 9

Three-State Low Timing Diagram



Propagation Delay Load Circuit



Three-State High Timing Diagrams



TABLE 1. THREE-STATE LOW VOLTAGE LEVELS

PARAMETER	HS-26C32RH HS-26C32EH	UNITS
V _{DD}	4.50	v
V _{IH}	4.50	v
V _S	2.25	v
ν _T	50	%
v _w	V _{OL} + 0.5	v
GND	0	v

Three-State Low Load Circuit



TABLE 2. THREE-STATE HIGH VOLTAGE LEVELS

PARAMETER	HS-26C32RH HS-26C32EH	UNITS
V _{DD}	4.50	v
v _{IH}	4.50	v
V _S	2.25	v
ν _T	50	%
v _w	V _{OH} - 0.5	v
GND	0	v

Three-State High Load Circuit



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Die Characteristics

DIE DIMENSIONS:

78 mils x 123 mils (1970µm x 3120µm)

INTERFACE MATERIALS:

Glassivation:

Type: SiO₂ Thickness: $10k\text{\AA} \pm 1k\text{\AA}$

Metallization Mask Layout

Top Metallization:

M1: Mo/Tiw Thickness: 5800Å M2: Al/Si/Cu Thickness: 5800Å

Worst Case Current Density:

<2.0 x 10⁵A/cm²

Bond Pad Size:

110µm x 100µm

