

## High Speed, Dual Channel Power MOSFET Drivers

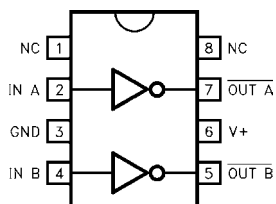


The EL7202/EL7212/EL7222 ICs are matched dual-drivers that improve the operation of the industry standard

DS0026 clock drivers. The Elantec versions are very high speed drivers capable of delivering peak currents of 2.0 amps into highly capacitive loads. The high speed performance is achieved by means of a proprietary "Turbo-Driver" circuit that speeds up input stages by tapping the wider voltage swing at the output. Improved speed and drive capability are enhanced by matched rise and fall delay times. These matched delays maintain the integrity of input-to-output pulse-widths to reduce timing errors and clock skew problems. This improved performance is accompanied by a 10 fold reduction in supply currents over bipolar drivers, yet without the delay time problems commonly associated with CMOS devices. Dynamic switching losses are minimized with non-overlapped drive techniques.

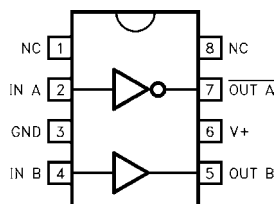
### Pinouts

**EL7212**  
(8-PIN PDIP, SO)  
TOP VIEW



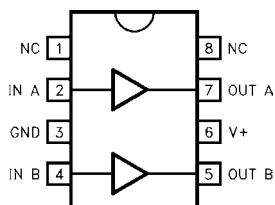
**Inverting Drivers**

**EL7222**  
(8-PIN PDIP, SO)  
TOP VIEW



**Complementary Drivers**

**EL7202**  
(8-PIN PDIP, SO)  
TOP VIEW



**Non-Inverting Drivers**

Manufactured under U.S. Patent Nos. 5,334,883, #5,341,047

### Features

- Industry standard driver replacement
- Improved response times
- Matched rise and fall times
- Reduced clock skew
- Low output impedance
- Low input capacitance
- High noise immunity
- Improved clocking rate
- Low supply current
- Wide operating voltage range

### Applications

- Clock/line drivers
- CCD Drivers
- Ultra-sound transducer drivers
- Power MOSFET drivers
- Switch mode power supplies
- Class D switching amplifiers
- Ultrasonic and RF generators
- Pulsed circuits

### Ordering Information

PART NUMBER	TEMP. RANGE	PACKAGE	PKG. NO.
EL7202CN	-40°C to +85°C	8-Pin PDIP	MDP0031
EL7202CS	-40°C to +85°C	8-Pin SO	MDP0027
EL7212CN	-40°C to +85°C	8-Pin PDIP	MDP0031
EL7212CS	-40°C to +85°C	8-Pin SO	MDP0027
EL7222CN	-40°C to +85°C	8-Pin PDIP	MDP0031
EL7222CS	-40°C to +85°C	8-Pin SO	MDP0027

## EL7202, EL7212, EL7222

### Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Supply (V+ to Gnd) . . . . . 16.5V	Operating Junction Temperature . . . . . 125°C
Input Pins . . . . . -0.3V to +0.3V above V+	Power Dissipation
Combined Peak Output Current . . . . . 4A	SOIC . . . . . 570mW
Storage Temperature Range . . . . . -65°C to +150°C	PDIP . . . . . 1050mW
Ambient Operating Temperature . . . . . -40°C to +85°C	

*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<sub>J</sub> = T<sub>C</sub> = T<sub>A</sub>*

