

## Low-Power, 200MHz Current Feedback Amplifiers



The EL5160, EL5161, EL5260, EL5261, and EL5360 are current feedback amplifiers with a bandwidth

of 200MHz and operate from just 0.75mA supply current. This makes these amplifiers ideal for today's high speed video and monitor applications.

With the ability to run from a single supply voltage from 5V to 10V, these amplifiers are ideal for handheld, portable, or battery-powered equipment.

The EL5160 also incorporates an enable and disable function to reduce the supply current to 100µA typical per amplifier. Allowing the CE pin to float or applying a low logic level will enable the amplifier.

All packages operate over the industrial temperature range of -40°C to +85°C.

### Ordering Information

PART NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL5160IS	8-Pin SO	-	MDP0027
EL5160IS-T7	8-Pin SO	7"	MDP0027
EL5160IS-T13	8-Pin SO	13"	MDP0027
EL5160IW-T7	6-Pin SOT23	7"	MDP0038
EL5160IW-T13	6-Pin SOT23	13"	MDP0038
EL5161IW-T7	5-Pin SOT23	7"	MDP0038
EL5161IW-T13	5-Pin SOT23	13"	MDP0038
EL5260IY (Note)	8-Pin MSOP	-	MDP0043
EL5260IY-T7	8-Pin MSOP	7"	MDP0043
EL5260IY-T13	8-Pin MSOP	13"	MDP0043
EL5261IS (Note)	8-Pin SO	-	MDP0027
EL5261IS-T7	8-Pin SO	7"	MDP0027
EL5261IS-T13	8-Pin SO	13"	MDP0027
EL5360IS (Note)	16-Pin SO	-	MDP0027
EL5360IS-T7	16-Pin SO	7"	MDP0027
EL5360IS-T13	16-Pin SO	13"	MDP0027
EL5360IU (Note)	16-Pin QSOP	-	MDP0040
EL5360IU-T7	16-Pin QSOP	7"	MDP0040
EL5360IU-T13	16-Pin QSOP	13"	MDP0040

NOTE: Duals and triples to be released October 2003

### Features

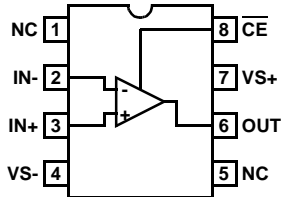
- 200MHz -3dB bandwidth
- 0.75mA supply current
- 1700V/µs slew rate
- Single and dual supply operation, from 5V to 10V supply span
- Fast enable/disable (EL5160 only)
- Available in SOT-23 packages

### Applications

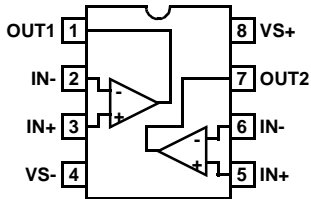
- Battery powered equipment
- Handheld, portable devices
- Video amplifiers
- Cable drivers
- RGB amplifiers
- Test equipment
- Instrumentation
- Current to voltage converters

Pinouts

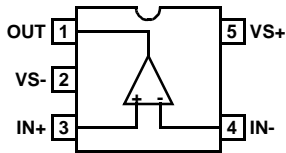
EL5160  
(8-PIN SO)  
TOP VIEW



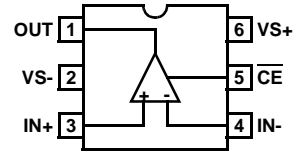
EL5260  
(8-PIN SO, MSOP)  
TOP VIEW



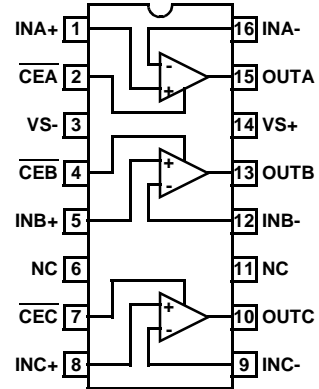
EL5161  
(5-PIN SOT-23)  
TOP VIEW



EL5160  
(6-PIN SOT-23)  
TOP VIEW



EL5360  
(16-PIN SO, QSOP)  
TOP VIEW



# EL5160, EL5161, EL5260, EL5261, EL5360

## Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ )

Supply Voltage between  $V_{S+}$  and  $V_{S-}$  ..... 11V  
 Maximum Continuous Output Current ..... 50mA  
 Operating Junction Temperature .....  $125^\circ\text{C}$   
 Pin Voltages .....  $V_{S-} - 0.5\text{V}$  to  $V_{S+} + 0.5\text{V}$

Power Dissipation ..... See Curves  
 Storage Temperature .....  $-65^\circ\text{C}$  to  $+150^\circ\text{C}$   
 Operating Temperature .....  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$

*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**  $V_{S+} = +5\text{V}$ ,  $V_{S-} = -5\text{V}$ ,  $R_F = 750\Omega$  for  $A_V = 1$ ,  $R_F = 400\Omega$  for  $A_V = 2$ ,  $R_L = 150\Omega$ ,  $V_{\text{ENABLE}} = V_{S+} - 1\text{V}$ ,  
 $T_A = 25^\circ\text{C}$ , unless otherwise specified.

