

FEATURES

- Low Operating Voltage $\pm 5\text{V}$ to $\pm 15\text{V}$
- $500\mu\text{A}$ Supply Current
- Zero Supply Current when Shut Down
- Outputs Can Be Driven $\pm 30\text{V}$
- Output "Open" when Off (3-State)
- 10mA Output Drive
- Pinout Similar to 1488*
- Output of Several Devices can be Paralleled
- Available in SO Package

APPLICATIONS

- RS232 Driver
- Micropower Interface
- Level Translator

* Check compatibility, some pins different

DESCRIPTION

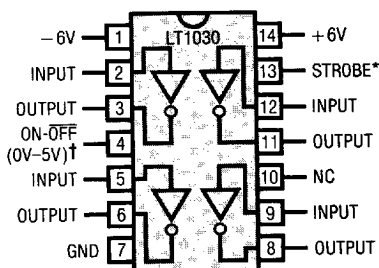
The LT1030 is an RS232 line driver that operates over a $\pm 5\text{V}$ to $\pm 15\text{V}$ range on low supply current and can be shut down to zero supply current. Outputs are fully protected from externally applied voltages of $\pm 30\text{V}$ by current limiting. Since the output swings to within 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.

Our RS232 product line includes other high-performance devices. The LT1039 is a triple low-power driver/receiver with shutdown that can be powered from a 5V supply. The LT1080 is a 5V powered dual driver/receiver with on-chip $\pm 9\text{V}$ power generator, and shutdown.

TYPICAL APPLICATION

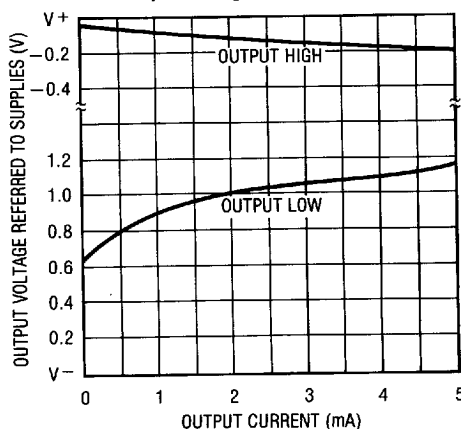
RS232 Line Driver



* NO CONNECTION NEEDED WHEN NOT USED.

† 5V = ON.

Output Swing vs Output Current



ABSOLUTE MAXIMUM RATINGS

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

Consult factory for Industrial grade parts.

PACKAGE/ORDER INFORMATION

TOP VIEW

J PACKAGE
14-LEAD CERAMIC DIP

S PACKAGE
14-LEAD PLASTIC S
(.150" WIDE)

N PACKAGE
14-LEAD PLASTIC DIP

$T_{JMAX} = 150^\circ C$, $\theta_{JA} = 80^\circ C/W$ (J)
 $T_{JMAX} = 110^\circ C$, $\theta_{JA} = 130^\circ C/W$ (N)
 $T_{JMAX} = 110^\circ C$, $\theta_{JA} = 100^\circ C/W$ (S)

ORDER PART NUMBER

LT1030CJ
LT1030CN
LT1030CS
FOR MILITARY APPLICATIONS
USE LT1032MJ

ELECTRICAL CHARACTERISTICS (Supply Voltage = $\pm 5V$ to $\pm 15V$)

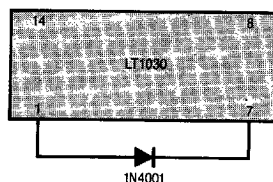
SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Supply Current	$V_{ON-OFF} \geq 2.4V$, $I_{OUT} = 0V$, Outputs Low	●	500	1000	μA
Power Supply Leakage Current	$V_{ON-OFF} \leq 0.4V$ $V_{ON-OFF} \leq 0.1V$	●	1 10	10 150	μA μA
Output Voltage Swing	Load = 2mA				
	Positive	$V^+ - 0.3V$	$V^+ - 0.1V$		V
	Negative		$V^-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

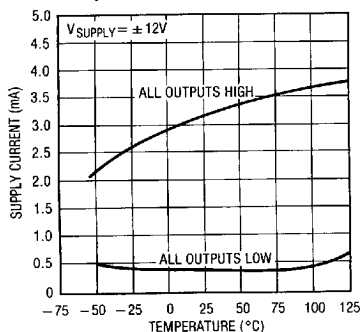
PIN	FUNCTION	COMMENT
1	Minus Supply	Operates $-2V$ to $-15V$
2,5,9,12	Logic Input	Operates properly on TTL or CMOS levels. Output valid from $(V^- + 2V) \leq V_{IN} \leq 15V$. Connect to 5V when not used.
3,6,8,11	Output	Line drive output.
4	On-Off	Shuts down entire circuit. Cannot be left open. For "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.



