Dual Input, High Speed, Dual Channel Power MOSFET Driver

élantec.

The EL7242/EL7252 dual input, 2-channel drivers achieve the same excellent switching performance of the EL7212 family while providing added flexibility. The 2-input logic and configuration is applicable to numerous power MOSFET drive circuits. As with other Elantec drivers, the EL7242/EL7252 are excellent for driving large capacitive loads with minimal delay and switching times. "Shoot-thru" protection and latching circuits can be implemented by simply "cross-coupling" the 2-channels.

Pinouts

EL7242
(8-PIN PDIP, SOIC)
TOP VIEW
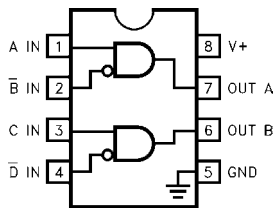
EL7252
(8-PIN PDIP, SOIC)
TOP VIEW
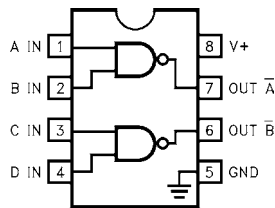
Manufactured under U.S. Patent Nos. 5,334,883, #5,341,047

Features

• Logic AND/NAND input

• 3V and 5V Input compatible

• Clocking speeds up to 10MHz

• 20ns Switching/delay time

• 2A Peak drive

• Isolated drains

• Low output impedance

• Low quiescent current

• Wide operating voltage — 4.5V16V

Applications

• Short circuit protected switching

• Under-voltage shut-down circuits

• Switch-mode power supplies

• Motor controls

• Power MOSFET switching

• Switching capacitive loads

• Shoot-thru protection

• Latching drivers

Ordering Information

PART NUMBER	TEMP. RANGE	PACKAGE	PKG. NO.
EL7242CN	-40°C to +85°C	8-Pin PDIP	MDP0031
EL7242CS	-40°C to +85°C	8-Pin SOIC	MDP0027
EL7252CN	-40°C to +85°C	8-Pin PDIP	MDP0031
EL7252CS	-40°C to +85°C	8-Pin SOIC	MDP0027

EL7242, EL7252

Absolute Maximum Ratings (T_A = 25°C)

Supply (V+ to Gnd) 16.5V
Input Pins. . . . . -0.3V to +0.3V above V+
Combined Peak Output Current. 4A
Storage Temperature Range . . . .-65°C to +150°C

Ambient Operating Temperature . . . .-40°C to +85°C
Operating Junction Temperature . . . . .125°C
Power Dissipation
    SOIC 570mW
    PDIP 1050mW

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°C, V = 15V unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
INPUT						
V_{IH}	Logic "1' Input Voltage		2.4			V
I_{IH}	Logic "1' Input Current	@V+		0.1	10	µA
V_{IL}	Logic "0' Input Voltage				0.8	V
I_{IL}	Logic "0' Input Current	@0V		0.1	10	µA
V_{HVS}	Input Hysteresis			0.3		V
OUTPUT						
R_{OH}	Pull-Up Resistance	I_{OUT} = -100mA		3	6	Ω
R_{OL}	Pull-Down Resistance	I_{OUT} = +100mA		4	6	Ω
I_{PK}	Peak Output Current	Source Sink		2 2		A
I_{DC}	Continuous Output Current	Source/Sink	100			mA
POWER SUPPLY						
I_S	Power Supply Current	Inputs High		1	2.5	mA
V_S	Operating Voltage		4.5		16	V