PARAMETER	DESCRIPTION	CONDITIONS	MIN	TYP	MAX	UNIT
<b>AC PERFORMANCE</b>						
BW	-3dB Bandwidth	$A_V = +1$ , $R_L = 500\Omega$		200		MHz
		$A_V = +2$ , $R_L = 150\Omega$		125		MHz
BW1	0.1dB Bandwidth	$R_L = 100\Omega$		10		MHz
SR	Slew Rate	$V_O = -2.5\text{V}$ to $+2.5\text{V}$ , $A_V = +2$ , $R_F = R_G = 1\text{k}\Omega$	1000	1700	2500	V/ $\mu\text{s}$
$t_S$	0.1% Settling Time	$V_{\text{OUT}} = -2.5\text{V}$ to $+2.5\text{V}$ , $A_V = +2$		35		ns
$e_N$	Input Voltage Noise			4		nV/ $\sqrt{\text{Hz}}$
$i_{N-}$	IN- Input Current Noise			7		pA/ $\sqrt{\text{Hz}}$
$i_{N+}$	IN+ Input Current Noise			8		pA/ $\sqrt{\text{Hz}}$
HD2		5MHz, 2.5V <sub>P-P</sub>		-74		dBc
HD3		5MHz, 2.5V <sub>P-P</sub>		-50		dBc
IP3		100 $\Omega$				
		500 $\Omega$				
dG	Differential Gain Error (Note 1)	$A_V = +2$		0.1		%
dP	Differential Phase Error (Note 1)	$A_V = +2$		0.1		°
<b>DC PERFORMANCE</b>						
$V_{OS}$	Offset Voltage		-5	0	5	mV
$T_C V_{OS}$	Input Offset Voltage Temperature Coefficient	Measured from $T_{\text{MIN}}$ to $T_{\text{MAX}}$		6		$\mu\text{V}/^\circ\text{C}$
$R_{OL+}$	Transimpedance		800	2000		k $\Omega$
$R_{OL-}$	Transimpedance		800	2000		k $\Omega$
<b>INPUT CHARACTERISTICS</b>						
CMIR	Common Mode Input Range		$\pm 3$	$\pm 3.3$		V
CMRR	Common Mode Rejection Ratio		50	62	75	dB
-ICMR	- Input Current Common Mode Rejection		-1	0	1	$\mu\text{A}/\text{V}$
+ $I_{IN}$	+ Input Current		-4	0.6	4	$\mu\text{A}$
- $I_{IN}$	- Input Current		-4	0.6	4	$\mu\text{A}$
$R_{IN}$	Input Resistance		2	7	15	k $\Omega$
$C_{IN}$	Input Capacitance			1		pF

## EL5160, EL5161, EL5260, EL5261, EL5360

**Electrical Specifications**  $V_{S+} = +5V$ ,  $V_{S-} = -5V$ ,  $R_F = 750\Omega$  for  $A_V = 1$ ,  $R_F = 400\Omega$  for  $A_V = 2$ ,  $R_L = 150\Omega$ ,  $V_{ENABLE} = V_{S+} - 1V$ ,  
 $T_A = 25^\circ C$ , unless otherwise specified.

PARAMETER	DESCRIPTION	CONDITIONS	MIN	TYP	MAX	UNIT
<b>OUTPUT CHARACTERISTICS</b>						
$V_O$	Output Voltage Swing	$R_L = 150\Omega$ to GND	$\pm 3.1$	$\pm 3.4$	$\pm 3.8$	V
		$R_L = 1k\Omega$ to GND	$\pm 3.8$	$\pm 4.0$	$\pm 4.2$	V
$I_{OUT}$	Output Current	$R_L = 10\Omega$ to GND	40	70	110	mA
<b>SUPPLY</b>						
$I_{SON}$	Supply Current - Enabled	No load, $V_{IN} = 0V$	0.6	0.75	0.85	mA
$I_{SOFF+}$	Supply Current - Disabled		-2	1	2	$\mu A$
$I_{SOFF-}$	Supply Current - Disabled	No load, $V_{IN} = 0V$	-25	-14	-5	$\mu A$
PSRR	Power Supply Rejection Ratio	DC, $V_S = \pm 4.75V$ to $\pm 5.25V$	65	74	85	dB
-IPSR	- Input Current Power Supply Rejection	DC, $V_S = \pm 4.75V$ to $\pm 5.25V$	-0.5	0.1	0.5	$\mu A/V$
<b>ENABLE (EL5160 ONLY)</b>						
$t_{EN}$	Enable Time			200		ns
$t_{DIS}$	Disable Time			800		ns
$I_{IHCE}$	$\overline{CE}$ Pin Input High Current	$\overline{CE} = V_{S+}$	5	10	15	$\mu A$
$I_{ILCE}$	$\overline{CE}$ Pin Input Low Current	$\overline{CE} = V_{S-}$	-1	0	1	$\mu A$
$V_{IHCE}$	$\overline{CE}$ 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:**

- Standard NTSC test, AC signal amplitude = 286mV<sub>p-p</sub>, f = 3.58MHz

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

