

## 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 range
- Separate drain connections

## Applications

- Clock/line drivers
- CCD drivers
- Ultrasound transducer drivers
- Power MOSFET drivers
- Switch mode power supplies
- Resonant charging
- Cascoded drivers

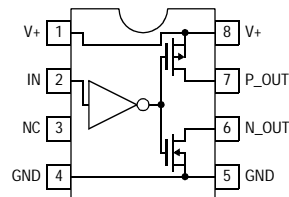
## Ordering Information

Part No.	Package	Tape & Reel	Outline #
EL7154CN	8-Pin PDIP		MDP0031
EL7154CS	8-Pin SO		MDP0027

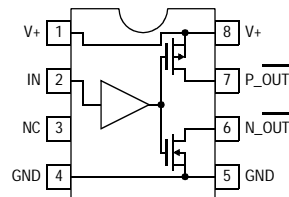
## General Description

The EL7104C and EL7114C ICs are matched driver ICs that improve the operation of the industry-standard TC-4420/29 clock drivers. The Elantec versions are very high speed drivers capable of delivering peak currents of 1A 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 drivers.

## Connection Diagrams



EL7104C  
Non-inverting Driver



EL7114C  
Inverting Driver

Note: All information contained in this data sheet has been carefully checked and is believed to be accurate as of the date of publication; however, this data sheet cannot be a "controlled document". Current revisions, if any, to these specifications are maintained at the factory and are available upon your request. We recommend checking the revision level before finalization of your design documentation.

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# EL7104C, EL7114C

## High Speed, Single Channel, Power MOSFET Drivers

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

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

#### Important Note:

All parameters having Min/Max specifications are guaranteed. Typ 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 Characteristics

$T_A = 25^\circ\text{C}$ ,  $V_+ = 15\text{V}$  unless otherwise specified.

Parameter	Description	Test Conditions	Min	Typ	Max	Unit
<b>Input</b>						
$V_{IH}$	Logic "1" Input Voltage		2.4			V
$I_{IH}$	Logic "1" Input Current	@V+		0.1	10	$\mu\text{A}$
$V_{IL}$	Logic "0" Input Voltage				0.8	V
$I_{IL}$	Logic "0" Input Current	@0V		0.1	10	$\mu\text{A}$
$V_{HVS}$	Input Hysteresis			0.3		V
<b>Output</b>						
$R_{OH}$	Pull-Up Resistance	$I_{OUT} = -100\text{ mA}$		1.5	4	$\Omega$
$R_{OL}$	Pull-Down Resistance	$I_{OUT} = +100\text{ mA}$		2	4	$\Omega$
$I_{OUT}$	Output Leakage Current	V+/GND		0.2	10	$\mu\text{A}$
$I_{PK}$	Peak Output Current	Source Sink		4.0 4.0		A
$I_{DC}$	Continuous Output Current	Source/Sink	200			mA
<b>Power Supply</b>						
$I_S$	Power Supply Current	Input = V+ EL7104C EL7114C		4.5 1	7.5 2.5	mA
$V_S$	Operating Voltage		4.5		16	V

### AC Electrical Characteristics

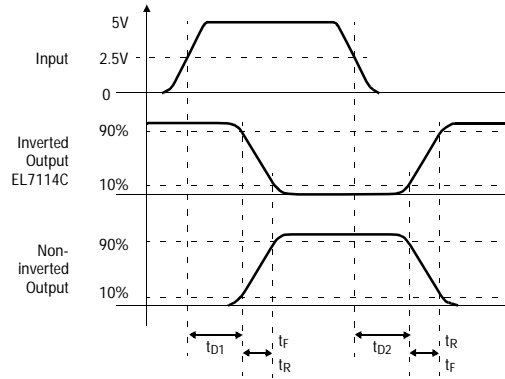
$T_A = 25^\circ\text{C}$ ,  $V = 15\text{V}$  unless otherwise specified.

Parameter	Description	Test Conditions	Min	Typ	Max	Unit
<b>Switching Characteristics (<math>V_{DD} = V_H = 12\text{V}</math>; <math>V_L = -3\text{V}</math>)</b>						
$t_R$	Rise Time	$C_L = 1000\text{ pF}$		7.5		ns
		$C_L = 2000\text{ pF}$		10	20	ns
$t_F$	Fall Time	$C_L = 1000\text{ pF}$		10		ns
		$C_L = 2000\text{ pF}$		15	20	ns
$t_{D-ON}$	Turn-On Delay Time	See Timing Table		18	25	ns
$t_{D-OFF}$	Turn-Off Delay Time	See Timing Table		18	25	ns