AC Electrical Specifications T_A = 25°C, V = 15V unless otherwise specified

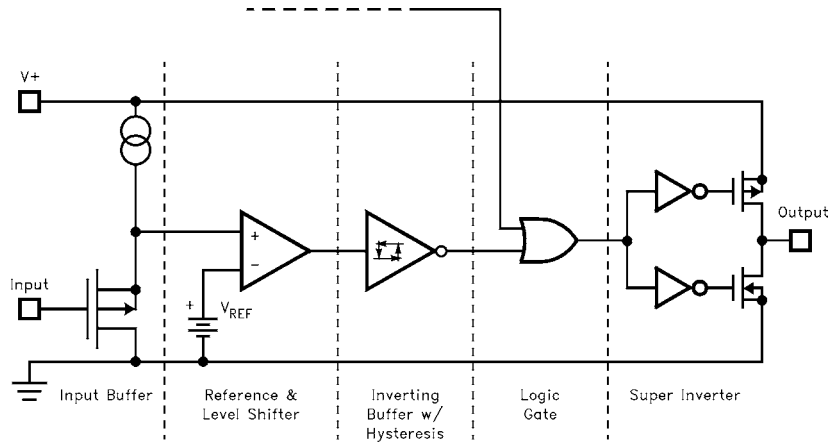| PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
SWITCHING CHARACTERISTICS						
t_R	Rise Time	C_L = 500pF C_L = 1000pF			10 20	ns
t_F	Fall Time	C_L = 500pF C_L = 1000pF			10 20	ns
t_{D-ON}	Turn-On Delay Time			20	25	ns
t_{D-OFF}	Turn-Off Delay Time			20	25	ns

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Timing Table
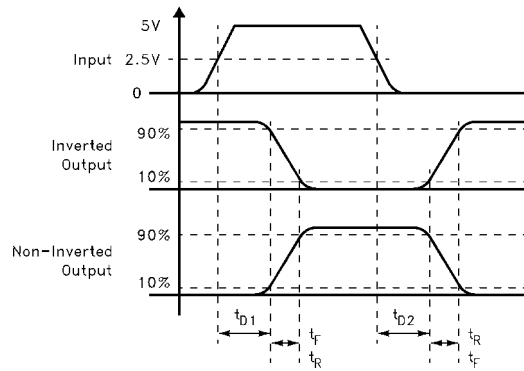
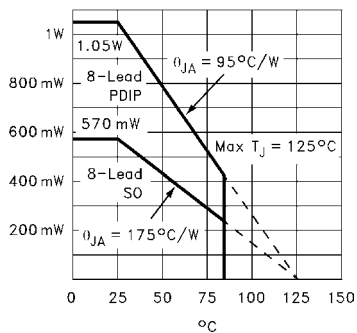## Standard Test Configuration
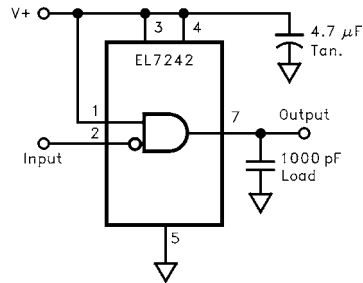
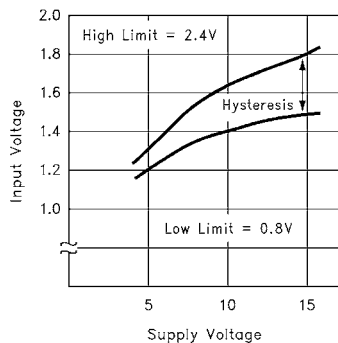
Simplified Schematic

Typical Performance Curves

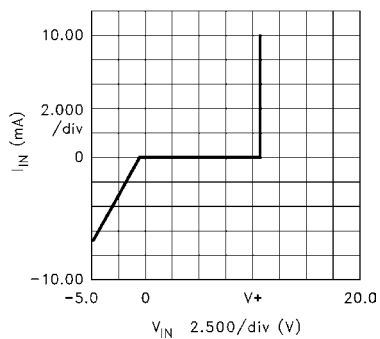**Max Power/Derating Curves**

Switch Threshold vs Supply Voltage

Input Current vs Voltage

Peak Drive vs Supply Voltage

Quiescent Supply Current
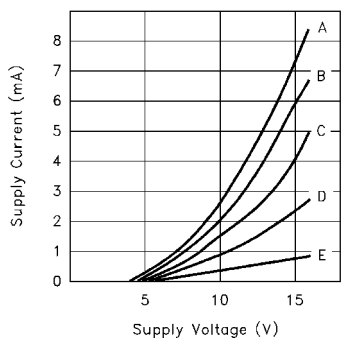
CASE:

