

Features

- Logic AND/NAND input
- 3V and 5V Input compatible
- Clocking speeds up to 10 MHz
- 20 ns Switching/delay time
- 2A Peak drive
- Isolated drains
- Low output impedance
- Low quiescent current
- 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
- Shoot-thru protection
- Latching drivers

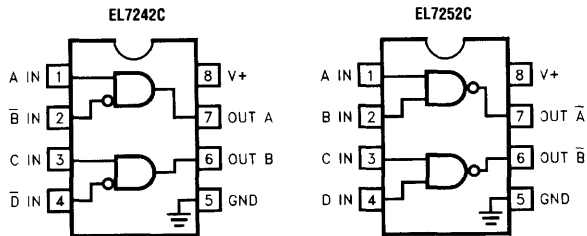
Ordering Information

| Part No. | Package | Tape & Reel | Outline # |
|--------------|---------|-------------|-----------|
| EL7242CN | PDIP-8 | - | MDP0031 |
| EL7242CS | SO-8 | - | MDP0027 |
| EL7242CS-T7 | SO-8 | 7 in | MDP0027 |
| EL7242CS-T13 | SO-8 | 13 in | MDP0027 |
| EL7252CN | PDIP-8 | - | MDP0031 |
| EL7252CS | SO-8 | - | MDP0027 |
| EL7252CS-T7 | SO-8 | 7 in | MDP0027 |
| EL7252CS-T13 | SO-8 | 13 in | MDP0027 |

General Description

The EL7242C, EL7252C dual input, 2-channel drivers achieve the same excellent switching performance of the EL7212C family while providing added flexibility. The 2-input logic and configuration is applicable to numerous power MOSFET drive circuits. As with other Elantec drivers, the EL7242C, EL7252C are excellent for driving large capacitive loads with minimal delay and switching times. "Shoot-thru" protection and latching circuits can be implemented by simply "cross-coupling" the 2-channels.

Connection Diagrams



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

EL7242C, EL7252C

Dual Input, High Speed, Dual Channel Power MOSFET Driver

EL7242C, EL7252C

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 | 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 | Units |
|--------------|-------------|---------------------------|---------------------------|--------|-----|---------------|
| Input | V_{IH} | Logic '1' Input Voltage | 2.4 | | | V |
| | I_{IH} | Logic '1' Input Current | @V+ | 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 | 1 | 2.5 | mA |
| | V_S | Operating Voltage | | 4.5 | 16 | V |

AC Electrical Characteristics

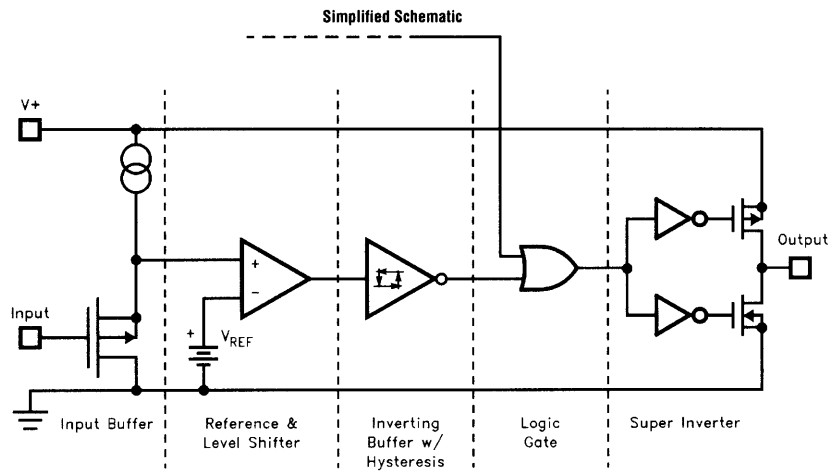
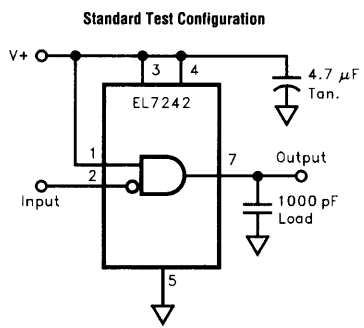
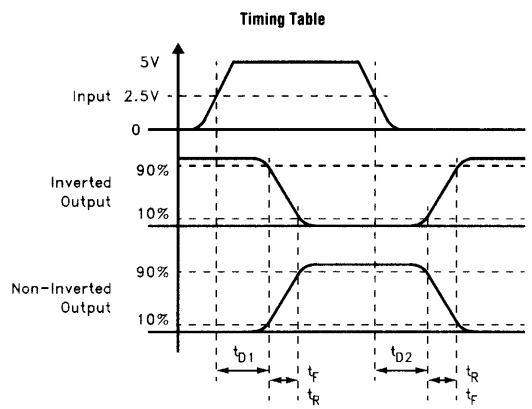
$T_A = 25^\circ\text{C}$, $V = 15\text{V}$ unless otherwise specified

