

**Features**

- Logic and input
- 3V and 5V Input compatible
- Clocking speeds up to 10 MHz
- 20 ns Switching/delay time
- 4A Peak drive
- Isolated drains
- Low output impedance—2.5Ω
- Low quiescent current—5 mA
- Wide operating voltage—4.5V–16V

**Applications**

- Short circuit protected switching
- Under-voltage shut-down circuits
- Switch-mode power supplies
- Motor controls
- Power MOSFET switching
- Switching capacitive loads
- Asymmetrical switching
- Resonant charging
- Cascoded switching

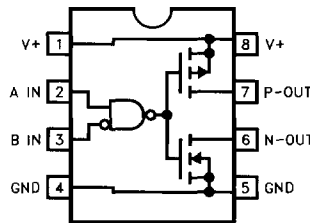
**Ordering Information**

Part No.	Temp. Range	Pkg.	Outline #
EL7144CN	-40°C to +85°C	8-Pin P-DIP	MDP0031
EL7144CS	-40°C to +85°C	8-Pin SOIC	MDP0027

**General Description**

The EL7144C dual input, driver achieves excellent switching while providing added flexibility. The 2-input logic and configuration coupled with the "isolated drains" makes this part well suited for various driver applications requiring an asymmetrical drive, resonant charging, and gated control. Providing twice as much drive as the EL7242 family, the EL7144C is excellent for driving large power MOSFET's and other capacitive loads.

**Connection Diagram**



Top View

7144-1

# EL7144C

## Dual Input, High Speed, High Current Power MOSFET Driver

### Absolute Maximum Ratings

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	SOIC	570 mW
Storage Temperature Range	-65°C to +150°C	PDIP	1050 mW
Ambient Operating Temperature	-40°C to +85°C		

#### Important Note:

All parameters having Min/Max specifications are guaranteed. The Test Level column indicates the specific device testing actually performed during production and Quality Inspection. Elantec performs most electrical tests using modern high-speed automatic test equipment, specifically the LTX77 Series system. Unless otherwise noted, all tests are pulsed tests, therefore  $T_J = T_C = T_A$ .

Test Level	Test Procedure
I	100% production tested and QA sample tested per QA test plan QCX0002.
II	100% production tested at $T_A = 25^\circ\text{C}$ and QA sample tested at $T_A = 25^\circ\text{C}$ ; $T_{MAX}$ and $T_{MIN}$ per QA test plan QCX0002.
III	QA sample tested per QA test plan QCX0002.
IV	Parameter is guaranteed (but not tested) by Design and Characterization Data.
V	Parameter is typical value at $T_A = 25^\circ\text{C}$ for information purposes only.

### DC Electrical Characteristics $T_A = 25^\circ\text{C}$ , $V_+ = 15\text{V}$ unless otherwise specified

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

# EL7144C

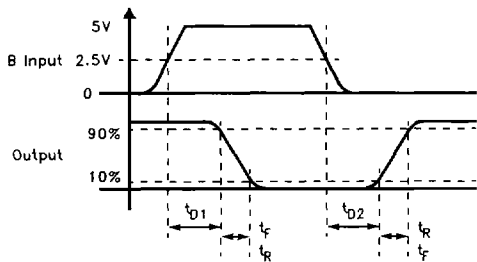
## Dual Input, High Speed, High Current Power MOSFET Driver