A	ALL INPUTS GND
B	3 INPUTS GND
C	2 INPUTS GND
D	1 INPUT GND
E	ALL INPUTS V+

"ON' Resistance vs Supply Voltage
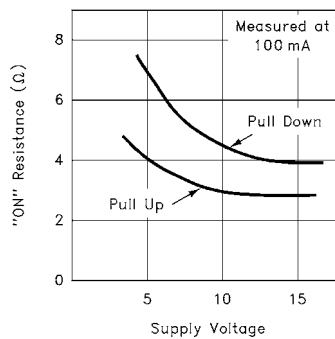
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Typical Performance Curves (Continued)

**Average Supply Current vs
Voltage and Frequency**

**Average Supply Current
vs Capacitive Load**

Rise/Fall Time vs Load

Rise/Fall Time vs Supply Voltage

Typical Performance Curves (Continued)

Rise/Fall Time vs Temperature

Propagation Delay vs Supply Voltage

Delay vs Temperature
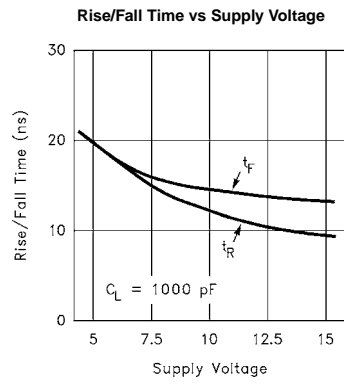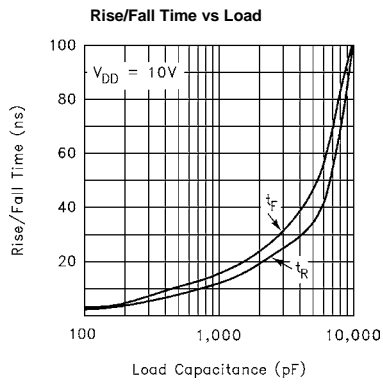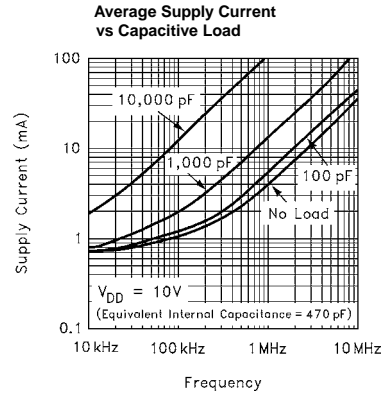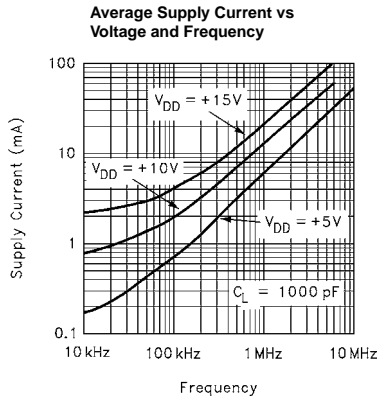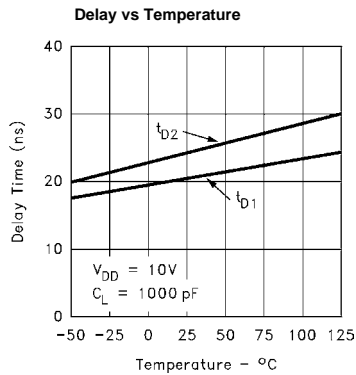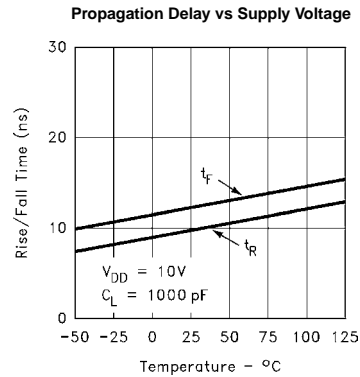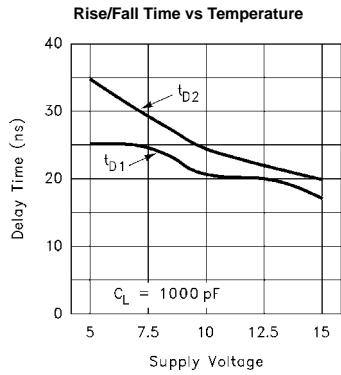
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