| Parameter | Description | Test Conditions | Min | Typ | Max | Units |
|---------------------------|--------------|---------------------|---|-----|----------|-------|
| Switching Characteristics | t_R | Rise Time | $C_L = 500\text{pF}$ $C_L = 1000\text{pF}$ | | 10 20 | ns |
| | t_F | Fall Time | $C_L = 500\text{pF}$ $C_L = 1000\text{pF}$ | | 10 20 | ns |
| | t_{D_ON} | Turn-On Delay Time | | 20 | 25 | ns |
| | t_{D_OFF} | Turn-Off Delay Time | | 20 | 25 | ns |

MOSFET Drivers & Comparators

EL7242C, EL7252C

Dual Input, High Speed, Dual Channel Power MOSFET Driver

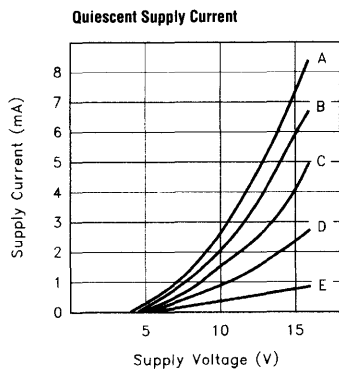
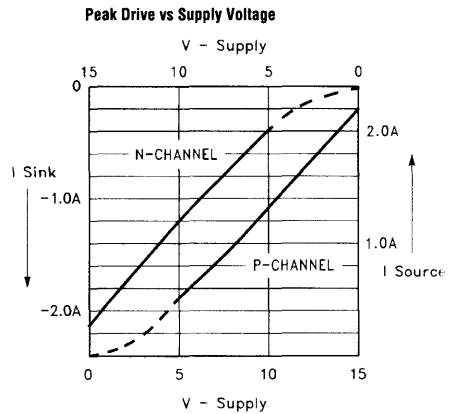
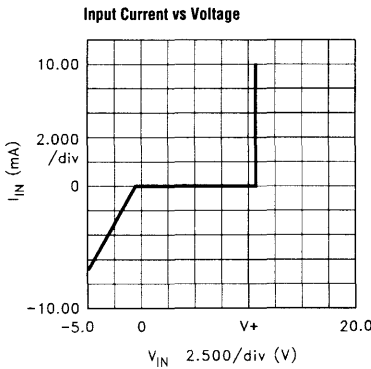
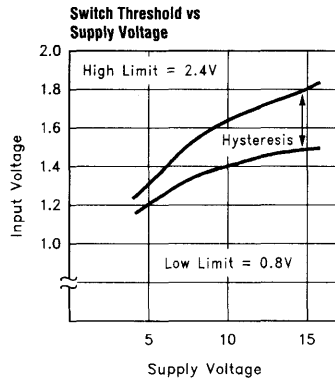
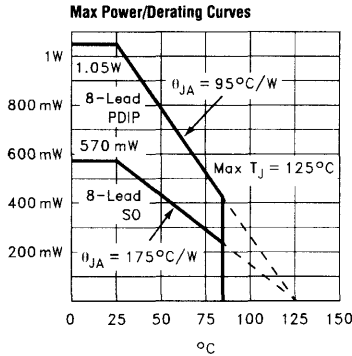


