

FN7368

PRELIMINARY

intersil

Data Sheet

V_{COM} with Dual Gamma Buffer

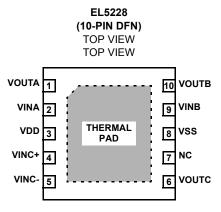


The EL5228 integrates a high power V_{COM} amplifier with dual gamma reference voltage buffers. With 180mA

peak and 65mA typical output current, the V_{COM} amplifier is suitable for all sizes of LCD displays. The dual gamma buffers can output 30mA typical, 120mA peak and feature a bandwidth of 12MHz and a slew rate of 15V/µs. The V_{COM} amplifier has a 44MHz bandwidth and 80V/µs slew rate.

The EL5228 operates from just 3.5mA typical supply current and is packaged in the high-power DFN-10 package. It is specified for operation over the -40°C to +85°C temperature range.

Pinout



Features

- High power V_{COM} amplifier

March 25, 2004

- 180mA peak (65mA typ.) output current
- 55MHz bandwidth
- 75V/µs slew rate
- · Dual gamma buffers
 - 120mA peak (30mA typ.) output current
 - 12MHz bandwidth
 - 10V/µs slew rate
- · Just 3.5mA supply current
- Small DFN-10 package

Applications

- TFT-LCD displays
- · Flat panel monitors
- Notebook displays
- LCD-TVs

Ordering Information

PART NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL5228IL	10-Pin DFN	-	MDP0047
EL5228IL-T13	10-Pin DFN	13"	MDP0047
EL5228IL-T7	10-Pin DFN	7"	MDP0047

1

Absolute Maximum Ratings (T_A = 25°C)

V _{CC} Supply Voltage between VS and GND	TBD
Supply Voltage between VSD and GND	TBD
Maximum Continuous Output Current	TBD
Ambient Operating Temperature	TBD

Maximum Die Temperature TE	3D
Storage Temperature TE	3D
Power Dissipation See Curv	es

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: $T_J = T_C = T_A$

PARAMETER	DESCRIPTION	CONDITION	MIN	TYP	MAX	UNIT
GAMMA BUFFE	R INPUT CHARACTERISTICS		1	1	1	1
V _{OS}	Input Offset Voltage	V _{CM} = 7.5V		2	14	mV
TCV _{OS}	Average Offset Voltage Drift	(Note 1)		5		µV/°C
IB	Input Bias Current	V _{CM} = 7.5V		2	50	nA
R _{IN}	Input Impedance			1		GΩ
C _{IN}	Input Capacitance			2		pF
A _V	Voltage Gain	$0.5 \le V_{OUT} \le 14.5 V$, R _L = $10 k\Omega$	0.995		1.005	V/V
GAMMA BUFFE	ER OUTPUT CHARACTERISTICS			I		
V _{OL}	Output Swing Low	I _L = -5mA		80	150	mV
V _{OH}	Output Swing High	I _L = 5mA	14.85	14.92		V
I _{SC}	Short Circuit Current	Short to GND (Note 2)	±80	±120		mA
GAMMA BUFFE	R DYNAMIC PERFORMANCE					
SR	Slew Rate (Note 3)	$1V \leq V_{OUT} \leq 14V, 20\%$ to 80%, R_L = $10k\Omega$	7	10		V/µs
ts	Settling to +0.1%	V _O = 2V Step		500		ns
BW	-3dB Bandwidth	$R_{L} = 10 k\Omega, C_{L} = 10 pF$		12		MHz
CS	Channel Separation	f = 5MHz		75		dB
V _{COM} AMPLIFI	ER INPUT CHARACTERISTICS					
V _{OS}	Input Offset Voltage	V _{CM} = 7.5V		3	15	mV
TCV _{OS}	Average Offset Voltage Drift (Note 4)			7		µV/°C
IB	Input Bias Current	V _{CM} = 7.5V		2	60	nA
R _{IN}	Input Impedance			1		GΩ
C _{IN}	Input Capacitance			2		pF
CMIR	Common-Mode Input Range		-0.5		+15.5	V
CMRR	Common-Mode Rejection Ratio	for V _{IN} from -0.5V to 15.5V	53	72		dB
A _{VOL}	Open-Loop Gain	$0.5V \le V_{OUT} \le 14.5V$	62	70		dB
V _{COM} AMPLIFI	ER OUTPUT CHARACTERISTICS					
V _{OL}	Output Swing Low	I _L = -5mA		80	150	mV
V _{OH}	Output Swing High	I _L = 5mA	14.85	14.92		V
I _{SC}	Short-circuit Current			±180		mA
IOUT	Output Current			±65		mA

Electrical Specifications V_{S} + = +15V, V_{S} - = 0V, R_{L} = 1k Ω to 7.5V, T_{A} = 25°C unless otherwise specified.

intersil

2

EL5228

UNIT

V/µs

ns

MHz

MHz

0

% 0

dB

mA

CONDITION PARAMETER DESCRIPTION MIN TYP MAX V_{COM} AMPLIFIER DYNAMIC PERFORMANCE SR Slew Rate (Note 5) $1V \leq V_{OUT} \leq 14V,\,20\%$ to 80%75 Settling to +0.1% (A_V = +1) (A_V = +1), V_O = 2V step 80 ts BW -3dB Bandwidth 60 GBWP Gain-Bandwidth Product 32

Electrical Specifications V_{S} + = +15V, V_{S} - = 0V, R_{L} = 1k Ω to 7.5V, T_{A} = 25°C unless otherwise specified.

PM	Phase Margin			50	
d _G	Differential Gain (Note 6)	$R_F = R_G = 1k\Omega$ and $V_{OUT} = 1.4V$		0.16	
d _P	Differential Phase (Note 6)	$R_F = R_G = 1k\Omega$ and $V_{OUT} = 1.4V$		0.22	
POWER SU	JPPLY PERFORMANCE				
PSRR	Power Supply Rejection Ratio	$\rm V_S$ is moved from 4.5V to 15.5V	60	80	
I _S	Supply Current	No load		3.5	5
NOTEO					

NOTES:

1. Measured over the operating temperature range

2. Parameter is guaranteed (but not test) by design and characterization data

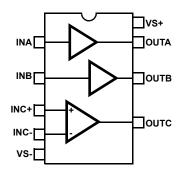
3. Slew rate is measured on rising and falling edges

4. Measured over operating temperature range

5. Slew rate is measured on rising and falling edges

6. NTSC signal generator used

Typical Application Diagram



All Intersil U.S. products are manufactured, assembled and tested utilizing ISO9000 guality systems. Intersil Corporation's quality certifications can be viewed at www.intersil.com/design/quality

Intersil products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.

For information regarding Intersil Corporation and its products, see www.intersil.com