EL7144C

### AC Electrical Characteristics $T_A = 25^\circ\text{C}$ , $V = 15\text{V}$ unless otherwise specified

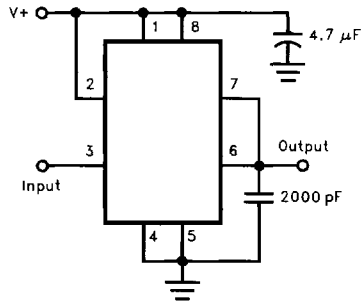
Parameter	Description	Test Conditions	Min	Typ	Max	Test Level	Units
<b>Switching Characteristics</b>							
$t_R$	Rise Time	$C_L = 1000\text{ pF}$ $C_L = 2000\text{ pF}$		7.5 10	20	IV	ns
$t_F$	Fall Time	$C_L = 1000\text{ pF}$ $C_L = 2000\text{ pF}$		10 13	20	IV	ns
$t_{D-ON}$	Turn-On Delay Time	See Timing Table		18	25	IV	ns
$t_{D-OFF}$	Turn-Off Delay Time	See Timing Table		20	25	IV	ns

Timing Table



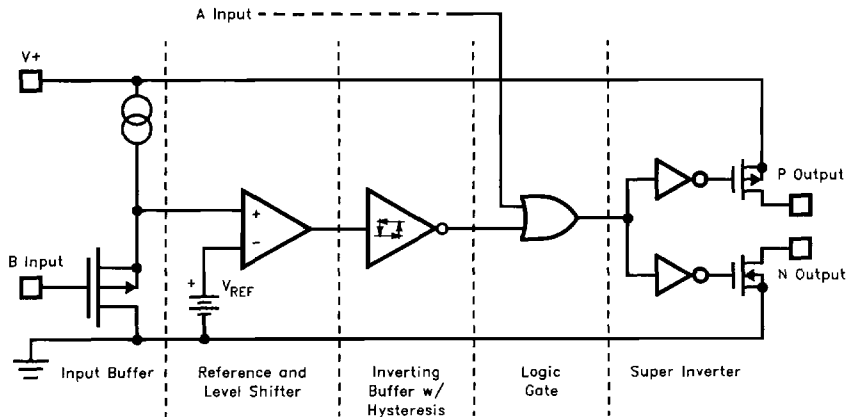
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Standard Test Configuration



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Simplified Schematic



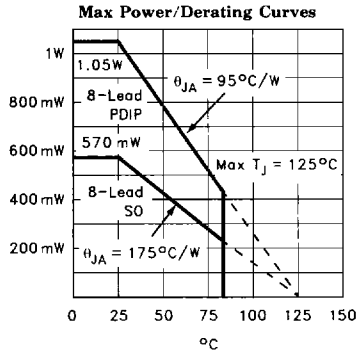
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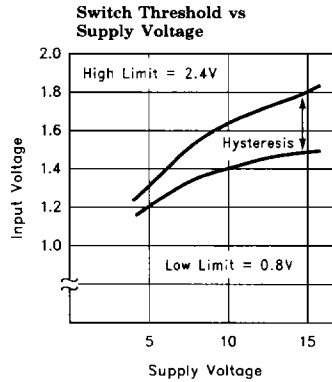
# EL7144C

