

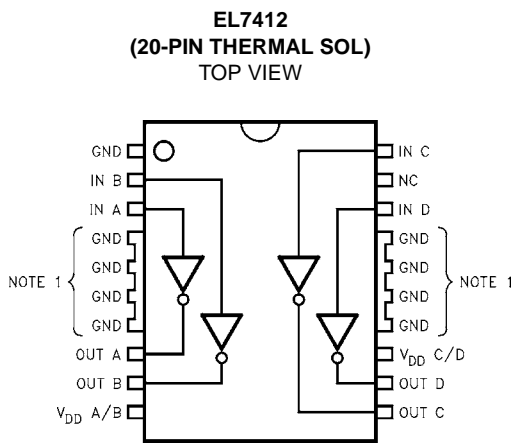
High Speed, Four Channel Power MOSFET Drivers



The EL7412 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.

Pinout



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

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

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 NUMBER	TEMP. RANGE	PACKAGE	PKG. NO.
EL7412CM	-40°C to +85°C	20-Pin SOL	MDP0027

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

Supply (V+ to Gnd)	16.5V	Ambient Operating Temperature	-40°C to +85°C
Input Pins	-0.3V to +0.3V above V+	Operating Junction Temperature	125°C
Combined Peak Output Current8A	Power Dissipation	
Storage Temperature Range	-65°C to +150°C	20-Pin "Batwing" SOIC	1500mW

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: $T_J = T_C = T_A$

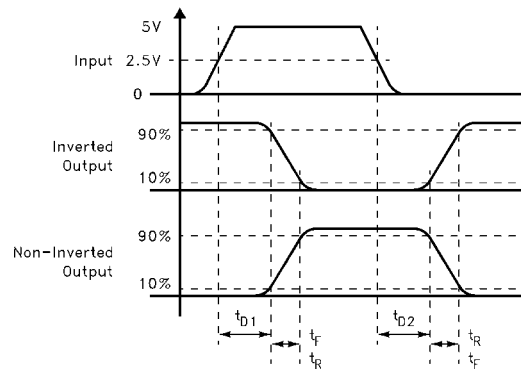
DC Electrical Specifications $T_A = 25^\circ\text{C}$, $V_{DD} = 15\text{V}$ unless otherwise specified

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_{DD}		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	$I_{OUT} = -100\text{mA}$		3	6	Ω
R_{OL}	Pull-Down Resistance	$I_{OUT} = +100\text{mA}$		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		2	5	mA
V_S	Operating Voltage		4.5		15	V

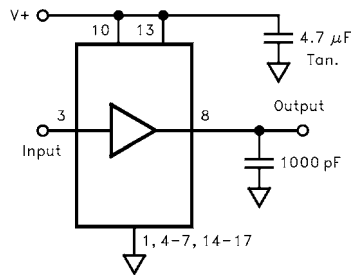
AC Electrical Specifications $T_A = 25^\circ\text{C}$, $V = 15\text{V}$ unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
SWITCHING CHARACTERISTICS						
t_R	Rise Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$		7.5 10	20	ns
t_F	Fall Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$		10 13	20	ns
t_{D1}	Turn-On Delay Time	See Timing Table		18	25	ns
t_{D2}	Turn-Off Delay Time	See Timing Table		20	25	ns

