

## +5V Powered RS-232 Transmitters/Receivers

The HIN230-HIN241 family of RS-232 transmitters/receivers interface circuits meet all EIA RS-232E and V.28 specifications, and are particularly suited for those applications where  $\pm 12V$  is not available. They require a single +5V power supply (except HIN231 and HIN239) and features onboard charge pump voltage converters which generate +10V and -10V supplies from the 5V supply. The HIN233 and HIN235 require no external capacitors and are ideally suited for applications where circuit board space is critical. The family of devices offer a wide variety of RS-232 transmitter/receiver combinations to accommodate various applications (see Selection Table).

The drivers feature true TTL/CMOS input compatibility, slew-rate-limited output, and 300 $\Omega$  power-off source impedance. The receivers can handle up to  $\pm 30V$ , and have a 3k $\Omega$  to 7k $\Omega$  input impedance. The receivers also feature hysteresis to greatly improve noise rejection.

## Features

- Meets All RS-232E and V.28 Specifications
- Requires Only Single +5V Power Supply
  - (+5V and +12V - HIN231 and HIN239)
- HIN233 and HIN235 Require No External Capacitors
- Onboard Voltage Doubler/Inverter
- Low Power Consumption
- Low Power Shutdown Function
- Three-State TTL/CMOS Receiver Outputs
- Multiple Drivers
  - 10V Output Swing for +5V Input
  - 300W Power-Off Source Impedance
  - Output Current Limiting
  - TTL/CMOS Compatible
  - 30V/ms Maximum Slew Rate
- Multiple Receivers
  - 30V Input Voltage Range
  - 3kW to 7kW Input Impedance
  - 0.5V Hysteresis to Improve Noise Rejection

## Applications

- Any System Requiring RS-232 Communications Port
  - Computer - Portable, Mainframe, Laptop
  - Peripheral - Printers and Terminals
  - Instrumentation
  - Modems

## Selection Table

PART NUMBER	POWER SUPPLY VOLTAGE	NUMBER OF RS-232 DRIVERS	NUMBER OF RS-232 RECEIVERS	EXTERNAL COMPONENTS	LOW POWER SHUTDOWN/TTL THREE-STATE	NUMBER OF LEADS
HIN230	+5V	5	0	4 Capacitors	YES/NO	20
HIN231	+5V and +7.5V to 13.2V	2	2	2 Capacitors	NO/NO	16
HIN232	+5V	2	2	4 Capacitors	NO/NO	16
HIN233	+5V	2	2	None	NO/NO	20
HIN234	+5V	4	0	4 Capacitors	NO/NO	16
HIN235	+5V	5	5	None	YES/YES	24
HIN236	+5V	4	3	4 Capacitors	YES/YES	24
HIN237	+5V	5	3	4 Capacitors	NO/NO	24
HIN238	+5V	4	4	4 Capacitors	NO/NO	24
HIN239	+5V and +7.5V to 13.2V	3	5	2 Capacitors	NO/YES	24
HIN240	+5V	5	5	4 Capacitors	YES/YES	44
HIN241	+5V	4	5	4 Capacitors	YES/YES	28

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SIGNAL PROCESSING