EL7242C, EL7252C

Dual Input, High Speed, Dual Channel Power MOSFET Driver

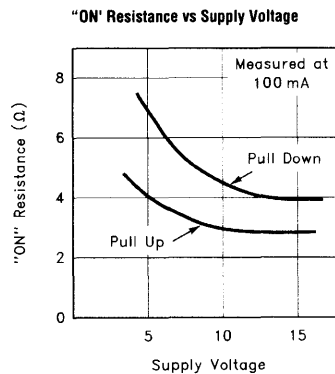
EL7242C, EL7252C

Typical Performance Curves



CASE:

| | |
|---|----------------|
| A | ALL INPUTS GND |
| B | 3 INPUTS GND |
| C | 2 INPUTS GND |
| D | 1 INPUT GND |
| E | ALL INPUTS V+ |

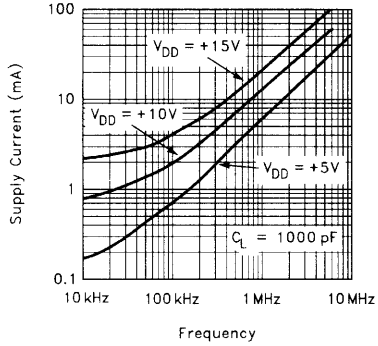


MOSFET Drivers & Comparators

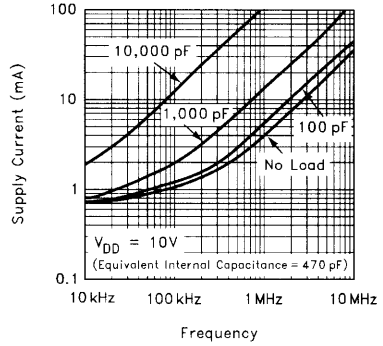
EL7242C, EL7252C

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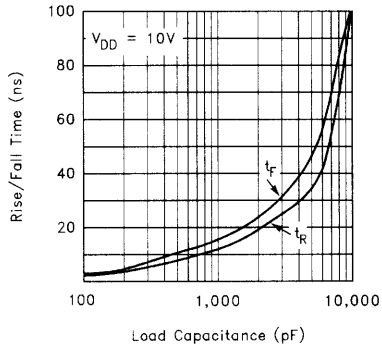
Average Supply Current vs Voltage and Frequency



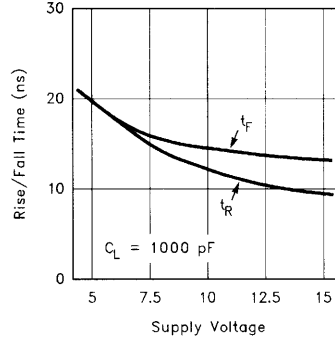
Average Supply Current vs Capacitive Load



Rise/Fall Time vs Load



Rise/Fall Time vs Supply Voltage

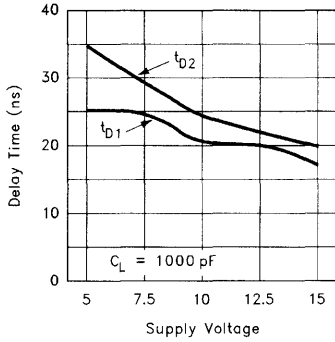


EL7242C, EL7252C

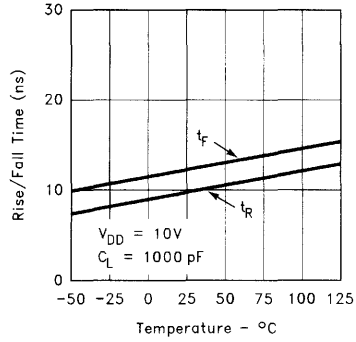
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EL7242C, EL7252C

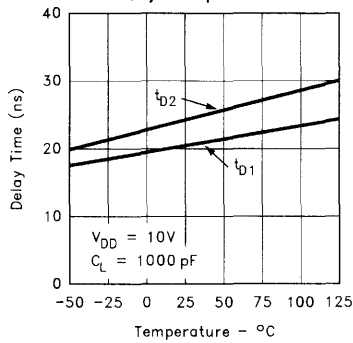
Propagation Delay vs Supply Voltage



Rise/Fall Time vs Temperature



Delay vs Temperature



MOSFET Drivers & Comparators