## Dual Input, High Speed, High Current Power MOSFET Driver

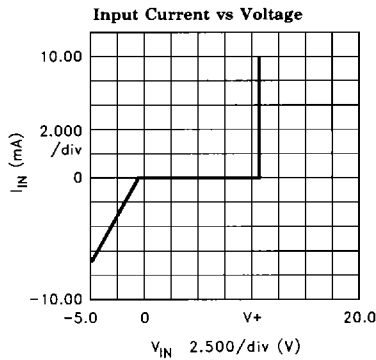
### Typical Performance Curve



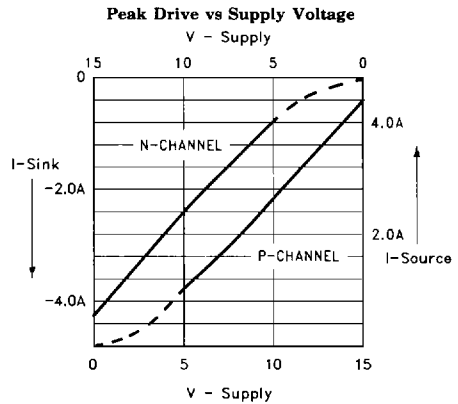
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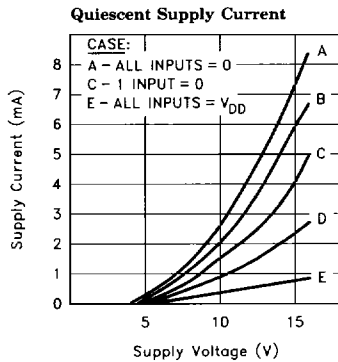
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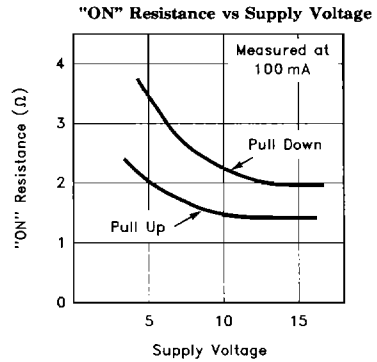
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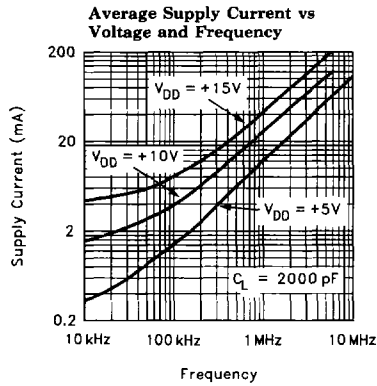


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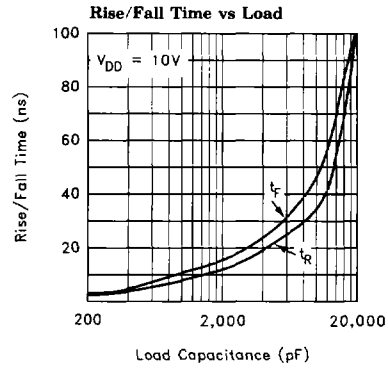


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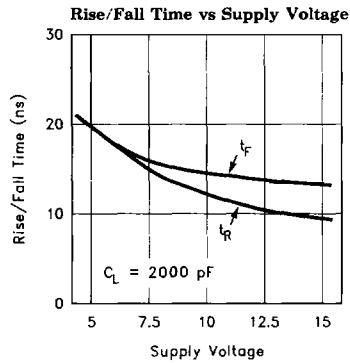
### Typical Performance Curve — Contd.



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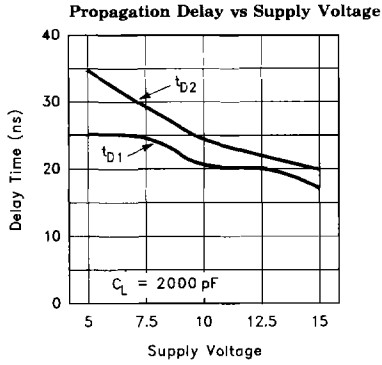


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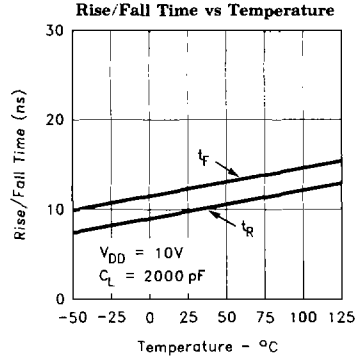
# EL7144C

## Dual Input, High Speed, High Current Power MOSFET Driver

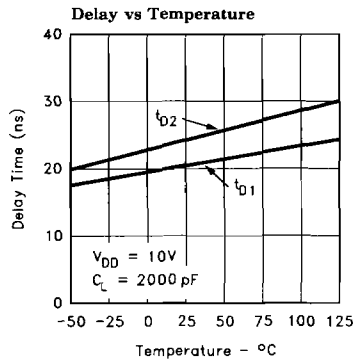
### Typical Performance Curve — Contd.



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