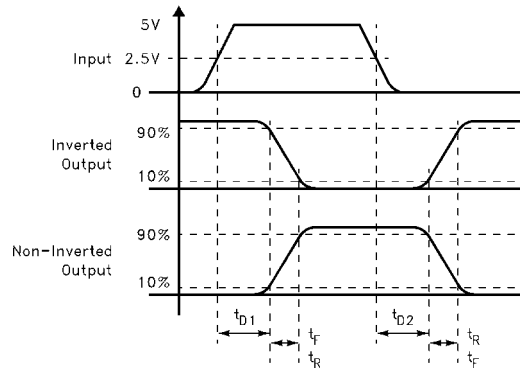
### DC Electrical Specifications T<sub>A</sub> = 25°C, V = 15V unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>						
V <sub>IH</sub>	Logic "1" Input Voltage		2.4			V
I <sub>IH</sub>	Logic "1" Input Current	@V+		0.1	10	μA
V <sub>IL</sub>	Logic "0" Input Voltage				0.8	V
I <sub>IL</sub>	Logic "0" Input Current	@0V		0.1	10	μA
V <sub>HVS</sub>	Input Hysteresis			0.3		V
<b>OUTPUT</b>						
R <sub>OH</sub>	Pull-Up Resistance	I <sub>OUT</sub> = -100mA		3	6	Ω
R <sub>OL</sub>	Pull-Down Resistance	I <sub>OUT</sub> = +100mA		4	6	Ω
I <sub>PK</sub>	Peak Output Current	Source Sink		2 2		A
I <sub>DC</sub>	Continuous Output Current	Source/Sink	100			mA
<b>POWER SUPPLY</b>						
I <sub>S</sub>	Power Supply Current	Inputs High/EL7202 Inputs High/EL7212 Inputs High/EL7222		4.5 1 2.5	7.5 2.5 5.0	mA
V <sub>S</sub>	Operating Voltage		4.5		15	V

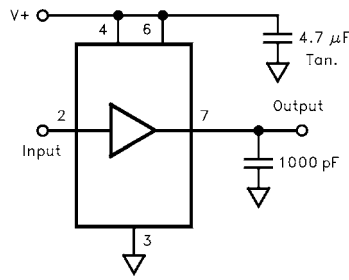
### AC Electrical Specifications T<sub>A</sub> = 25°C, V = 15V unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>SWITCHING CHARACTERISTICS</b>						
t <sub>R</sub>	Rise Time	C <sub>L</sub> = 500pF C <sub>L</sub> = 1000pF		7.5 10	20	ns
t <sub>F</sub>	Fall Time	C <sub>L</sub> = 500pF C <sub>L</sub> = 1000pF		10 13	20	ns
t <sub>D1</sub>	Turn-On Delay Time	See Timing Table		18	25	ns
t <sub>D2</sub>	Turn-Off Delay Time	See Timing Table		20	25	ns

