1Mbps RS-232 Transceivers with 1.65~5.5V Interface

Description

The RS3122 is IEC61000-4-2 ESD protected, support 3.0V to 5.5V power with a 1.65V to 5.5V logic interface that meets the RS-232 standards. Each receiver converts TIA/RS-232 inputs to TTL/CMOS levels.

The chip operates at data signaling rates up to 1000kbps. The RS3122 is available in 24-Pin QFN4x4 package, and is characterized from: -40°C to 125°C.

The AUTO ON-LINE feature allows the chip to automatically "wake-up" during a shutdown state when an RS-232 cable is connected and the device is turned on.

Applications

- Battery-Powered Equipment
- Industry Human Machine Interface
- Notebook, Computers
- Printers

Features

- Meets the Requirements of TIA / EIA-232-F and ITU V.28 Standards
- Power Supply Range:
  Single power supplier from +3.0V to 5.5V
- 1.65V to 5.5V Logic Interface V_L pin
- Two Drivers and Two Receivers
- Operates up to 1Mbps
- Requires Only Four External 0.1μF Capacitors
- ESD Protection for RS-232 Bus Pins
  ±15kV (HBM)
  ±12kV (IEC61000-4-2, Contact Discharge)
  ±15kV (IEC61000-4-2, Air-Gap Discharge)

Device Table

Device	Package	Body size
RS3122	QFN24	4.0mm x 4.0mm

Function Block

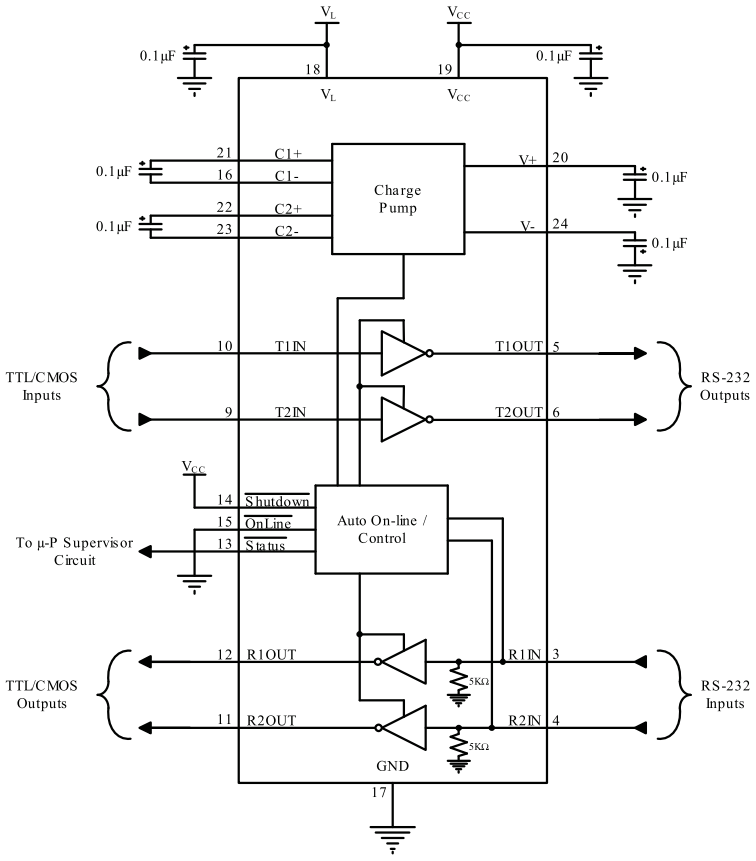
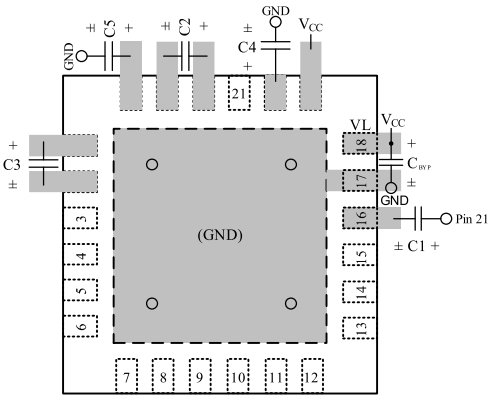
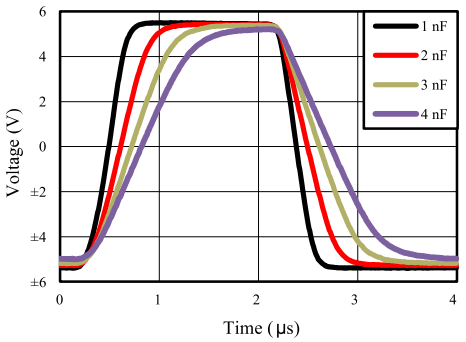


