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January 1996, Rev B

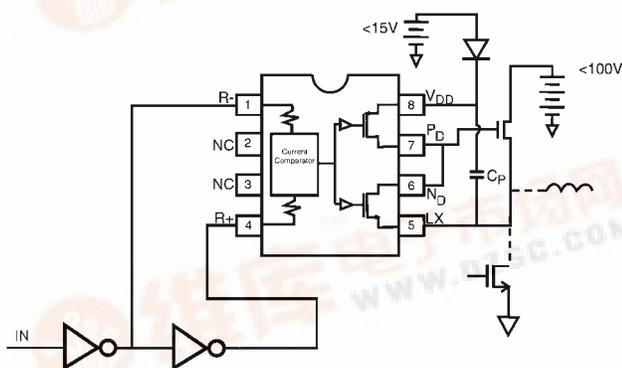
FN7289

100V High Side Driver

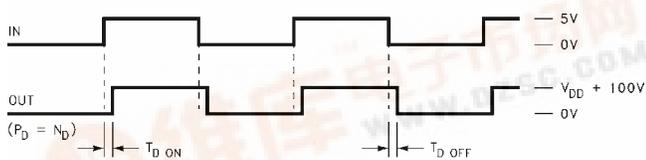
élantec.

The EL7501 provides a low cost solution to many high side drive applications. The EL7501 is DC coupled so there are no start up problems associated with AC coupled schemes. The EL7501 is driven by user supplied complementary signals.

Pinout



7501 Waveform Example



Features

- 100V High Side Voltage
- Rail to Rail Output
- 1MHz Operation
- 1.0A Peak Current
- Matched Rise and Fall Times
- Direct Coupled
- No Start Up Ambiguity

Applications

- Uninterruptible Power Supplies
- DC-DC Converters
- Motor Control
- Power MOSFET Driver

Ordering Information

PART NUMBER	TEMP. RANGE	PACKAGE	PKG. NO.
EL7501CN	-40°C to +85°C	8-Pin PDIP	MDP0031
EL7501CS	-40°C to +85°C	8-Pin SO	MDP0027

EL7501

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$)

Supply (V_{DD} or LX to R- or R+)100V	Ambient Operating Temperature -40°C to $+85^\circ\text{C}$
Supply (V_{DD} to LX) 16.5V	Storage Temperature Range -65°C to $+150^\circ\text{C}$
Output Pins -0.3V below GND, +0.3V above V_{DD}	Operating Junction Temperature 125°C
Peak Output Current2A	Power Dissipation SOIC570mW PDIP1050mW

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

IMPORTANT NOTE: All parameters having Min/Max specifications are guaranteed. Typical values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore: $T_J = T_C = T_A$

DC Electrical Specifications $T_A = 25^\circ\text{C}$, $V_{DD} = 15\text{V}$, $C_{LOAD} = 1000\text{pF}$, unless otherwise specified.

PARAMETER		DESCRIPTION	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input/Output	V_{DIFF} (Min)	Minimum Differential Input Signal to Switch Output		1.0			V
	$I_{DS\ OFF}$	Output Leakage	$GND < V_{OUT} < V_{DD}$	-10.0	0.2	+10.0	μA
	R_{OH}	Pull-up Resistance	$I_{OUT} = -100\text{mA}$		5.0	10.0	Ω
	R_{OL}	Pull-down Resistance	$I_{OUT} = +100\text{mA}$		5.0	10.0	Ω
	I_{PK}	Peak Output Current			1.0		A
	I_{DC}	Continuous Output Current Source/Sink		50.0			mA
Power Supply	I_{DD}	Supply Current into V_{DD}				4.0	mA
	V_{DD}	Operating Voltage		4.5		15.0	V

AC Electrical Specifications $T_A = 25^\circ\text{C}$, $V_{DD} = 15\text{V}$, $C_{LOAD} = 1000\text{pF}$, unless otherwise specified.

PARAMETER		DESCRIPTION	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Switching Characteristics	t_R	Rise Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$		15.0 20.0	40.0	ns
	t_F	Fall Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$		15.0 20.0	40.0	ns
	$t_{D\ OFF}$	Turn Off Delay Time			90.0	140.0	ns
	$t_{D\ ON}$	Turn On Delay Time			90.0	140.0	ns