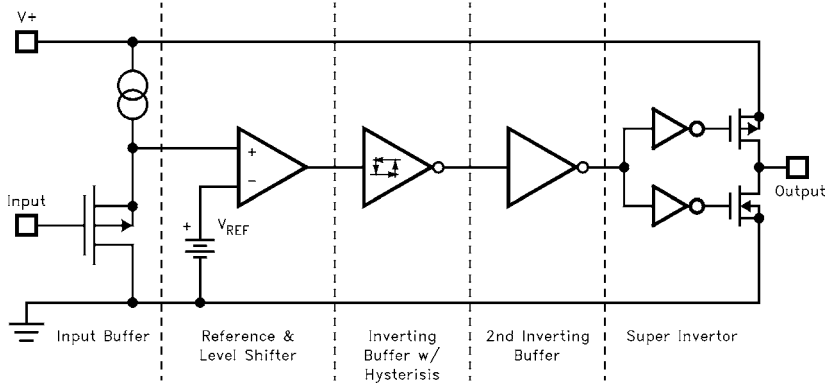
**Timing Table**



**Standard Test Configuration**

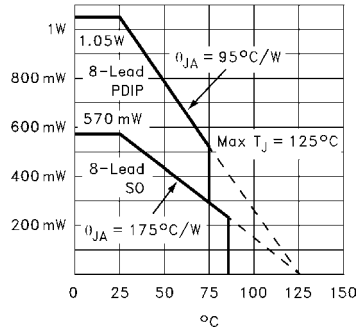


**Simplified Schematic**

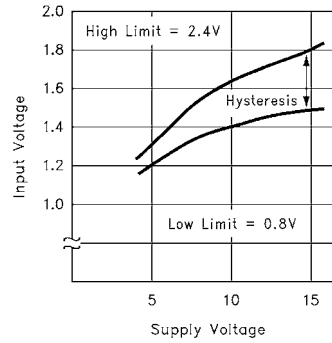


Typical Performance Curves

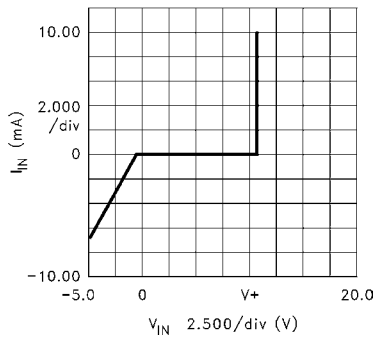
Max Power/Derating Curves



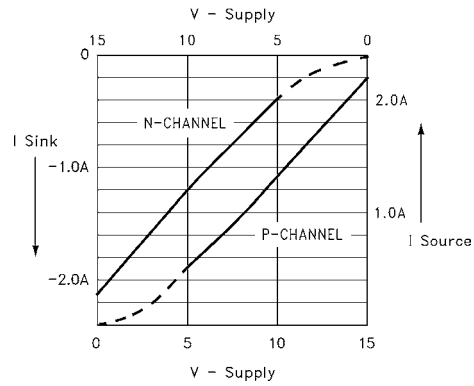
Switch Threshold vs Supply Voltage



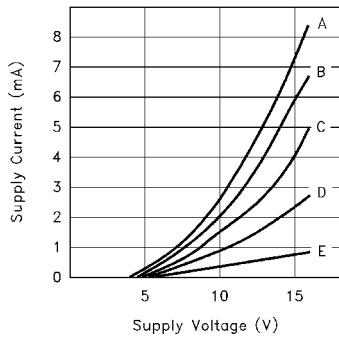
Input Current vs Voltage



Peak Drive vs Supply Voltage



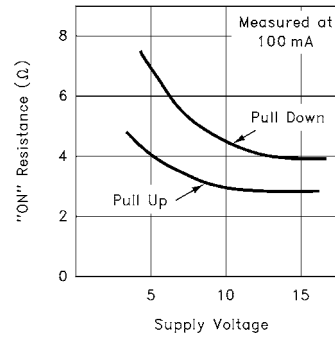
Quiescent Supply Current



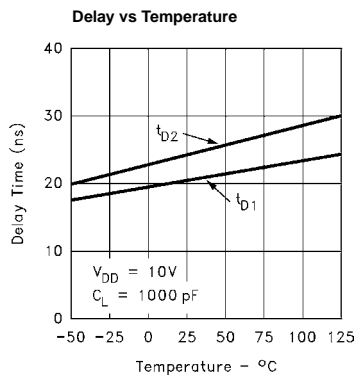
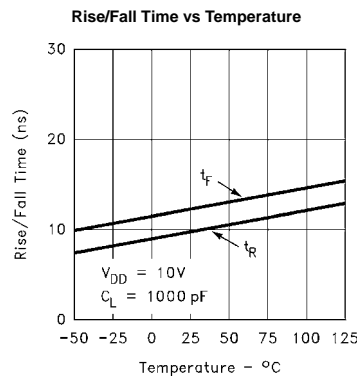
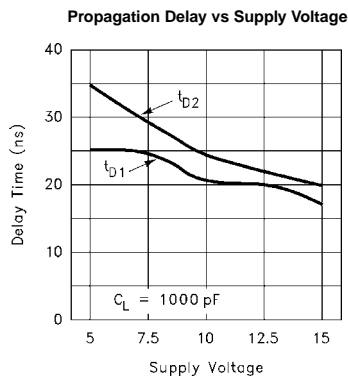
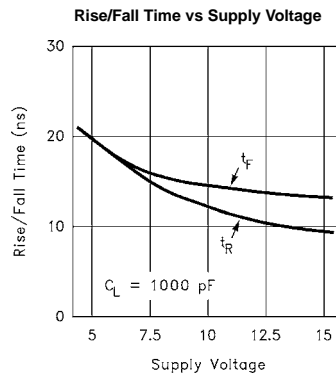
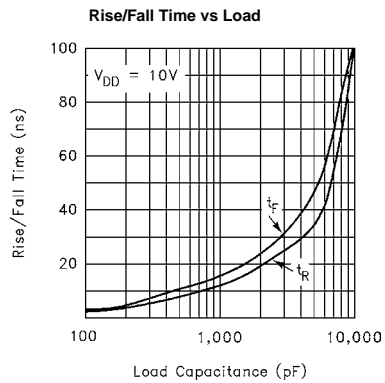
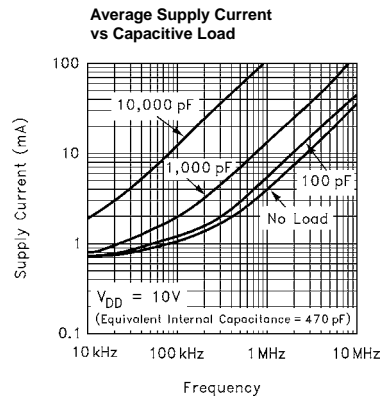
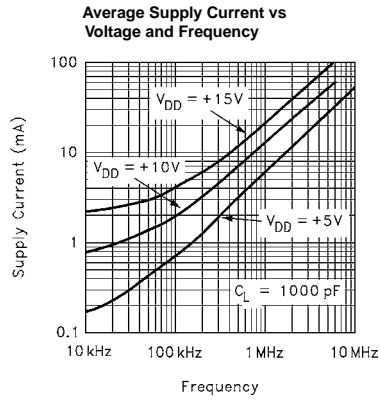
CASE:

