FEATURES

- ESD Protection over ±**10kV** (±15kV IEC-1000-4-2 for LT1133A, LT1137A and LT1141A)
- Uses Small Capacitors: 0.1μF, 0.2μF
- 1μA Supply Current in SHUTDOWN
- 120kBaud Operation for R_L = 3k, C_L = 2500pF
- 250kBaud Operation for R_L = 3k, C_L = 1000pF
- CMOS Comparable Low Power
- Easy PC Layout: Flowthrough Architecture
- Rugged Bipolar Design: Absolutely No Latchup
- Outputs Assume a High Impedance State When Off or Powered Down
- Improved Protection: RS232 I/O Lines Can Be Forced to ±30V Without Damage
- Output Overvoltage Does Not Force Current Back into Supplies
- Available in SO and SSOP Packages

DESCRIPTION

The LT®1130A/LT1140A series of RS232 drivers/receivers features special bipolar construction techniques which protect the drivers and receivers beyond the fault conditions stipulated for RS232. Driver outputs and receiver inputs can be shorted to ±30V without damaging the device or the power supply generator. In addition, the RS232 I/O pins are resilient to multiple ±10kV ESD strikes. An advanced driver output stage operates up to 250kbaud while driving heavy capacitive loads. Supply current is typically 12mA, competitive with CMOS devices.

Several members of the series include flexible operating mode controls. The DRIVER DISABLE pin disables the drivers and the charge pump, the ON/$\overline{OFF}$ pin shuts down all circuitry. While shut down, the drivers and receivers assume high impedance output states.

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TYPICAL APPLICATION

Basic Operation

1130A • TA01
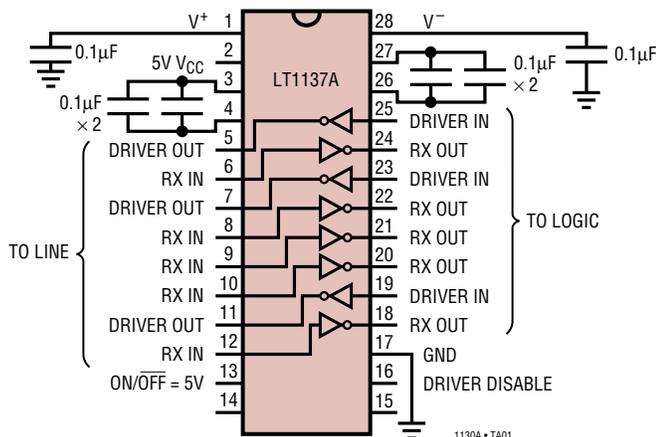
Output Waveforms

LT1130A • TA02
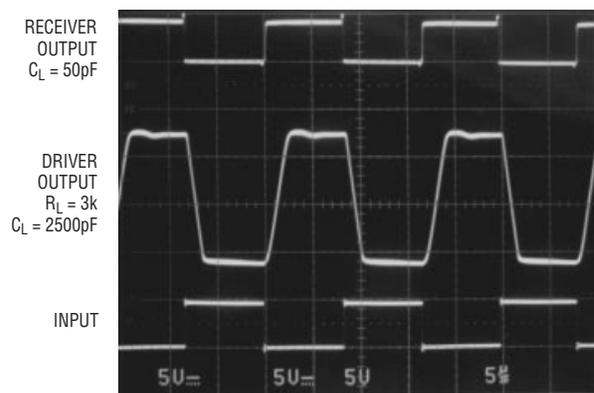
LT1130A 5-Driver/5-Receiver RS232 Transceiver
LT1131A 5-Driver/4-Receiver RS232 Transceiver w/Shutdown
LT1132A 5-Driver/3-Receiver RS232 Transceiver
LT1133A 3-Driver/5-Receiver RS232 Transceiver
LT1134A 4-Driver/4-Receiver RS232 Transceiver
LT1135A 5-Driver/3-Receiver RS232 Transceiver w/o Charge Pump

LT1136A 4-Driver/5-Receiver RS232 Transceiver w/Shutdown
LT1137A 3-Driver/5-Receiver RS232 Transceiver w/Shutdown
LT1138A 5-Driver/3-Receiver RS232 Transceiver w/Shutdown
LT1139A 4-Driver/4-Receiver RS232 Transceiver w/Shutdown
LT1140A 5-Driver/3-Receiver RS232 Transceiver w/o Charge Pump
LT1141A 3-Driver/5-Receiver RS232 Transceiver w/o Charge Pump

PACKAGE/ORDER INFORMATION

5-DRIVER/3-RECEIVER

TOP VIEW

LT1132A

V⁺	1	24	V⁻
5V V_CC	2	23	C2⁻
C1⁺	3	22	C2⁺
C1⁻	4	21	DRIVER IN
DRIVER OUT	5	20	DRIVER IN
DRIVER OUT	6	19	RX OUT
RX IN	7	18	DRIVER IN
DRIVER OUT	8	17	DRIVER IN
DRIVER OUT	9	16	RX OUT
RX IN	10	15	DRIVER IN
DRIVER OUT	11	14	RX OUT
RX IN	12	13	GND

N PACKAGE
24-LEAD PDIP

SW PACKAGE
24-LEAD PLASTIC SO WIDE

$T_{JMAX} = 150°C$, $θ_{JA} = 58°C/W$ (N)
$T_{JMAX} = 150°C$, $θ_{JA} = 80°C/W$ (SW)

