Quad Low Power Line Driver

FEATURES

- Low Operating Voltage ±5V to ±15 V
- 500μA Supply Current
- Zero Supply Current when Shut Down
- Outputs can be Driven ±30V
- Output "Open" when Off (3-State)
- 10mA Output Drive
- Pin Compatible with 1488
- Output of Several Devices can be Paralleled

APPLICATIONS

- RS232 Driver
- Micropower Interface
- Level Translator

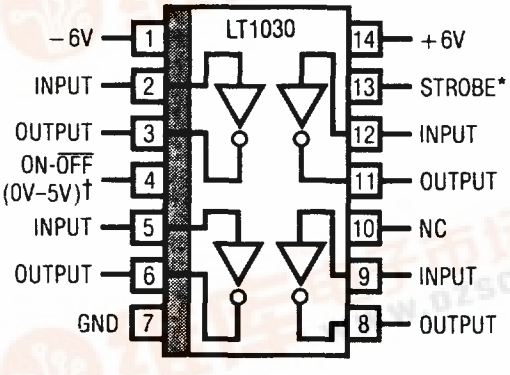
DESCRIPTION

The LT1030 is an RS232 line driver that operates over a ±5V to ±15V range on low supply current and can be shut down to zero supply current. Outputs are fully protected from externally applied voltages of ±30V by current limiting. Since the output swings to within 200mV of the positive supply and 1V of the negative supply, power supply needs are minimized.

A major advantage of the LT1030 is the high impedance output state when off or powered down, which allows several different drivers on the same bus.

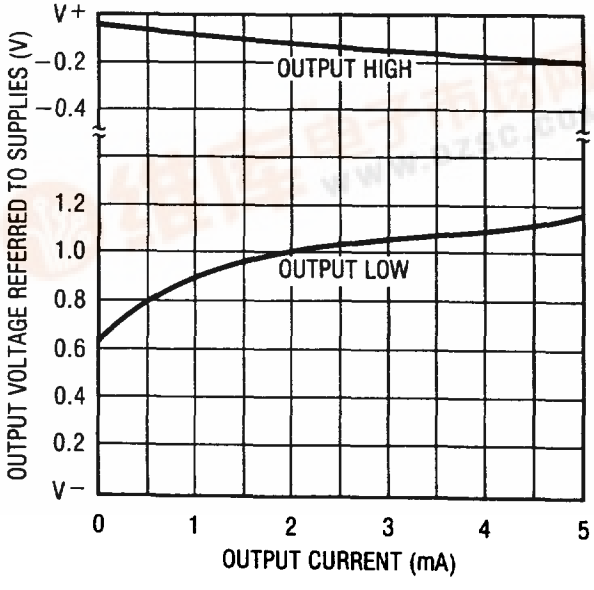
TYPICAL APPLICATION

RS232 Line Driver



*NO CONNECTION NEEDED WHEN NOT USED.
†5V = ON.

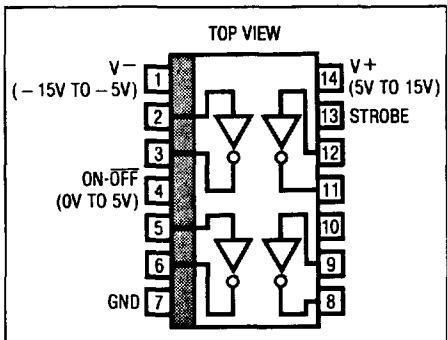
Output Swing vs Output Current



ABSOLUTE MAXIMUM RATINGS

Supply Voltage ..... ±15V
Logic Input Pins ..... V^- to 25V
On-$\overline{\text{Off}}$ Pin ..... GND to 12V
Output (Forced) ..... V^- +30V, V^+ −30V
Short Circuit Duration (to ±30V) ..... Indefinite
Operating Temperature Range
LT1030C ..... 0°C to 70°C
Guaranteed Functional by Design ... −25°C to 85°C
Storage Temperature ..... −65°C to 150°C
Lead Temperature (Soldering, 10 sec) ..... 300°C

PACKAGE/ORDER INFORMATION



ORDER PART NUMBER
LT1030CS
PART MARKING
LT1030CS

ELECTRICAL CHARACTERISTICS (Supply Voltage = ±5V to ±15V)

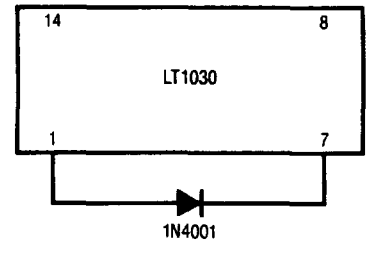
PARAMETER	CONDITIONS			MIN	TYP	MAX	UNITS
Supply Current	$V_{ON\text{-}\overline{OFF}} \geq 2.4V$, $I_{OUT} = 0$, All Outputs Low		●		500	1000	µA
Power Supply Leakage Current	$V_{ON\text{-}\overline{OFF}} \leq 0.4V$				1	10	µA
	$V_{ON\text{-}\overline{OFF}} \leq 0.1V$		●		10	150	µA
Output Voltage Swing	Load = 2mA	Positive		$V^+ - 0.3V$	$V^+ - 0.1V$		V
		Negative			$V^- + 0.9V$	$V^- + 1.4V$	V
Output Current	V_{SUPPLY} ±5V to ±15V			5	12		mA
Output Overload Voltage (Forced)	Operating or Shutdown		●	$V^+ - 30V$		$V^- + 30V$	V
Output Current	Shutdown $V_{OUT} = \pm 30V$				2	100	µA
Input Overload Voltage (Forced)	Operating or Shutdown		●	V^-		15	V
Logic Input Levels	Low Input (V_{OUT} = High)		●		1.4	0.8	V
	High Input (V_{OUT} = Low)		●	2	1.4		V
Logic Input Current	$V_{IN} > 2.0V$				2	20	µA
	$V_{IN} < 0.8V$				10	20	µA
On-$\overline{\text{Off}}$ Pin Current	$0 \leq V_{IN} \leq 5V$		●	−10	30	65	µA
Slew Rate				4	15	30	V/µS

The ● denotes specifications which apply over the operating temperature range.

Note 1: 3V applied to the strobe pin will force all outputs low. Strobe pin input impedance is about 2k to ground. Leave open when not used.

PIN FUNCTIONS

PIN	FUNCTION	COMMENT
1	Minus Supply	Operates −2V to −15V
2,5,9,12	Logic Input	Operates properly on TTL or CMOS levels. Output valid from $(V^- + 2V) \leq V_{IN} \leq 15V$. Connect to 5V when not used.
3,6,8,11	Output	Line drive output.
4	On-$\overline{\text{Off}}$	Shuts down entire circuit. Cannot be left open. For "normally on" operation, connect between 5V-10V.
7	Ground	Ground must be more positive than V^-
13	Strobe	Forces all outputs low. Drive with 3V.
14		Positive supply 5V to 15V.



Note: As with other bipolar ICs, forward biasing the substrate diode can cause problems. The LT1030 will draw high current from V^+ to ground if the V^- pin is open circuited or pulled above ground. If this is possible, connecting a diode from V^- to ground will prevent the high current state. Any low cost diode can be used.