

# EL5162, EL5163, EL5262, EL5263, EL5362

PRELIMINARY

Data Sheet

#### August 29, 2003

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FN7388
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### *300MHz Current Feedback Amplifiers with Enable*



The EL5162, EL5163, EL5262, EL5263, and EL5362 are current feedback amplifiers with a bandwidth

of 300MHz. This makes these amplifiers ideal for today's high speed video and monitor applications.

With a supply current of just 1.5mA and the ability to run from a single supply voltage from 5V to 12V, these amplifiers are also ideal for hand held, portable or battery-powered equipment.

The EL5162 also incorporates an enable and disable function to reduce the supply current to 100 $\mu$ A typical per amplifier. Allowing the  $\overline{CE}$  pin to float or applying a low logic level will enable the amplifier.

The EL5163 is offered in a 5-pin SOT-23 package, the EL5162 in a 6-pin SOT-23 and industry-standard 8-pin SO packages, the EL5262 in a 10-pin MSOP package, the EL5263 in 8-pin SO and MSOP packages, and the EL5362 in 16-pin SO and QSOP packages. All operate over the industrial temperature range of -40°C to +85°C.

#### Features

- 500MHz -3dB bandwidth
- 4000V/µs slew rate
- 1.5mA supply current
- Single and dual supply operation, from 5V to 12V supply span
- Fast enable/disable (EL5162 only)
- Available in SOT-23 packages
- High speed, 1.4GHz product available (EL5167 & EL5167)
- High speed, 5mA, 600MHz product available (EL5164 & EL5165)

### Applications

- · Battery powered equipment
- · Handheld, portable devices
- Video amplifiers
- Cable drivers
- RGB amplifiers
- Test equipment
- Instrumentation
- · Current to voltage converters

PART NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL5263IY (Note)	8-Pin MSOP	-	MDP0043
EL5263IY-T7	8-Pin MSOP	7"	MDP0043
EL5263IY-T13	8-Pin MSOP	13"	MDP0043
EL5263IS (Note)	8-Pin SO	-	MDP0027
EL5263IS-T7	8-Pin SO	7"	MDP0027
EL5263IS-T13	8-Pin SO	13"	MDP0027
EL5362IS (Note)	16-Pin SO	-	MDP0027
EL5362IS-T7	16-Pin SO	7"	MDP0027
EL5362IS-T13	16-Pin SO	13"	MDP0027
EL5362IU (Note)	16-Pin QSOP	-	MDP0040
EL5362IU-T7	16-Pin QSOP	7"	MDP0040
EL5362IU-T13	16-Pin QSOP	13"	MDP0040

# **Ordering Information**

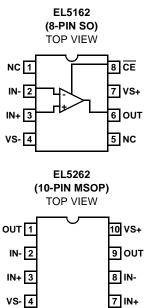
PART NUMBER PACKAGE		TAPE & REEL	PKG. DWG. #
EL5162IS	8-Pin SO	-	MDP0027
EL5162IS-T7	8-Pin SO	7"	MDP0027
EL5162IS-T13	8-Pin SO	13"	MDP0027
EL5162IW	6-Pin SOT-23	-	MDP0038
EL5162IW-T7	6-Pin SOT-23	7"	MDP0038
EL5162IW-T13	6-Pin SOT-23	13"	MDP0038
EL5163IW	5-Pin SOT-23	-	MDP0038
EL5163IW-T7	5-Pin SOT-23	7"	MDP0038
EL5163IW-T13	5-Pin SOT-23	13"	MDP0038
EL5262IY (Note)	10-Pin MSOP	-	MDP0043
EL5262IY-T7	10-Pin MSOP	7"	MDP0043
EL5262IY-T13	10-Pin MSOP	13"	MDP0043

Note: Duals and triples to be released October 2003

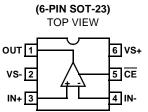
CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures. 1-888-INTERSIL or 321-724-7143 | Intersii (and design) is a registered trademark of Intersii Americas Inc. Copyright © Intersii Americas Inc. 2003. All Rights Reserved. Elantec is a registered trademark of Elantec Semiconductor, Inc. All other trademarks mentioned are the property of their respective owners.

## **Pinouts**

CE 5

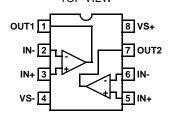


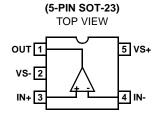
6 CE



EL5162

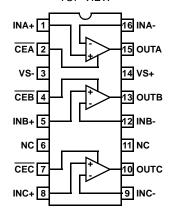
EL5263 (8-PIN SO, MSOP) TOP VIEW





EL5163

EL5362 (16-PIN SO, QSOP) TOP VIEW



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

Supply Voltage between V <sub>S</sub> + and V <sub>S</sub> 13.2	2V
Maximum Continuous Output Current	۱A
Operating Junction Temperature	°C
Power Dissipation See Curve	es

Pin VoltagesV <sub>S</sub> 0.5V to V <sub>S</sub> + +0.5V	V
Storage Temperature65°C to +150°C	С
Operating Temperature40°C to +85°C	С

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:  $T_J = T_C = T_A$ 

# **Electrical Specifications** $V_S$ + = +5V, $V_S$ - = -5V, $R_F$ = 750 $\Omega$ for $A_V$ = 1, $R_F$ = 400 $\Omega$ for $A_V$ = 2, $R_L$ = 150 $\Omega$ , $T_A$ = 25°C unless otherwise specified.