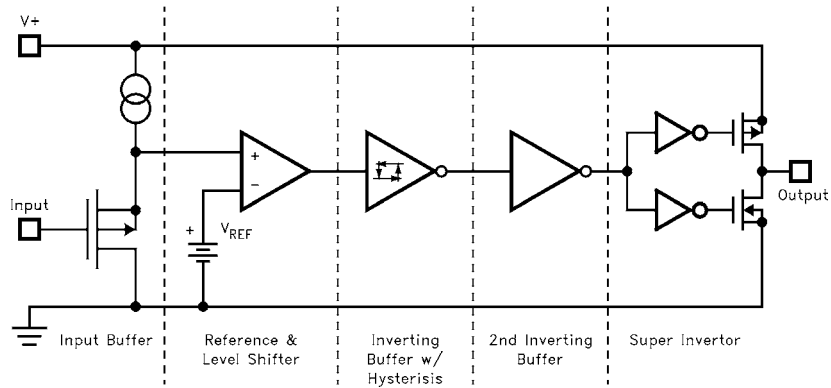
Timing Table



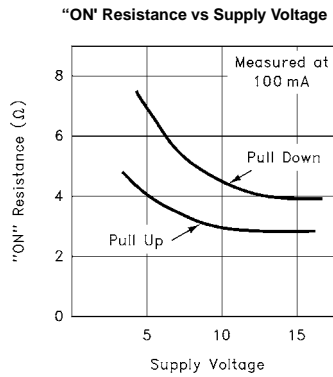
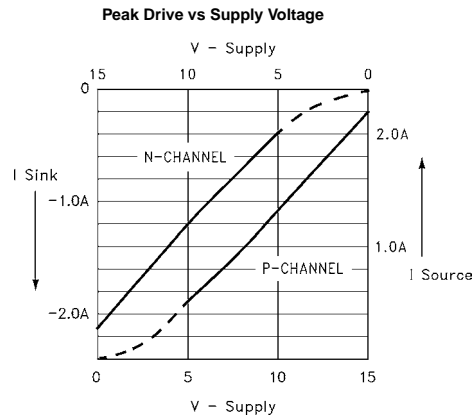
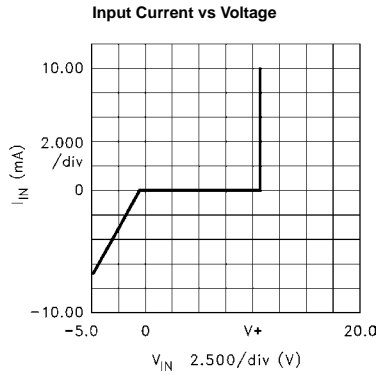
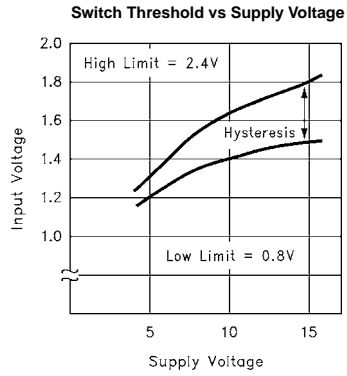
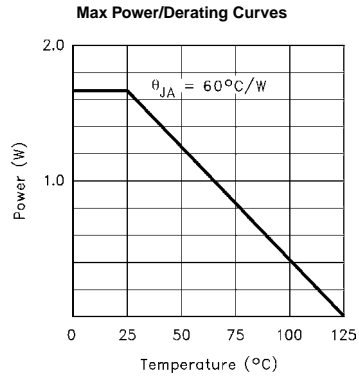
Standard Test Configuration



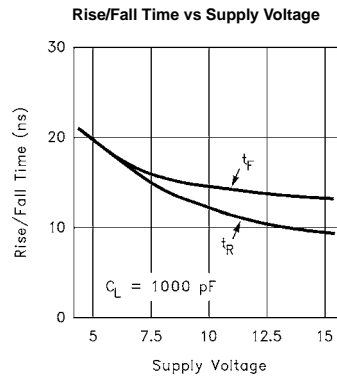
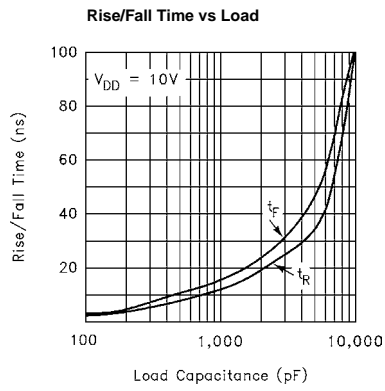
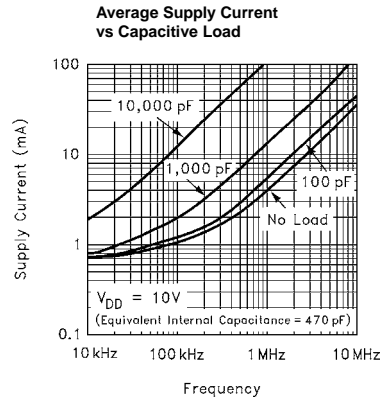
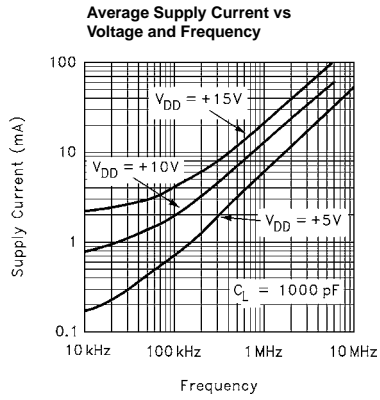
Simplified Schematic



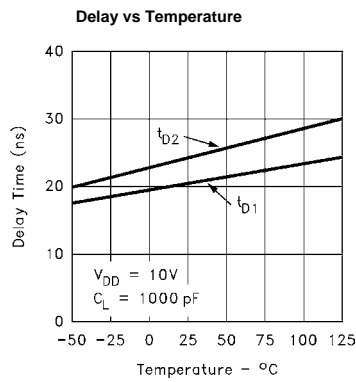
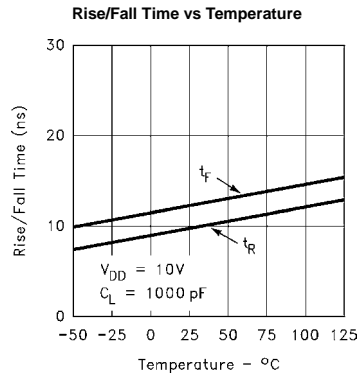
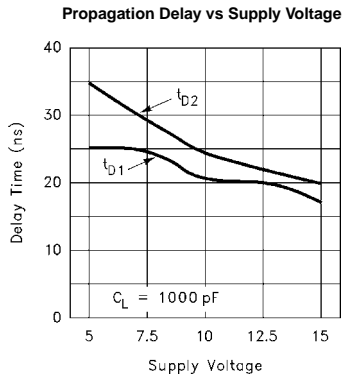
Typical Performance Curves



Typical Performance Curves (Continued)



Typical Performance Curves (Continued)



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