



# SP3223EH/3243EH

## High Speed Intelligent +3.0V to +5.5V RS-232 Transceivers

### features

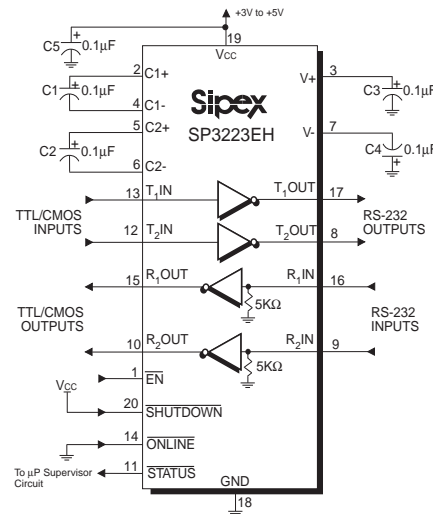
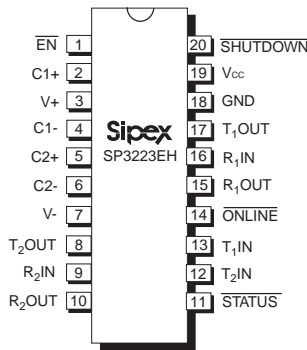
- Meets true EIA/TIA-232-F standards from a +3.0V to +5.5V power supply
- Interoperable with EIA/TIA-232 and adheres to EIA/TIA-562 down to a +2.7V power source
- AUTO ON-LINE™ circuitry automatically wakes up from a 1mA shutdown
- Regulated charge pump yields stable RS-232 outputs regardless of V<sub>CC</sub> variations
- Enhanced ESD specifications:
  - ±15kV Human Body Model
  - ±15kV IEC1000-4-2 Air Discharge
  - ±8kV IEC1000-4-2 Contact Discharge
- 460 kbps minimum transmission rate
- Ideal for high speed RS-232 applications

### description

The SP3223EH and 3243EH products are RS-232 transceiver solutions intended for portable or hand-held applications such as notebook and palmtop computers. The "H" series is based on Sipex's SP3223E/3243E series and has been enhanced for high speed. The data rate is improved to 460kbps, easily meeting the demands of high speed RS-232 applications. The SP3223EH and 3243EH use an internal high-efficiency, charge-pump power supply that requires only 0.1µF capacitors in 3.3V operation. This charge pump and Sipex's driver architecture allow the SP3223EH/3243EH series to deliver compliant RS-232 performance from a single power supply ranging from +3.3V to +5.0V. The SP3223EH is a 2-driver/2-receiver device, and the SP3243EH is a 3-driver/5-receiver device, ideal for laptop/notebook computer and PDA applications. The SP3243EH includes one complementary receiver that remains alert to monitor an external device's Ring Indicate signal while the device is shutdown.

The AUTO ON-LINE™ feature allows the device to automatically "wake-up" during a shutdown state when an RS-232 cable is connected and a connected peripheral is turned on. Otherwise, the device automatically shuts itself down drawing less than 1µA.

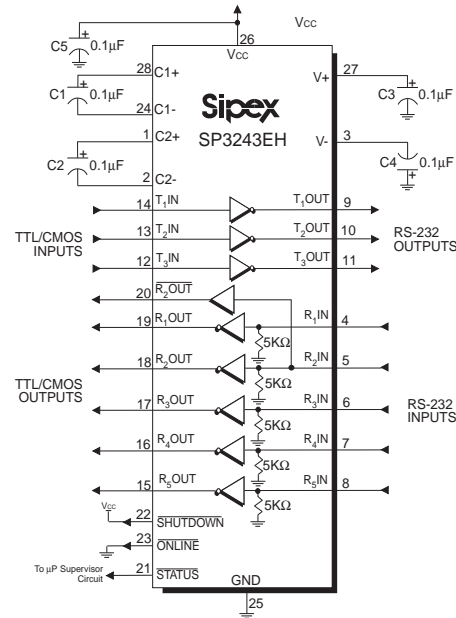
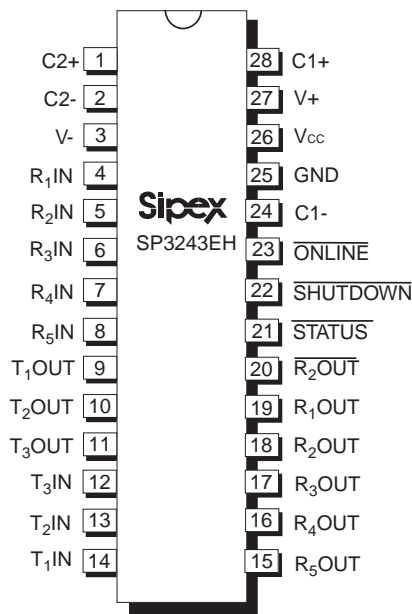
### SP3223EH typical application circuit