ORDER PART NUMBER

LT1132ACN
LT1132ACSW
LT1132AISW

3-DRIVER/5-RECEIVER

TOP VIEW

LT1133A

V⁺	1	24	V⁻
5V V_CC	2	23	C2⁻
C1⁺	3	22	C2⁺
C1⁻	4	21	DRIVER IN
DRIVER OUT	5	20	RX OUT
RX IN	6	19	DRIVER IN
DRIVER OUT	7	18	RX OUT
RX IN	8	17	RX OUT
RX IN	9	16	RX OUT
RX IN	10	15	DRIVER IN
DRIVER OUT	11	14	RX OUT
RX IN	12	13	GND

N PACKAGE
24-LEAD PDIP

SW PACKAGE
24-LEAD PLASTIC SO WIDE

$T_{JMAX} = 150°C$, $θ_{JA} = 58°C/W$ (N)
$T_{JMAX} = 150°C$, $θ_{JA} = 80°C/W$ (SW)

ORDER PART NUMBER

LT1133ACN
LT1133ACSW
LT1133AISW

4-DRIVER/4-RECEIVER

TOP VIEW

LT1134A

V⁺	1	24	V⁻
5V V_CC	2	23	C2⁻
C1⁺	3	22	C2⁺
C1⁻	4	21	DRIVER IN
DRIVER OUT	5	20	RX OUT
RX IN	6	19	DRIVER IN
DRIVER OUT	7	18	RX OUT
RX IN	8	17	DRIVER IN
DRIVER OUT	9	16	RX OUT
RX IN	10	15	DRIVER IN
DRIVER OUT	11	14	RX OUT
RX IN	12	13	GND

N PACKAGE
24-LEAD PDIP

SW PACKAGE
24-LEAD PLASTIC SO WIDE

$T_{JMAX} = 150°C$, $θ_{JA} = 58°C/W$ (N)
$T_{JMAX} = 150°C$, $θ_{JA} = 80°C/W$ (SW)

ORDER PART NUMBER

LT1134ACN
LT1134ACSW
LT1134AIN
LT1134AISW

5-DRIVER/3-RECEIVER WITHOUT CHARGE PUMP

TOP VIEW

LT1135A

12V V⁺	1	20	−12V V⁻
5V V_CC	2	19	DRIVER IN
DRIVER OUT	3	18	DRIVER IN
DRIVER OUT	4	17	RX OUT
RX IN	5	16	DRIVER IN
DRIVER OUT	6	15	DRIVER IN
DRIVER OUT	7	14	RX OUT
RX IN	8	13	DRIVER IN
DRIVER OUT	9	12	RX OUT
RX IN	10	11	GND

N PACKAGE
20-LEAD PDIP

SW PACKAGE
20-LEAD PLASTIC SO WIDE

$T_{JMAX} = 150°C$, $θ_{JA} = 79°C/W$ (N)
$T_{JMAX} = 150°C$, $θ_{JA} = 85°C/W$ (SW)

ORDER PART NUMBER

LT1135ACN
LT1135ACSW

4-DRIVER/5-RECEIVER WITH SHUTDOWN

TOP VIEW

LT1136A

V⁺	1	28	V⁻
5V V_CC	2	27	C2⁻
C1⁺	3	26	C2⁺
C1⁻	4	25	DRIVER IN
DRIVER OUT	5	24	RX OUT
RX IN	6	23	DRIVER IN
DRIVER OUT	7	22	RX OUT
RX IN	8	21	DRIVER IN
DRIVER OUT	9	20	RX OUT
RX IN	10	19	DRIVER IN
DRIVER OUT	11	18	RX OUT
RX IN	12	17	RX OUT
RX IN	13	16	GND
ON/OFF	14	15	DRIVER DISABLE

NW PACKAGE
28-LEAD PDIP

SW PACKAGE
28-LEAD PLASTIC SO WIDE

$T_{JMAX} = 150°C$, $θ_{JA} = 56°C/W$ (NW)
$T_{JMAX} = 150°C$, $θ_{JA} = 68°C/W$ (SW)

ORDER PART NUMBER

LT1136ACNW
LT1136ACSW

3-DRIVER/5-RECEIVER WITH SHUTDOWN

TOP VIEW

LT1137A

V⁺	1	28	V⁻
5V V_CC	2	27	C2⁻
C1⁺	3	26	C2⁺
C1⁻	4	25	DRIVER IN
DRIVER OUT	5	24	RX OUT
RX IN	6	23	DRIVER IN
DRIVER OUT	7	22	RX OUT
RX IN	8	21	RX OUT
RX IN	9	20	RX OUT
RX IN	10	19	DRIVER IN
DRIVER OUT	11	18	RX OUT
RX IN	12	17	GND
ON/OFF	13	16	DRIVER DISABLE
NC	14	15	NC

G PACKAGE
28-LEAD PLASTIC SSOP

NW PACKAGE
28-LEAD PDIP

SW PACKAGE
28-LEAD PLASTIC SO WIDE

$T_{JMAX} = 150°C$, $θ_{JA} = 96°C/W$ (G)
$T_{JMAX} = 150°C$, $θ_{JA} = 56°C/W$ (NW)
$T_{JMAX} = 150°C$, $θ_{JA} = 68°C/W$ (SW)

ORDER PART NUMBER

LT1137ACG
LT1137ACNW
LT1137ACSW
LT1137AIG
LT1137AINW
LT1137AISW