EL5127C, EL5227C, EL5327C, EL5427C

2.5MHz 4-, 8-, 10- & 12-Ch Rail-to-Rail Buffers

Features

- 2.5MHz -3dB bandwidth
- Supply voltage = 4.5V to 16.5V
- Low supply current (per buffer) = 120µA
- High slew rate = 1.5V/µs
- Rail-to-rail input/output swing
- Ultra-small packages

Applications

- TFT-LCD drive circuits
- Electronic games
- Touch-screen displays
- Personal communication devices
- Personal digital assistants (PDA)
- Portable instrumentation

Ordering Information

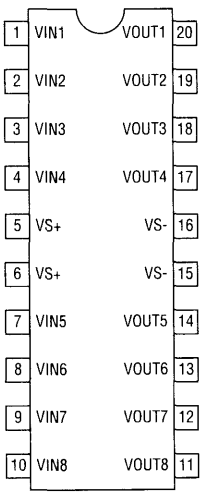
Part No	Package	Tape & Reel	Outline #
EL5127CY	10-Pin MSOP	-	MDP0043
EL5227CL	24-Pin LPP	-	MDP0046
EL5227C	20-Pin TSSOP	-	MDP0044
EL5327CL	24-Pin LPP	-	MDP0046
EL5427CL	32-Pin LPP	-	MDP0046

General Description

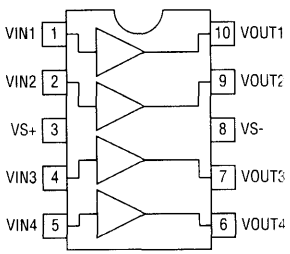
The EL5127C, EL5227C, EL5327C, and EL5427C are low power, high voltage rail-to-rail input/output buffers designed for use in reference voltage buffering applications in small LCD displays. They are available in quad (EL5127C), octal (EL5227C), 10-channel (EL5327C), and 12-channel (EL5427C) topologies. All buffers feature a -3dB bandwidth of 2.5MHz and operate from just 120µA per buffer. This family also features a continuous output drive capability of 30mA (sink and source).

The quad channel EL5127C is available in the 10-pin MSOP package. Both the 8-channel EL5227C and 10-channel EL5327C are available in the 24-pin LPP package. The 12-channel EL5427C is available in the 32-pin LPP package. All buffers are specified for operation over the full -40°C to +85°C temperature range.

Connection Diagrams



EL5227C
(20-Pin TSSOP Top View)



EL5127C
(10-Pin MSOP)

Connection Diagrams are continued on page 4

EL5127C, EL5227C, EL5327C, EL5427C

2.5MHz 4-, 8-, 10- & 12-Ch Rail-to-Rail Buffers

Absolute Maximum Ratings (T_A = 25°C)

Values beyond absolute maximum ratings can cause the device to be prematurely damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Supply Voltage Between V_S+ and V_S-	+18V
Input Voltage	V_S- - 0.5V, V_S +0.5V
Maximum Continuous Output Current	30mA
Maximum Die Temperature	+125°C
Storage Temperature	-65°C to +150°C
Operating Temperature	-40°C to +85°C
Lead Temperature	260°C
Power Dissipation	See Curves
ESD Voltage	2kV

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: $T_J = T_C = T_A$

Electrical Characteristics

V_S+ = +5V, V_S - = -5V, R_L = 10kΩ and C_L = 10pF to 0V, T_A = 25°C unless otherwise specified.

Parameter	Description	Condition	Min	Typ	Max	Unit
Input Characteristics						
V_{OS}	Input Offset Voltage	V_{CM} = 0V		1	15	mV
TCV_{OS}	Average Offset Voltage Drift	[1]		5		µV/°C
I_B	Input Bias Current	V_{CM} = 0V		2	50	nA
R_{IN}	Input Impedance			1		GΩ
C_{IN}	Input Capacitance			1.35		pF
A_V	Voltage Gain	-4.5V ≤ V_{OUT} ≤ 4.5V	0.99		1.01	V/V
Output Characteristics						
V_{OL}	Output Swing Low	I_L = -5mA		-4.92	-4.9	V
V_{OH}	Output Swing High	I_L = 5mA	4.9	4.92		V
I_{OUT} (max)	Max Output Current [2]	R_L = 10Ω		±120		mA
Power Supply Performance						
PSRR	Power Supply Rejection Ratio	V_S is moved from ±2.25V to ±7.75V	55	80		dB
I_S	Supply Current	No load (EL5127C)		0.7	0.9	mA
		No load (EL5227C)				mA
		No load (EL5327C)				mA
		No load (EL5427C)				mA
Dynamic Performance						
SR	Slew Rate [3]	-4.0V ≤ V_{OUT} ≤ 4.0V, 20% to 80%		1.5		V/µs
t_S	Settling to +0.1% (A_V = +1)	(A_V = +1), V_O = 2V Step		TBD		ns
BW	-3dB Bandwidth	R_L = 10kΩ, C_L = 10pF		2.5		MHz
GBWP	Gain-Bandwidth Product	R_L = 10kΩ, C_L = 10pF		TBD		MHz
CS	Channel Separation	f = 100kHz		75		dB

1. Measured over operating temperature range
2. Instantaneous peak current
3. Slew rate is measured on rising and falling edges

Electrical Characteristics

V_S+ = +5V, V_S- = 0V, R_L = 10kΩ and C_L = 10pF to 2.5V, T_A = 25°C unless otherwise specified.

