



**THE DATASHEET OF  
EL7243CM**



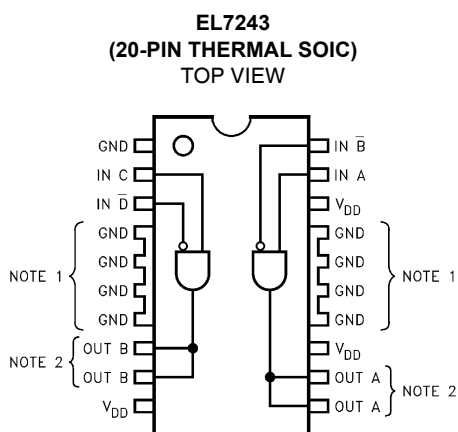
EL7243

Dual Input, High Speed, Dual Channel CCD Driver

FN7286  
Rev 1.00  
May 13, 2005

The EL7243 dual input, 2-channel driver achieves the same excellent switching performance of the EL7212 family while providing added flexibility. The power package makes this part extremely well suited for high frequency and heavy loads as in CCD applications. The 2-input logic and configuration is applicable to numerous power MOSFET drive circuits. As with other Elantec drivers, the EL7243 is 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.

**Pinout**



Note 1: Pins 4-7 and 14-17 are electrically connected.  
Note 2: Output pins must be tied together.

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

**Features**

- Logic AND/NAND input
- 3V and 5V Input compatible
- Clocking speeds up to 20MHz
- 20ns Switching/delay time
- 2A Peak drive
- Isolated drains
- Low output impedance
- Low quiescent current
- Wide operating voltage — 4.5V to 16V
- Pb-Free available (RoHS compliant)

**Applications**

- CCD Drivers
- 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 NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL7243CM	20-Pin SOIC	-	MDP0027
EL7243CM-T13	20-Pin SOIC	13"	MDP0027
EL7243CMZ (See Note)	20-Pin SOIC (Pb-free)	-	MDP0027
EL7243CMZ-T13 (See Note)	20-Pin SOIC (Pb-free)	13"	MDP0027

NOTE: Intersil Pb-free products employ special Pb-free material sets; molding compounds/die attach materials and 100% matte tin plate termination finish, which are RoHS compliant and compatible with both SnPb and Pb-free soldering operations. Intersil Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J STD-020.

**Absolute Maximum Ratings** (T<sub>A</sub> = 25°C)

Supply (V+ to Gnd) . . . . . 16.5V  
 Input Pins . . . . . -0.3V to +0.3V above V+  
 Combined Peak Output Current . . . . . .4A  
 Storage Temperature Range . . . . . -65°C to +150°C

Ambient Operating Temperature . . . . . -40°C to +85°C  
 Operating Junction Temperature . . . . . 125°C  
 Power Dissipation  
 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<sub>J</sub> = T<sub>C</sub> = T<sub>A</sub>*

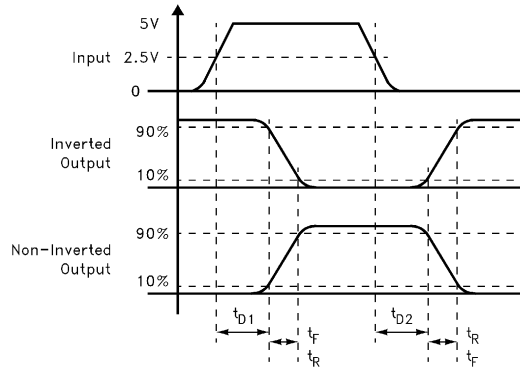
**DC Electrical Specifications** T<sub>A</sub> = 25°C, V<sub>DD</sub> = 15V unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>						
V <sub>IH</sub>	Logic "1" Input Voltage		2.4			V
I <sub>IH</sub>	Logic "1" Input Current	@V <sub>DD</sub>		0.1	10	μA
V <sub>IL</sub>	Logic "0" Input Voltage				0.8	V
I <sub>IL</sub>	Logic "0" Input Current	@0V		0.1	10	μA
V <sub>HVS</sub>	Input Hysteresis			0.3		V
<b>OUTPUT</b>						
R <sub>OH</sub>	Pull-Up Resistance	I <sub>OUT</sub> = -100mA		3	6	Ω
R <sub>OL</sub>	Pull-Down Resistance	I <sub>OUT</sub> = +100mA		4	6	Ω
I <sub>PK</sub>	Peak Output Current	Source Sink		2 2		A
I <sub>DC</sub>	Continuous Output Current	Source/Sink	200			mA
<b>POWER SUPPLY</b>						
I <sub>S</sub>	Power Supply Current	Inputs High		1	2.5	mA
V <sub>S</sub>	Operating Voltage		4.5		16	V