Figure 1. Typical Application

Layout Example



RS3122 Typical Layout

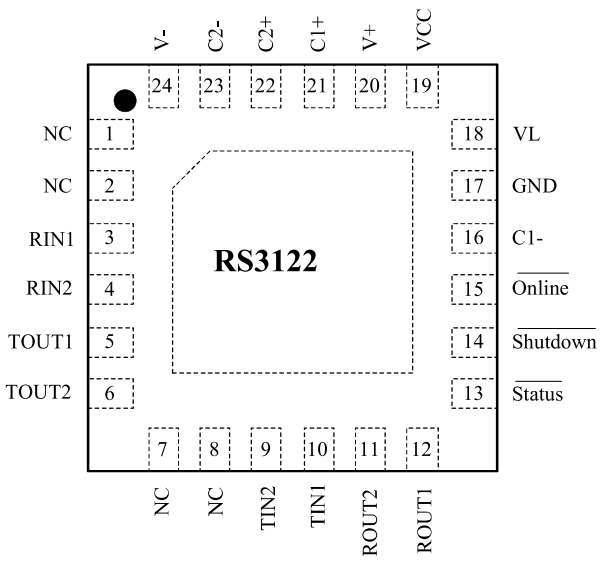


Typical Waveform with Capacitive Load

V_{CC}=3.3V, R_{LOAD}=3kΩ, Date Rate=500kbps

Pin Configuration

(TOP VIEW)



QFN-4x4-24L

Pin Description

Pin No.	Symbol	I/O Type	Description
1, 2	NC	-	No Connect (not connect to the die). Can be left floating
3, 4	RIN1, RIN2	I	RS-232 receiver inputs
5, 6	TOUT1, TOUT2	O	RS-232 driver outputs
7, 8	NC	-	No Connect (not connect to the die). Can be left floating
9,10	TIN1, TIN2	I	TTL/CMOS Driver inputs
11,12	ROUT1, ROUT2	O	TTL/CMOS Receiver outputs
13	$\overline{\text{Status}}$	O	TTL/CMOS level output indicating if no valid RS-232 levels are present at the RI1N or RIN2 pins.
14	$\overline{\text{Shutdown}}$	I	TTL/CMOS level input, when driven low puts the RS232 into shutdown mode (tri-stating driver outputs and disabling the charge-pump); normal operation when driven high. Internal weak pull down, if leave the pin floating, then $\overline{\text{Shutdown}}$ = LOW as default
15	$\overline{\text{Online}}$	I	TTL/CMOS level input. A low input enables Auto On-Line mode, a high input disables Auto On-Line Mode. Internal weak pull down, if leave the pin floating, then $\overline{\text{Online}}$ = LOW as default
16	C1–	-	Negative terminals of voltage-double charge-pump capacitors (required)
17	GND	-	Ground
18	V_L	-	I/O Power supply. All CMOS inputs (TINx) and outputs (ROUTx) are referenced to this supply.
19	Vcc	-	3V to 5.5V supply voltage
20	V+	-	Positive charge pump storage capacitor (required), suggest 0.2uF cap to GND
21, 22	C1+, C2+	-	Positive terminals of voltage-double charge-pump capacitors (required), suggest 0.2uF cap connect to negative pin (C1-, C2-)
23	C2-	-	Negative terminals of voltage-double charge-pump capacitors (required)
24	V–	-	Negative charge pump storage capacitor (required), suggest 0.2uF cap to GND

Order Information

Part Number	Voltage Range	Features	Operating Temperature	Package Type	Top Mark	SPQ
RS3122N24	1.65V ~ 5.5V	● 1Mbps RS-232 Transceivers ● TIA/EIA-232-F&ITU V.28 Std. ● Two Drivers & Two Receivers ● MSL3	-40°C to 125°C	QFN4*4-24L	RS3122 FH X Y Z	3000PCS/Reel

Note:

- **RS3122** devices are Pb-free and RoHs compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
- If you have any other custom purchase needs, please contact our sales department.

ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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