Parameter	Description	Condition	Min	Typ	Max	Unit
Input Characteristics						
V_{OS}	Input Offset Voltage	V_{CM} = 2.5V		1	15	mV
TCV_{OS}	Average Offset Voltage Drift	[1]		5		µV/°C
I_B	Input Bias Current	V_{CM} = 2.5V		2	50	nA
R_{IN}	Input Impedance			1		GΩ
C_{IN}	Input Capacitance			1.35		pF
A_V	Voltage Gain	0.5V ≤ V_{OUT} ≤ 4.5V	0.99		1.01	V/V
Output Characteristics						
V_{OL}	Output Swing Low	I_L = -5mA		80	100	mV
V_{OH}	Output Swing High	I_L = 5mA	4.9	4.92		V
I_{OUT} (max)	Output Current [2]			±120		mA
Power Supply Performance						
PSRR	Power Supply Rejection Ratio	V_S is moved from 4.5V to 15.5V	55	80		dB
I_S	Supply Current	No load (EL5127C)		0.7	0.9	mA
		No load (EL5227C)				mA
		No load (EL5327C)				mA
		No load (EL5427C)				mA
Dynamic Performance						
SR	Slew Rate [3]	1V ≤ V_{OUT} ≤ 4V, 20% to 80%		1.5		V/µs
t_S	Settling to +0.1% (A_V = +1)	(A_V = +1), V_O = 2V Step		TBD		ns
BW	-3dB Bandwidth	R_L = 10kΩ, C_L = 10pF		2.5		MHz
GBWP	Gain-Bandwidth Product	R_L = 10kΩ, C_L = 10pF		TBD		kHz
CS	Channel Separation	f = 5MHz		75		dB

1. Measured over operating temperature range
2. Instantaneous peak current
3. Slew rate is measured on rising and falling edges

Electrical Characteristics

V_S+ = +15V, V_S- = 0V, R_L = 10kΩ and C_L = 10pF to 7.5V, T_A = 25°C unless otherwise specified.

Parameter	Description	Condition	Min	Typ	Max	Unit
Input Characteristics						
V_{OS}	Input Offset Voltage	V_{CM} = 7.5V		1	18	mV
TCV_{OS}	Average Offset Voltage Drift	[1]		5		µV/°C
I_B	Input Bias Current	V_{CM} = 7.5V		2	50	nA
R_{IN}	Input Impedance			1		GΩ
C_{IN}	Input Capacitance			1.35		pF
AV	Voltage Gain	0.5V ≤ V_{OUT} ≤ 14.5V	0.99		1.01	V/V
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_{OUT} (max)	Output Current [2]			±120		mA

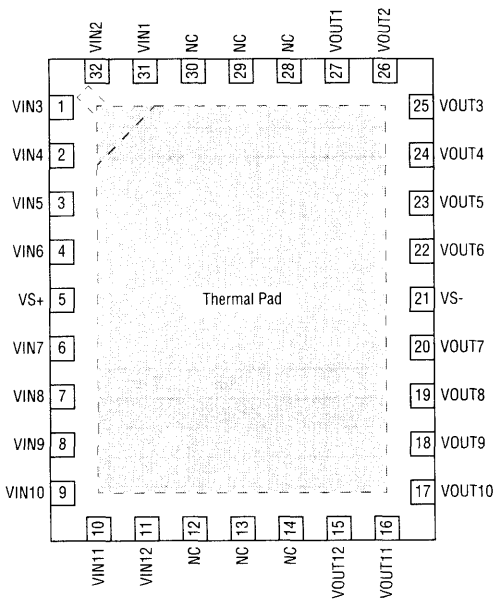
Electrical Characteristics (Continued)

V_S+ = +15V, V_S- = 0V, R_L = 10kΩ and C_L = 10pF to 7.5V, T_A = 25°C unless otherwise specified.

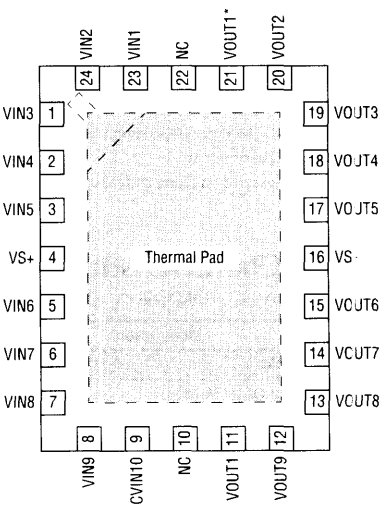
Parameter	Description	Condition	Min	Typ	Max	Unit
Power Supply Performance						
PSRR	Power Supply Rejection Ratio	V_S is moved from 4.5V to 15.5V	55	80		dB
I_S	Supply Current	No load (EL5127C)		0.75	0.95	mA
		No load (EL5227C)				mA
		No load (EL5327C)				mA
		No load (EL5427C)				mA
Dynamic Performance						
SR	Slew Rate [3]	1V ≤ V_{OUT} ≤ 14V, 20% to 80%		1.5		V/µs
t_S	Settling to +0.1% (A_V = +1)	(A_V = +1), V_O = 2V Step		TBD		ns
BW	-3dB Bandwidth	R_L = 10kΩ, C_L = 10pF		2.5		MHz
GBWP	Gain-Bandwidth Product	R_L = 10kΩ, C_L = 10pF		TBD		kHz
CS	Channel Separation	f = 5MHz		75		dB

1. Measured over operating temperature range
2. Instantaneous peak current
3. Slew rate is measured on rising and falling edges

Connection Diagrams (Continued)



EL5427C
(32-Pin LPP Top View)



EL5227C & EL5327C
(24-Pin LPP Top View)

* Not available in ELXXXXC