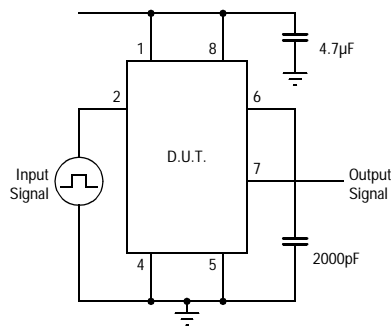
# EL7104C, EL7114C

## High Speed, Single Channel, Power MOSFET Drivers

### Timing Table



### Standard Test Configuration

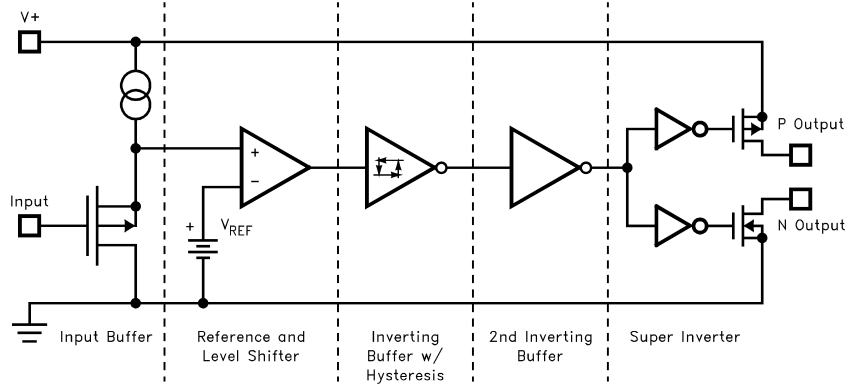


EL7104C, EL7114C

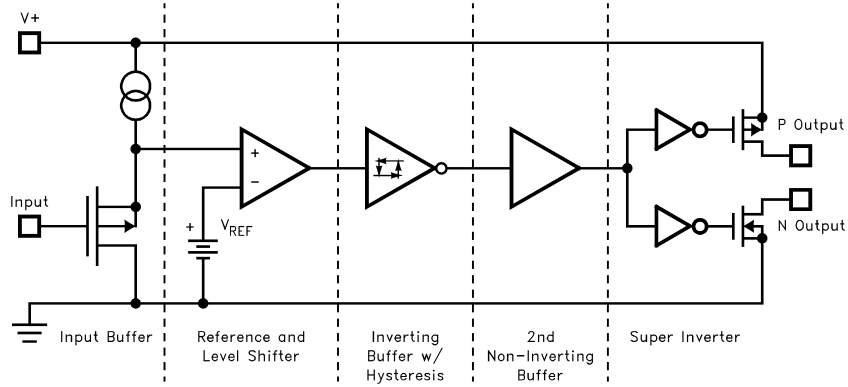
# EL7104C, EL7114C

High Speed, Single Channel, Power MOSFET Drivers

## EL7104C Simplified Schematic



## EL7114C Simplified Schematic

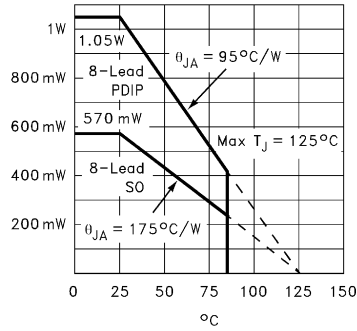


# EL7104C, EL7114C

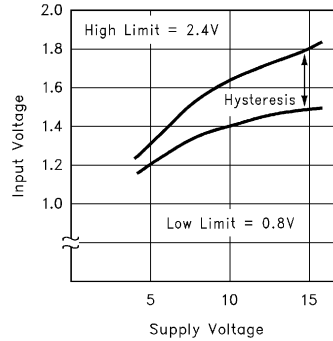
## High Speed, Single Channel, Power MOSFET Drivers