EL7501

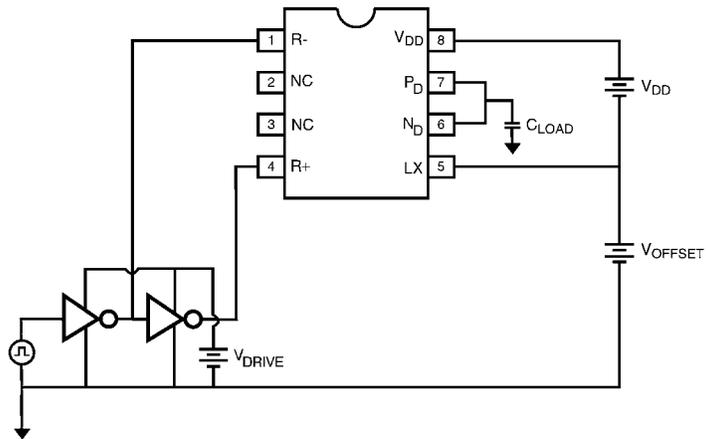


FIGURE 1. EL7501 TEST CIRCUIT

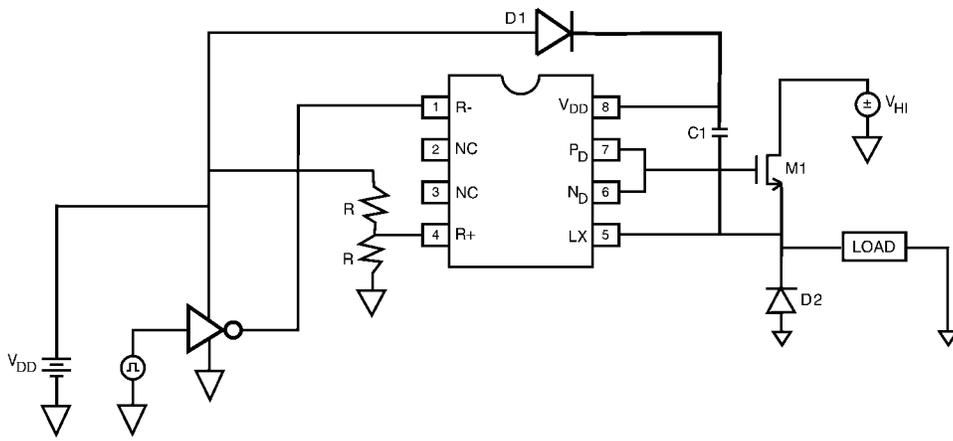
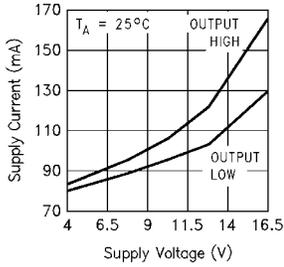


FIGURE 2. EL7501 ALTERNATE DRIVE METHOD

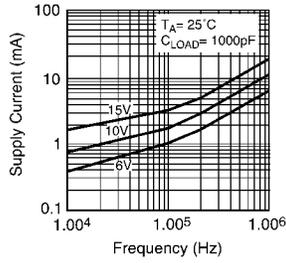
EL7501

Typical Performance Curves

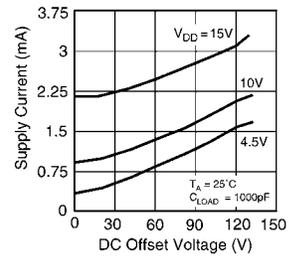
Quiescent Supply Current vs Supply Voltage



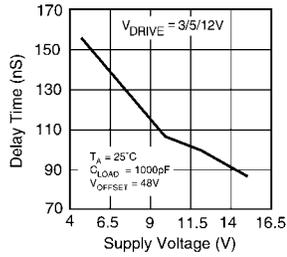
Average Supply Current vs Voltage and Frequency



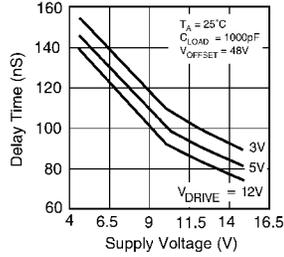
Supply Current vs DC Offset Voltage and V_{DD}



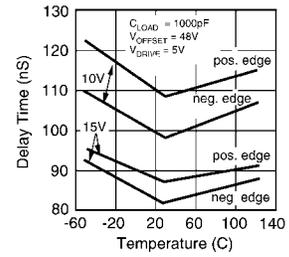
Output Rising Edge Delay Time vs Supply Voltage and Drive Voltage



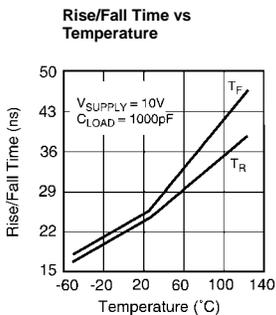
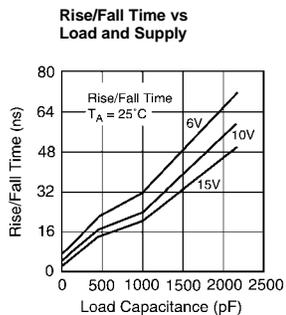
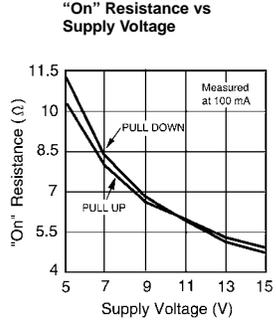
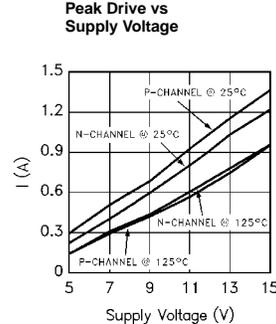
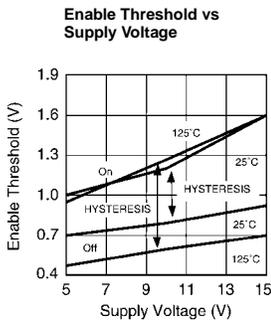
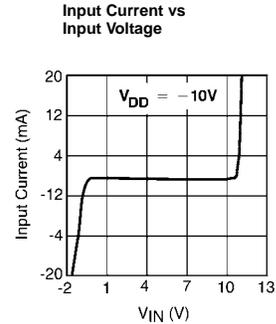
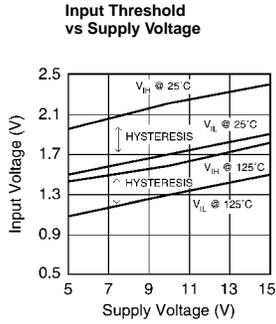
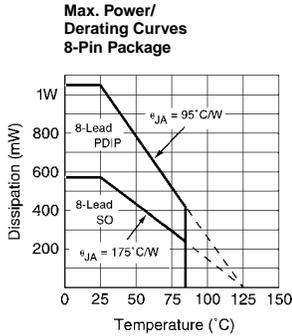
Output Falling Edge Delay Time vs Supply Voltage and Drive Voltage



Delay Time vs Temperature and Supply Voltage



Typical Performance Curves (Continued)



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