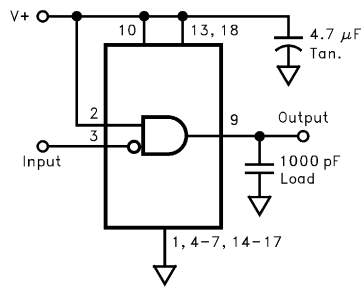
**AC Electrical Specifications** T<sub>A</sub> = 25°C, V = 15V unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>SWITCHING CHARACTERISTICS</b>						
t <sub>R</sub>	Rise Time	C <sub>L</sub> = 500pF C <sub>L</sub> = 1000pF			10 20	ns
t <sub>F</sub>	Fall Time	C <sub>L</sub> = 500pF C <sub>L</sub> = 1000pF			10 20	ns
t <sub>D-ON</sub>	Turn-On Delay Time			20	25	ns
t <sub>D-OFF</sub>	Turn-Off Delay Time			20	25	ns

**Timing Table**

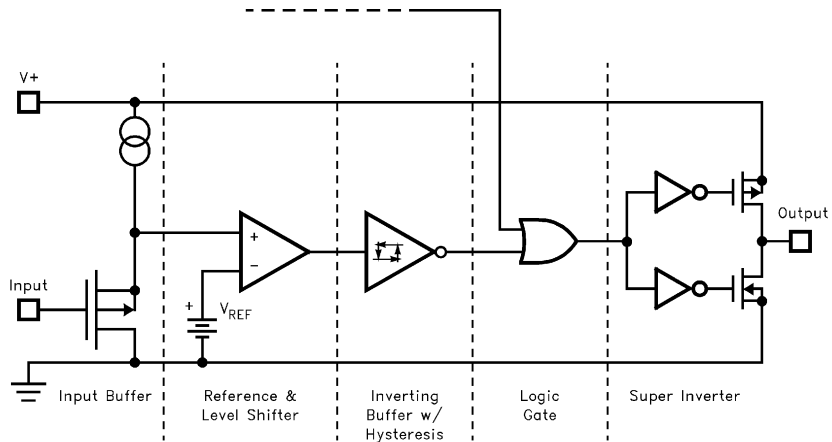


**Standard Test Configuration**

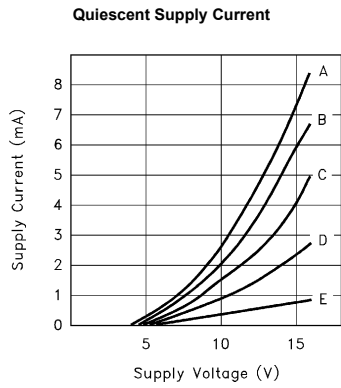
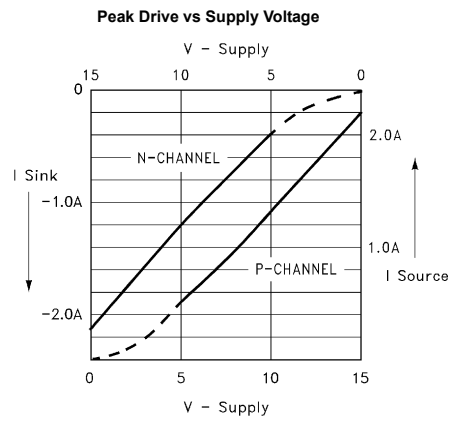
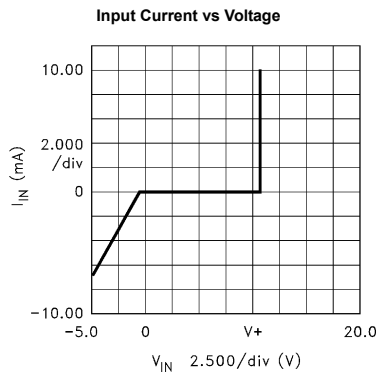
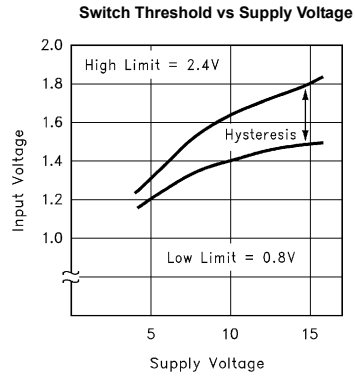
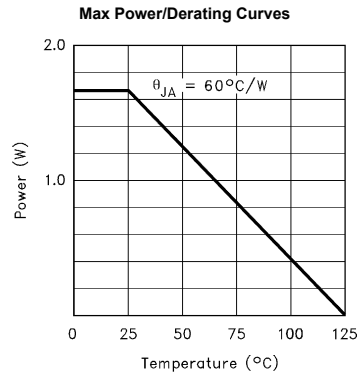