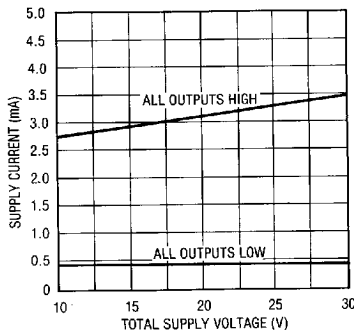
Note: As with other bipolar ICs, forward biasing the substrate diode can cause problems. The LT1030 will draw high current from V^+ to ground if the V^- pin is open circuited or pulled above ground. If this is possible, connecting a diode from V^- to ground will prevent the high current state. Any low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

TYPICAL PERFORMANCE CHARACTERISTICS

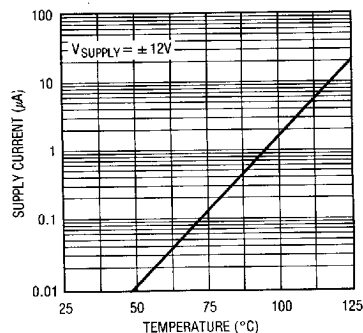
On Supply Current vs Temperature



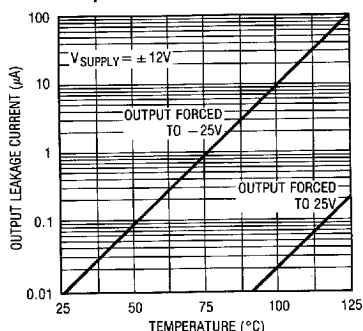
On Supply Current vs Supply Voltage



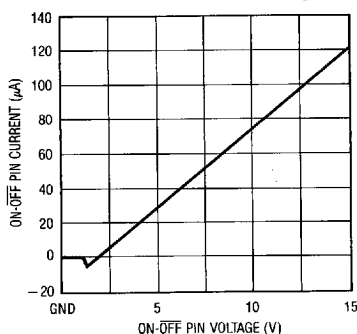
Off Supply Current vs Temperature



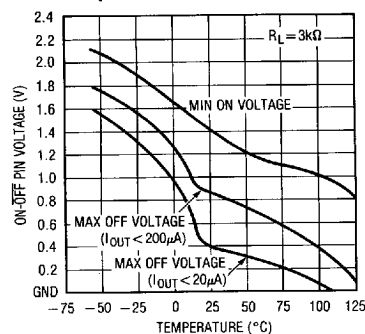
Off Output Leakage vs Temperature



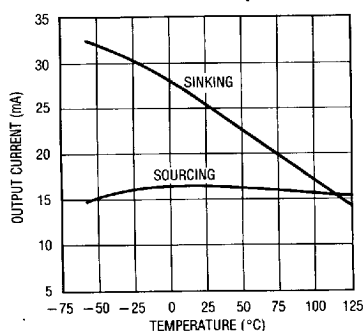
On-Off Pin Current vs Voltage



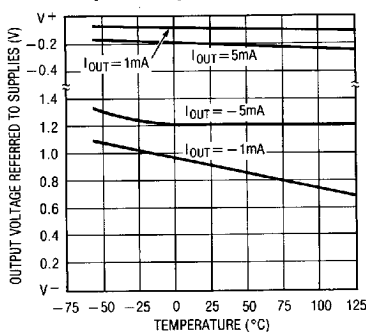
Shutdown Voltage vs Temperature



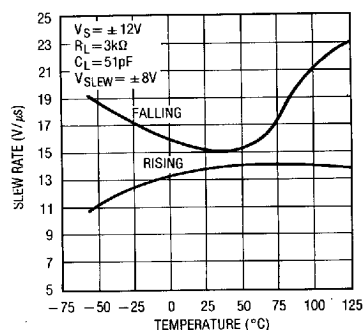
Current Limit vs Temperature



Output Swing vs Temperature

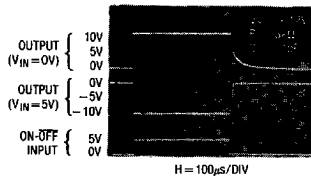


Slew Rate vs Temperature

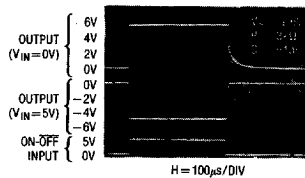


TYPICAL PERFORMANCE CHARACTERISTICS

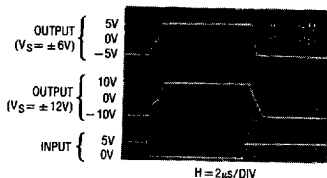
On-Off Response Time



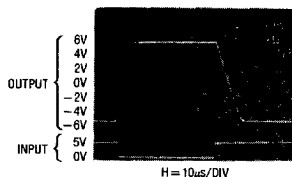
On-Off Response Time



Output Waveform



Output Waveform Driving Capacitive Load



Strobe Pin Response Time

