

**Features**

- Excellent 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**

- Full bridge drivers
- 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

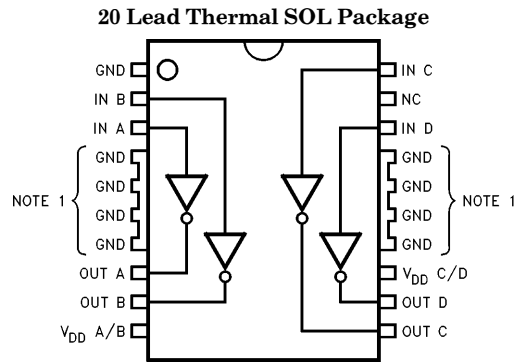
**Ordering Information**

Part No.	Temp. Range	Pkg.	Outline #
EL7412CM	-40°C to +85°C	20 Lead Thermal SOL	MDP0027

**General Description**

The EL7412C contains (4) high performance matched drivers. These very high speed drivers are capable of delivering peak currents of 2.0 amps into highly capacitive loads and are ideally suited for "Full bridge" and ultrasound applications. 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. The 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.

**Connection Diagram**



7412-1

Note 1: Pins 4-7 and 14-17 are electrically connected.

Manufactured under U.S. Patent Nos. 5,334,883, # 5,331,047

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.

# EL7412C

## High Speed, Four Channel Power MOSFET Drivers

### 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	
Combined Peak Output Current	8A	20-Pin "Batwing" SOIC	1500 mW
Storage Temperature Range	-65°C to +150°C		
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 $T_A = 25^\circ\text{C}$ , $V_{DD} = 15\text{V}$ unless otherwise specified

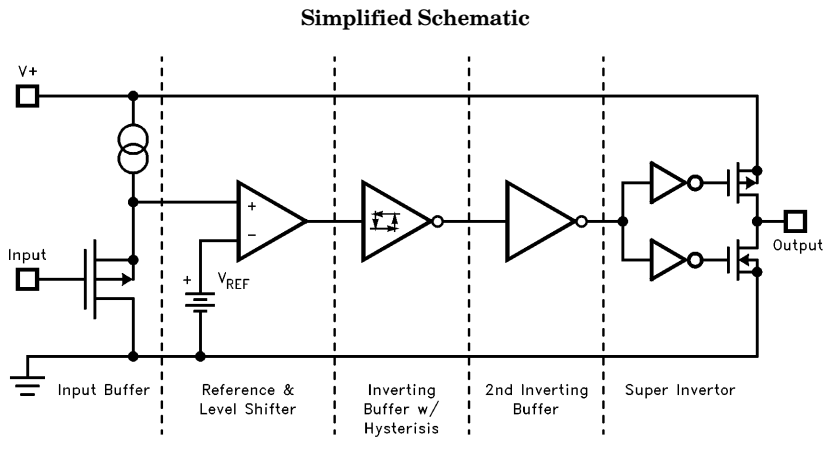
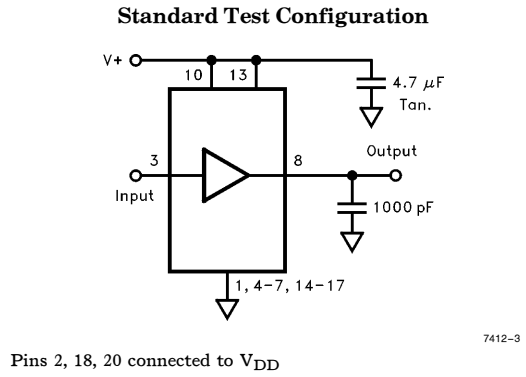
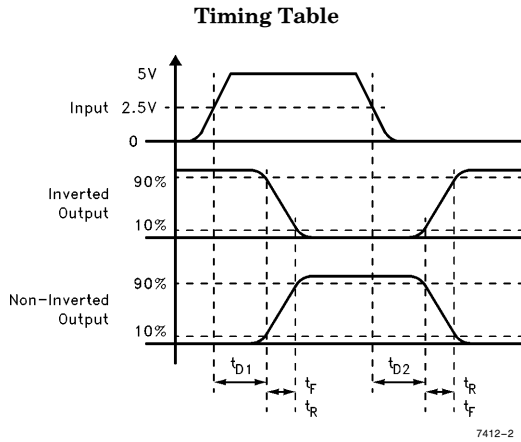
Parameter	Description	Test Conditions	Min	Typ	Max	Test Level	Units
<b>Input</b>							
$V_{IH}$	Logic "1" Input Voltage		2.4			I	V
$I_{IH}$	Logic "1" Input Current	@ $V_{DD}$		0.1	10	I	$\mu\text{A}$
$V_{IL}$	Logic "0" Input Voltage				0.8	I	V
$I_{IL}$	Logic "0" Input Current	@0V		0.1	10	I	$\mu\text{A}$
$V_{HVS}$	Input Hysteresis			0.3		V	V
<b>Output</b>							
$R_{OH}$	Pull-Up Resistance	$I_{OUT} = -100\text{ mA}$		3	6	I	$\Omega$
$R_{OL}$	Pull-Down Resistance	$I_{OUT} = +100\text{ mA}$		4	6	I	$\Omega$
$I_{PK}$	Peak Output Current	Source Sink		2 2		IV	A
$I_{DC}$	Continuous Output Current	Source/Sink	100			I	mA
<b>Power Supply</b>							
$I_S$	Power Supply Current	Inputs High		2	5	I	mA
$V_S$	Operating Voltage		4.5		15	I	V