Pins 19, 20 connected to V+

**Simplified Schematic**

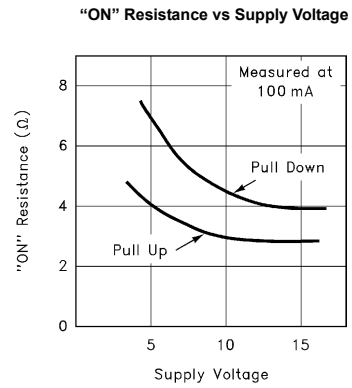


# Typical Performance Curves

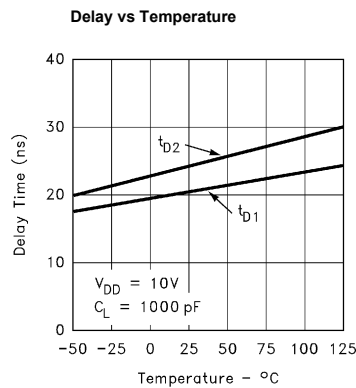
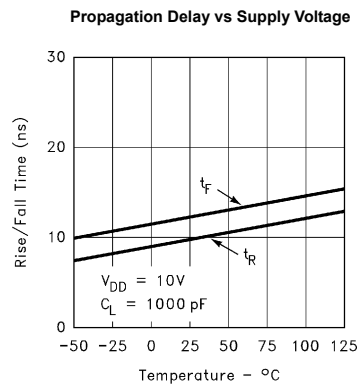
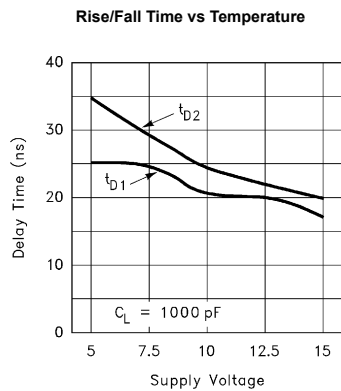
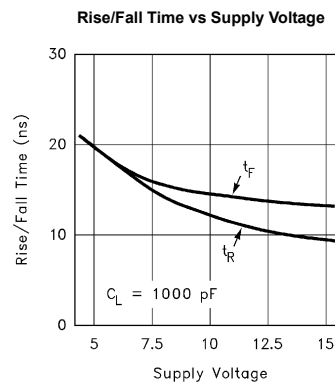
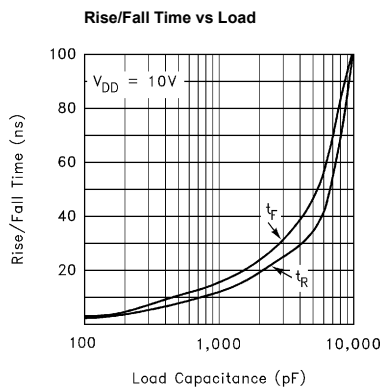
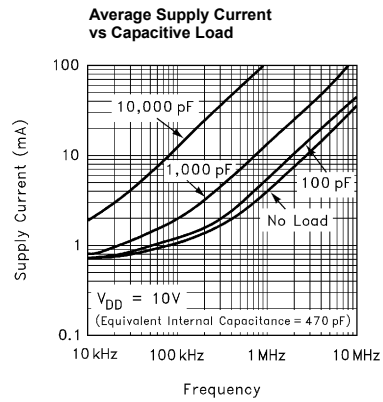
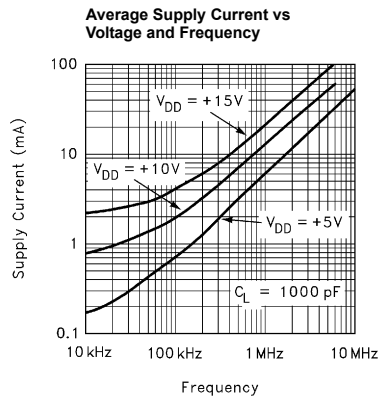


CASE:

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

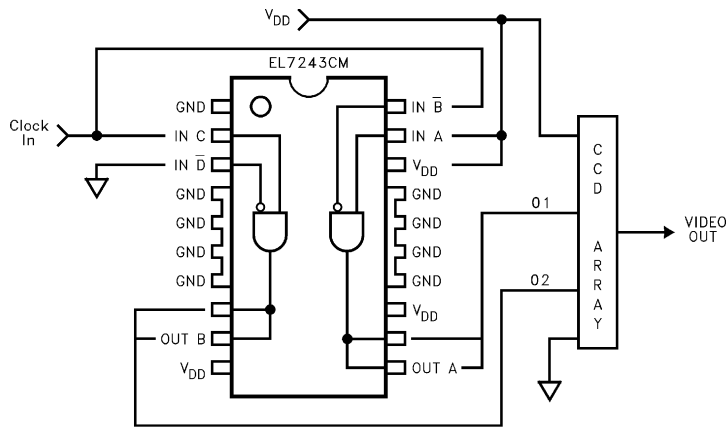


**Typical Performance Curves (Continued)**

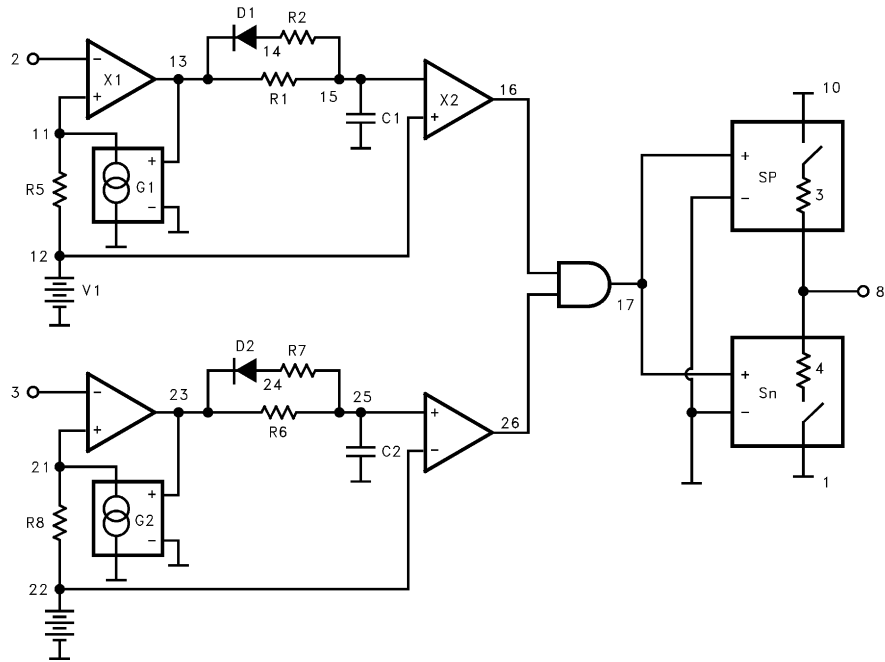


**Applications Information**

**Typical CCD Configuration**



**EL7243 Macromodel**



**EL7243 Macromodel**

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* EL7243 Macromodel
* Revision A, January 1996
* Connections
      Gnd
*      |
*      | Inp+
*      | | Inp-
*      | | | out
*      | | | | VCC
.subckt M7243 1 2 3 8 10
V1 12 1 1.6
R1 13 15 1k
R2 14 15 5k
R5 11 12 100
C1 15 1 43.3pF
D1 14 13 dmod
X1 13 11 2 1 comp1
X2 16 12 15 1 comp1
V2 22 1 1.6
R6 23 25 1K
R7 24 25 5K
R8 21 22 100
C2 25 1 43.3pF
D2 24 23 dmod
X3 23 21 3 1 comp1
X4 26 25 22 1 comp1
X5 16 26 17 1 And-gate
sp 10 8 17 1 spmod
sn 8 1 17 1 snmod
g1 11 1 13 1 938u
g2 21 1 23 1 938u
.model dmod d
.model spmod vswitch ron=3 roff=2meg von=1 voff=1.5
.model snmod vswitch ron=4 roff=2meg von=3 voff=2
.ends M7243
* AND Gate Subcircuit*
.subckt And-gate inp1 inp2 out-AS Vss-A
el out-A Vss-A table {v(inp1)*v(inp2)} = (0, 3.2) (3.2, 0)
Rout-a out-a vss-a 10 meg
rinpa inp1 vss-a 10 meg
rinpb inp2 vss-a 10 meg
.ends and-gate
* Comparator Subcircuit *
.subckt comp1 out inp inm vss
el out vss table {(v(inp)-v(inm))*5000} = (0,0) (3.2, 3.2)
Rout out vss 10meg
Rinp inp vss 10meg
Rinm inm vss 10meg
.ends omp1

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