PARAMETER	DESCRIPTION	CONDITIONS	MIN	ТҮР	MAX	UNIT
AC PERFORMA	ANCE	•	<u>.</u>			
BW	-3dB Bandwidth	$A_{V} = +1, R_{L} = 500\Omega$		500		MHz
		$A_{V} = +2, R_{L} = 150\Omega$		233		MHz
BW1	0.1dB Bandwidth			30		MHz
SR	Slew Rate	$V_{O}$ = -2.5V to +2.5V, $A_{V}$ = +2, $R_{L}$ = 100 $\Omega$	2800	4000	6000	V/µs
t <sub>S</sub>	0.1% Settling Time	$V_{OUT}$ = -2.5V to +2.5V, A <sub>V</sub> = +1		25		ns
e <sub>N</sub>	Input Voltage Noise			3		nV/√Hz
i <sub>N</sub> -	IN- Input Current Noise			10		pA/√Hz
i <sub>N</sub> +	IN+ Input Current Noise			6.5		pA/√Hz
dG	Differential Gain Error (Note 1)	A <sub>V</sub> = +2		0.05		%
dP	Differential Phase Error (Note 1)	A <sub>V</sub> = +2		0.15		o
DC PERFORM	ANCE	1				1
V <sub>OS</sub>	Offset Voltage		-5	-2	5	mV
T <sub>C</sub> V <sub>OS</sub>	Input Offset Voltage Temperature Coefficient	Measured from T <sub>MIN</sub> to T <sub>MAX</sub>		10		µV/°C
R <sub>OL</sub>	Transimpedance		500	1000		kΩ
INPUT CHARA	CTERISTICS					
CMIR	Common Mode Input Range		±3	±3.3		V
CMRR	Common Mode Rejection Ratio		50	62	75	dB
-ICMR	- Input Current Common Mode Rejection		-1		1	μA/V
+I <sub>IN</sub>	+ Input Current		-8	1	8	μA
-I <sub>IN</sub>	- Input Current		-10	1.0	10	μA
R <sub>IN</sub>	Input Resistance		800	900	3000	kΩ
C <sub>IN</sub>	Input Capacitance			1		pF
OUTPUT CHAR	ACTERISTICS				-	
V <sub>O</sub>	Output Voltage Swing	$R_L = 150\Omega$ to GND	±3.35	±3.6	±3.75	V
		$R_L = 1k\Omega$ to GND	±3.75	±3.9	±4.15	V
IOUT	Output Current	$R_L = 10\Omega$ to GND	60	100	180	mA
SUPPLY						
I <sub>SON</sub>	Supply Current - Enabled	No load, V <sub>IN</sub> = 0V	1.3	1.5	1.7	mA
ISOFF	Supply Current - Disabled	No load, V <sub>IN</sub> = 0V	-25	-14	-5	μA

**Electrical Specifications**  $V_S$ + = +5V,  $V_S$ - = -5V,  $R_F$  = 750 $\Omega$  for  $A_V$  = 1,  $R_F$  = 400 $\Omega$  for  $A_V$  = 2,  $R_L$  = 150 $\Omega$ ,  $T_A$  = 25°C unless otherwise specified. **(Continued)** 

PARAMETER	DESCRIPTION	CONDITIONS	MIN	TYP	MAX	UNIT
PSRR	Power Supply Rejection Ratio	DC, $V_{S} = \pm 4.75V$ to $\pm 5.25V$	65	77		dB
-IPSR	- Input Current Power Supply Rejection	DC, $V_{S} = \pm 4.75V$ to $\pm 5.25V$	-0.5	0.1	0.5	μA/V
ENABLE (EL510	62 ONLY)					
t <sub>EN</sub>	Enable Time			200		ns
t <sub>DIS</sub>	Disable Time			800		ns
I <sub>IHCE</sub>	CE Pin Input High Current	CE = V <sub>S</sub> +	5	15	25	μA
I <sub>ILCE</sub>	CE Pin Input Low Current	<del>CE</del> = V <sub>S</sub> -	-1	0	1	μA
VIHCE	CE Input High Voltage for Power-down		V <sub>S</sub> + - 1			V
V <sub>ILCE</sub>	CE Input Low Voltage for Power-down				V <sub>S</sub> + - 3	V

NOTE:

1. Standard NTSC test, AC signal amplitude = 286mVP-P, f = 3.58MHz

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