PRELIMINARY | Data Sheet | August 29, 2003 | FN7388

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 100µA 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

Ordering Information

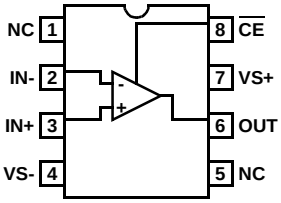
PART NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL5162IS	8-Pin SO	-	MDP0027
EL5162IS-T7	8-Pin SO	7”	MDP0027
EL5162IS-T13	8-Pin SO	13”	MDP0027
EL5162IW	6-Pin SOT-23	-	MDP0038
EL5162IW-T7	6-Pin SOT-23	7”	MDP0038
EL5162IW-T13	6-Pin SOT-23	13”	MDP0038
EL5163IW	5-Pin SOT-23	-	MDP0038
EL5163IW-T7	5-Pin SOT-23	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

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

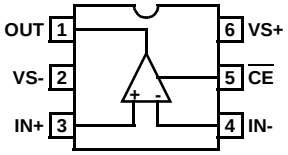
Note: Duals and triples to be released October 2003

Pinouts

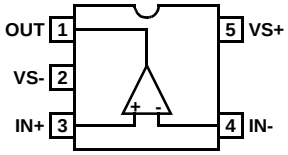
EL5162
(8-PIN SO)
TOP VIEW



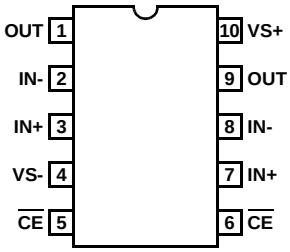
EL5162
(6-PIN SOT-23)
TOP VIEW



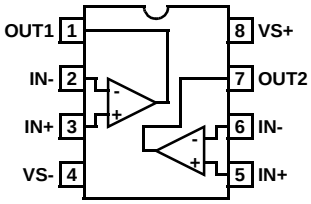
EL5163
(5-PIN SOT-23)
TOP VIEW



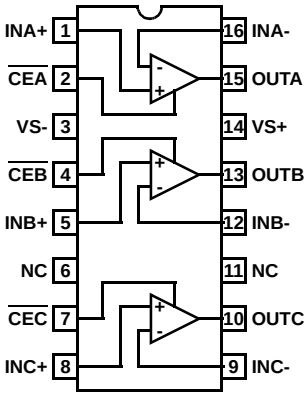
EL5262
(10-PIN MSOP)
TOP VIEW



EL5263
(8-PIN SO, MSOP)
TOP VIEW



EL5362
(16-PIN SO, QSOP)
TOP VIEW



Absolute Maximum Ratings (T_A = 25°C)

Supply Voltage between V_S+ and V_S- 13.2V
Maximum Continuous Output Current 50mA
Operating Junction Temperature . . . . . 125°C
Power Dissipation . . . . . See Curves

Pin Voltages . . . . . V_S- - 0.5V to V_S+ +0.5V
Storage Temperature . . . . . -65°C to +150°C
Operating Temperature . . . . . -40°C to +85°C

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 = 750Ω for A_V = 1, R_F = 400Ω for A_V = 2, R_L = 150Ω, T_A = 25°C unless otherwise specified.

PARAMETER	DESCRIPTION	CONDITIONS	MIN	TYP	MAX	UNIT
AC PERFORMANCE						
BW	-3dB Bandwidth	A_V = +1, R_L = 500Ω		500		MHz
		A_V = +2, R_L = 150Ω		233		MHz
BW1	0.1dB Bandwidth			30		MHz
SR	Slew Rate	V_O = -2.5V to +2.5V, A_V = +2, R_L = 100Ω	2800	4000	6000	V/µs
t_S	0.1% Settling Time	V_{OUT} = -2.5V to +2.5V, A_V = +1		25		ns
e_N	Input Voltage Noise			3		nV/√Hz
i_N-	IN- Input Current Noise			10		pA/√Hz
i_N+	IN+ Input Current Noise			6.5		pA/√Hz
dG	Differential Gain Error (Note 1)	A_V = +2		0.05		%
dP	Differential Phase Error (Note 1)	A_V = +2		0.15		°
DC PERFORMANCE						
V_{OS}	Offset Voltage		-5	-2	5	mV
T_CV_{OS}	Input Offset Voltage Temperature Coefficient	Measured from T_{MIN} to T_{MAX}		10		µV/°C
R_{OL}	Transimpedance		500	1000		kΩ
INPUT CHARACTERISTICS						
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
$+I_{IN}$	+ Input Current		-8	1	8	µA
$-I_{IN}$	- Input Current		-10	1.0	10	µA
R_{IN}	Input Resistance		800	900	3000	kΩ
C_{IN}	Input Capacitance			1		pF
OUTPUT CHARACTERISTICS						
V_O	Output Voltage Swing	R_L = 150Ω to GND	±3.35	±3.6	±3.75	V
		R_L = 1kΩ to GND	±3.75	±3.9	±4.15	V
I_{OUT}	Output Current	R_L = 10Ω to GND	60	100	180	mA
SUPPLY						
I_{SON}	Supply Current - Enabled	No load, V_{IN} = 0V	1.3	1.5	1.7	mA
I_{SOFF}	Supply Current - Disabled	No load, V_{IN} = 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, $V_S = \pm4.75V$ to $\pm5.25V$	65	77		dB
-IPSR	- Input Current Power Supply Rejection	DC, $V_S = \pm4.75V$ to $\pm5.25V$	-0.5	0.1	0.5	µA/V
ENABLE (EL5162 ONLY)						
t_{EN}	Enable Time			200		ns
t_{DIS}	Disable Time			800		ns
I_{IHCE}	$\overline{CE}$ Pin Input High Current	$\overline{CE} = V_S+$	5	15	25	µA
I_{ILCE}	$\overline{CE}$ Pin Input Low Current	$\overline{CE} = V_S-$	-1	0	1	µA
V_{IHCE}	$\overline{CE}$ Input High Voltage for Power-down		$V_S+ - 1$			V
V_{ILCE}	$\overline{CE}$ Input Low Voltage for Power-down				$V_S+ - 3$	V

NOTE:

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