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

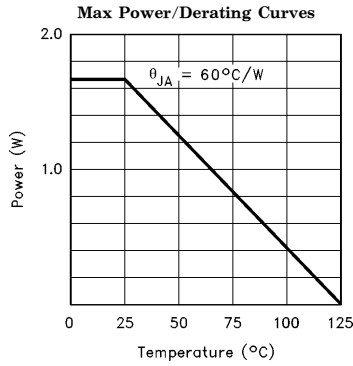
Parameter	Description	Test Conditions	Min	Typ	Max	Test Level	Units
<b>Switching Characteristics</b>							
$t_R$	Rise Time	$C_L = 500\text{ pF}$ $C_L = 1000\text{ pF}$		7.5 10	20	IV	ns
$t_F$	Fall Time	$C_L = 500\text{ pF}$ $C_L = 1000\text{ pF}$		10 13	20	IV	ns
$t_{D1}$	Turn-On Delay Time	See Timing Table		18	25	IV	ns
$t_{D2}$	Turn-Off Delay Time	See Timing Table		20	25	IV	ns



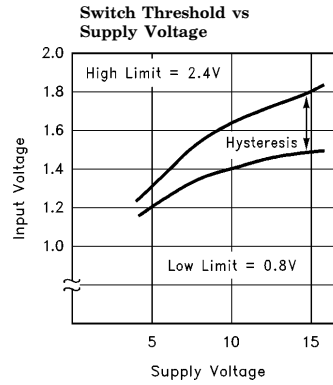
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## High Speed, Four Channel Power MOSFET Drivers