### Typical Performance Curves

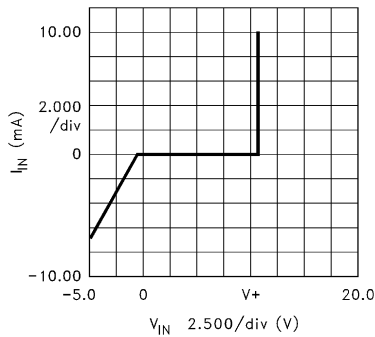
Max Power/Derating Curves



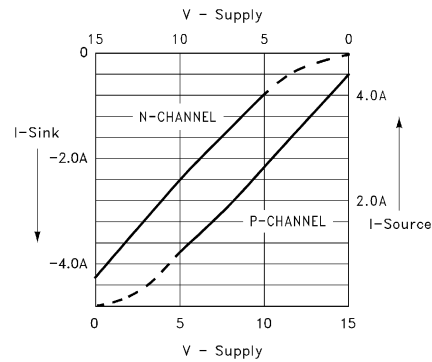
Switch Threshold vs Supply Voltage



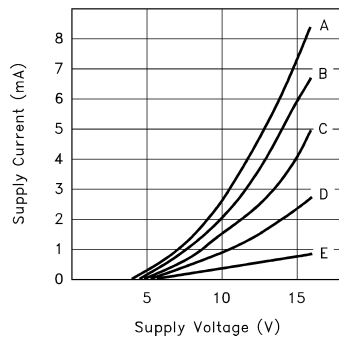
Input Current vs Voltage



Peak Drive vs Supply Voltage



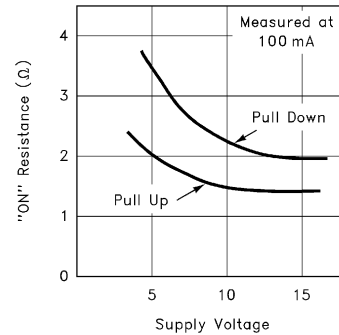
Quiescent Supply Current



CASE:

Device	Input Level	Curve
EL7104	GND	A
EL7104	V+	C
EL7114	GND	D
EL7114	V+	E

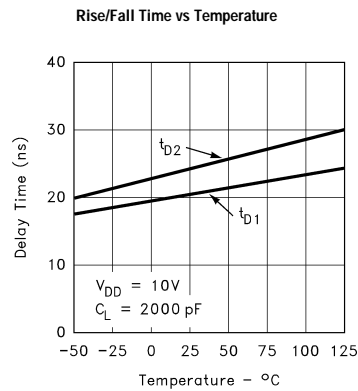
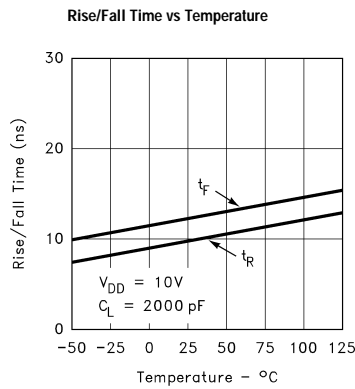
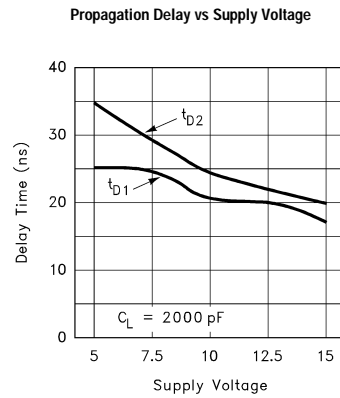
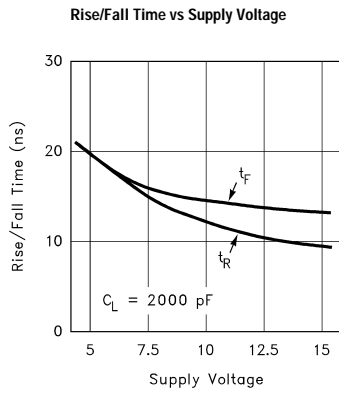
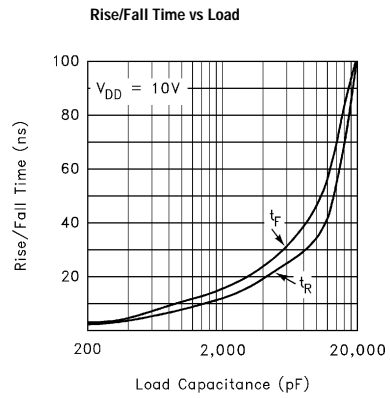
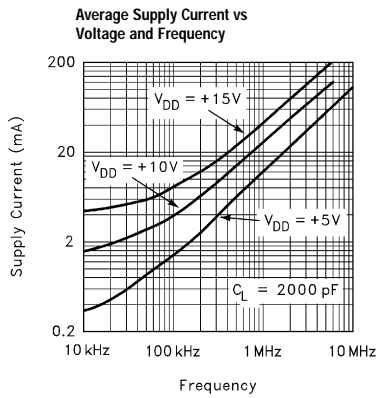
"ON" Resistance vs Supply Voltage



EL7104C, EL7114C

# EL7104C, EL7114C

High Speed, Single Channel, Power MOSFET Drivers



EL7104C, EL7114C

# ***EL7104C, EL7114C***

***High Speed, Single Channel, Power MOSFET Drivers***

## **General Disclaimer**

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***élantec***

HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

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