Part No.	Power Supplies	RS-232 Drivers	RS-232 Receivers	External Components	AUTO ON-LINE™ Circuitry	TTL Tri-State	No. of Pins
SP3223EH	+3.0V to +5.5V	2	2	4 capacitors	YES	YES	20
SP3243EH	+3.0V to +5.5V	3	5	4 capacitors	YES	YES	28

# SP3223EH/SP3243EH

## SP3243EH pin configuration and typical application circuit



pin number		name	description
SP3223EH	SP3243EH		
1	-	$\overline{EN}$	Receiver Enable. Apply logic LOW for normal operation. Apply logic HIGH to disable the receiver outputs (high-Z state).
2	28	C1+	Positive terminal of the voltage doubler charge-pump capacitor.
3	27	V+	Regulated +5.5V output generated by the charge pump.
4	24	C1-	Negative terminal of the voltage doubler charge-pump capacitor.
5	1	C2+	Positive terminal of the inverting charge-pump capacitor.
6	2	C2-	Negative terminal of the inverting charge-pump capacitor.
7	3	V-	Regulated -5.5V output generated by the charge pump.
16	4	R <sub>1</sub> IN	RS-232 receiver input.
9	5	R <sub>2</sub> IN	RS-232 receiver input.
-	6	R <sub>3</sub> IN	RS-232 receiver input.
-	7	R <sub>4</sub> IN	RS-232 receiver input.
-	8	R <sub>5</sub> IN	RS-232 receiver input.
15	19	R <sub>1</sub> OUT	TTL/CMOS receiver output.
10	18	$\overline{R_2OUT}$	TTL/CMOS receiver output.
-	20	R <sub>2</sub> OUT	Non-inverting receiver-2 output, active in shutdown.
-	17	R <sub>3</sub> OUT	TTL/CMOS receiver output.

## SP3223EH/SP3243EH

### pin description: continued

pin number		name	description
SP3223EH	SP3243EH		
-	16	R <sub>4</sub> OUT	TTL/CMOS receiver output.
-	15	R <sub>5</sub> OUT	TTL/CMOS receiver output.
11	21	$\overline{\text{STATUS}}$	TTL/CMOS Output indicating online and shutdown status.
13	14	T <sub>1</sub> IN	TTL/CMOS driver input.
12	13	T <sub>2</sub> IN	TTL/CMOS driver input.
-	12	T <sub>3</sub> IN	TTL/CMOS driver input.
14	23	$\overline{\text{ONLINE}}$	Apply logic HIGH to override AUTO ON-LINE™ circuitry keeping drivers active (SHUTDOWN must also be logic HIGH, refer to Table 2).
17	9	T <sub>1</sub> OUT	RS-232 driver output.
8	10	T <sub>2</sub> OUT	RS-232 driver output.
-	11	T <sub>3</sub> OUT	RS-232 driver output.
18	25	GND	Ground.
19	26	V <sub>CC</sub>	+3.0V to +5.5V supply voltage.
20	22	SHUTDOWN	Apply logic LOW to shut down drivers and charge pump. This overrides all AUTO ON-LINE™ circuitry and $\overline{\text{ONLINE}}$ .

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### ordering information - Please consult the factory for pricing and availability on a Tape-On-Reel option.

Part Number	Temperature Range	Package Type
SP3223EHCP	0°C to +70°C	20-pin PDIP
SP3223EHCA	0°C to +70°C	20-pin SSOP
SP3223EHCY	0°C to +70°C	20-pin TSSOP
SP3243EHCT	0°C to +70°C	28-pin Wide SOIC
SP3243EHCA	0°C to +70°C	28-pin SSOP