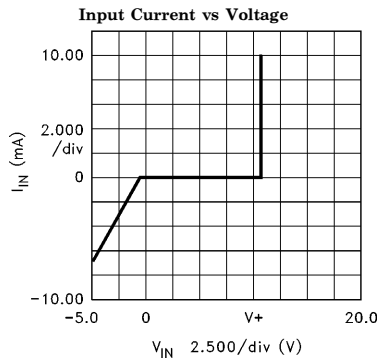
### Typical Performance Curves



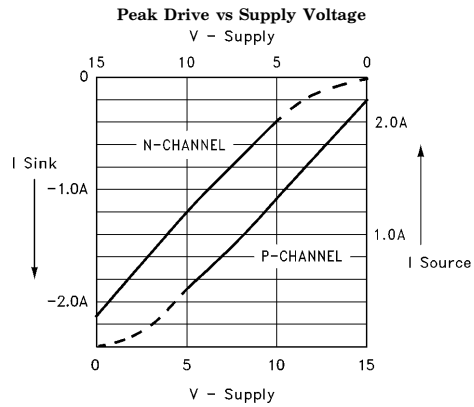
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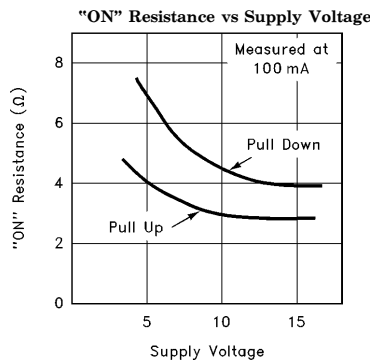
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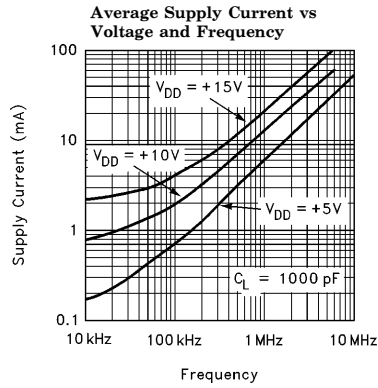


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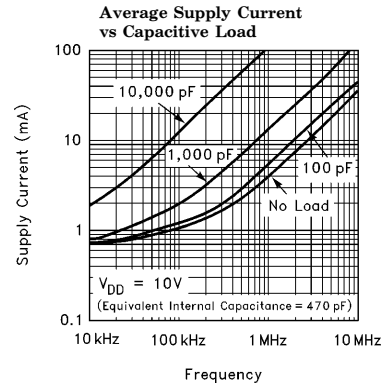
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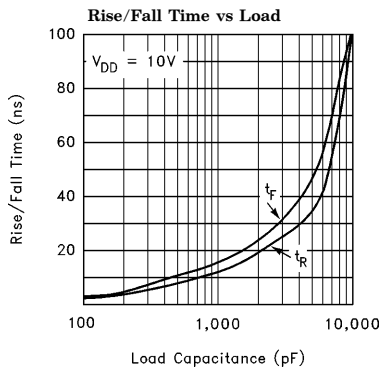
### Typical Performance Curves — Contd.



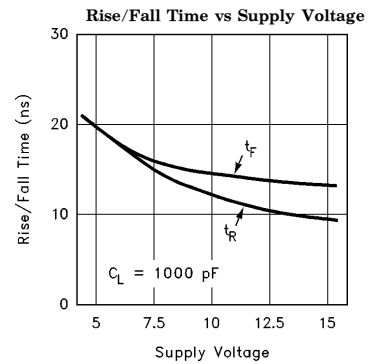
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7412-12



7412-13

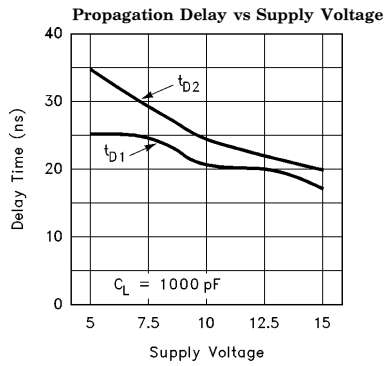


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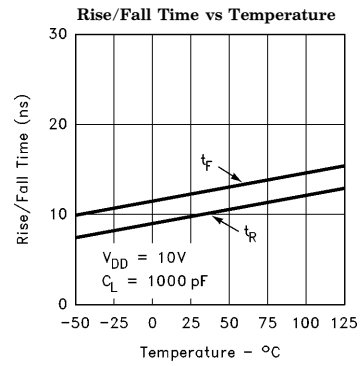
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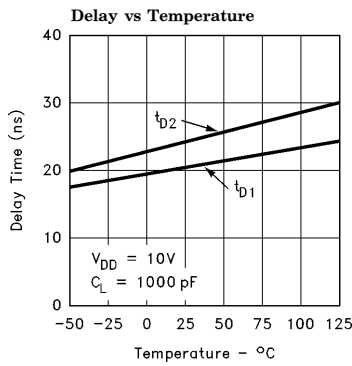
### Typical Performance Curves — Contd.



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7412-16



7412-17

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# **EL7412C**

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

### **General Disclaimer**

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**élantec**  
HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

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### **WARNING — Life Support Policy**

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