Device	Input Level	Curve
EL7202	GND	A
EL7202	GND, V+	B
EL7202	V+	C
EL7212	GND	C
EL7212	GND, V+	D
EL7212	V+	E
EL7222	GND	B
EL7222	GND, V+	C
EL7222	V+	D

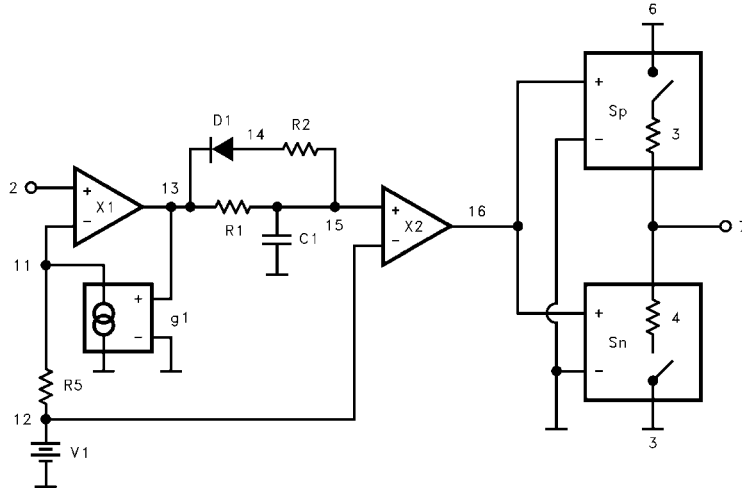
"ON" Resistance vs Supply Voltage



Typical Performance Curves (Continued)



**EL7212 Macro Model**



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**** EL7212 model ****
*           input
*           |   gnd
*           |   |   Vsupply
*           |   |   |
*           |   |   |   Vout
.subckt M7212 2 3 6 7
V1 12 3 1.6
R1 13 15 1k
R2 14 15 5k
R5 11 12 100
C1 15 3 43.3 pF
D1 14 13 dmod
X1 13 11 2 3 comp1
X2 16 12 15 3 comp1
sp 6 7 16 3 spmod
sn 7 3 16 3 snmod
g1 11 0 13 0 938µ
.model dmod d
.model spmod vswitch ron3 roff2meg von1 voff1.5
.model snmod vswitch ron4 roff2meg von3 voff2
.ends M7212
.subckt comp1 out inp inm vss
e1 out vss table { (v(inp) v(inm))* 5000} (0,0) (3.2,3.2)
Rout out vss 10meg
Rinp inp vss 10meg
Rinm inm vss 10meg
.ends comp1
    
```

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