

Features

- Gain selectable (+1, -1, +2)
- 400MHz -3dB Bandwidth ($A_V = 1, 2$)
- 9mA supply current (per amplifier)
- Single and dual supply operation, from 5V to 10V
- Power-down
- Available in 16-pin QSOP package
- Single (EL5196C) available
- 200MHz, 3mA product available (EL5197C, EL5397C)

Applications

- Video Amplifiers
- Cable Drivers
- RGB Amplifiers
- Test Equipment
- Instrumentation
- Current to Voltage Converters

Ordering Information

Part No	Package	Tape & Reel	Outline #
EL5396CS	16-Pin SO	-	MDP0027
EL5396CS-T7	16-Pin SO	7"	MDP0027
EL5396CS-T13	16-Pin SO	13"	MDP0027
EL5396CU	16-Pin QSOP	-	MDP0040
EL5396CU-T13	16-Pin QSOP	13"	MDP0040

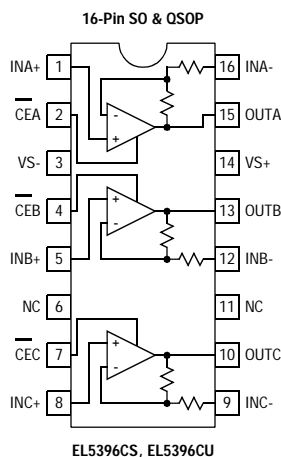
General Description

The EL5396C is a triple channel, fixed gain amplifier with a bandwidth of 400MHz, making these amplifiers ideal for today's high speed video and monitor applications. The EL5396C features internal gain setting resistors and can be configured in a gain of +1, -1 or +2. The same bandwidth is seen in both gain-of-1 and gain-of-2 applications.

The EL5396C can be run from a single or dual supply voltage of 5V to 10V and consumes just 9mA of supply current per channel. Each channel of the EL5396C has a disable. Upon being disabled, the outputs are tri-stated and the power supply current reduces to less than 150µA per amplifier. Allowing the CE pin to float, or applying a low logic level will enable the amplifier.

For applications where board space is critical, the EL5396C is offered in the 16-pin QSOP package, as well as a 16-pin SO. The EL5396C is specified for operation over the full industrial temperature range of -40°C to +85°C.

Pin Configurations



Note: All information contained in this data sheet has been carefully checked and is believed to be accurate as of the date of publication; however, this data sheet cannot be a "controlled document". Current revisions, if any, to these specifications are maintained at the factory and are available upon your request. We recommend checking the revision level before finalization of your design documentation.

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Triple 400MHz Fixed Gain Amplifier

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-}

11V

Maximum Continuous Output Current

50mA

Operating Junction Temperature

125°C

Power Dissipation

Pin Voltages

Storage Temperature

Operating Temperature

Lead Temperature

See Curves

V_{S-} - 0.5V to V_{S+} +0.5V

-65°C to +150°C

-40°C to +85°C

260°C

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 = 150Ω, T_A = 25°C unless otherwise specified.

Parameter	Description	Conditions	Min	Typ	Max	Unit
AC Performance						
BW	-3dB Bandwidth	A _V = +1		400		MHz
		A _V = +2		400		MHz
BW1	0.1dB Bandwidth			35		MHz
SR	Slew Rate	V _O = -2.5V to +2.5V, A _V = +2	TBD	-2600		V/μs
ts	0.1% Settling Time	V _{OUT} = -2.5V to +2.5V, A _V = -1		9		ns
C _S	Channel Separation	f = 5MHz		68		dB
e _n	Input Voltage Noise			3.8		nV/√Hz
i _{n-}	IN- input current noise			25		pA/√Hz
i _{n+}	IN+ input current noise			55		pA/√Hz
dG	Differential Gain Error ^[1]	A _V = +2		0.035		%
dP	Differential Phase Error ^[1]	A _V = +2		0.04		°
DC Performance						
V _{OS}	Offset Voltage		-15	1	15	mV
T _C V _{OS}	Input Offset Voltage Temperature Coefficient	Measured from T _{MIN} to T _{MAX}		5		μV/°C
A _E	Gain Error	V _O = -3V to +3V	-2	1.3	2	%
R _F , R _G	Internal R _F and R _G		320	400	480	Ω
Input Characteristics						
CMIR	Common Mode Input Range		±3V	±3.3V		V
+I _{IN}	+ Input Current		-120	40	120	μA
-I _{IN}	- Input Current		-40	4	40	μA
R _{IN}	Input Resistance			27		kΩ
C _{IN}	Input Capacitance			0.5		pF
Output Characteristics						
V _O	Output Voltage Swing	R _L = 150Ω to GND	±3.4V	±3.7V		V
		R _L = 1KΩ to GND	±3.8V	±4.0V		V
I _{OUT}	Output Current	R _L = 10Ω to GND	95	120		mA
Enable (selected packages only)						
t _{EN}	Enable Time			40		ns
t _{DIS}	Disable Time			TBD		ns
I _{IHCE}	CE pin Input High Current	CE = V _{S+}		0.8	6	μA
I _{ILCE}	CE pin Input Low Current	CE = V _{S-}		0	-0.1	μA
V _{IHCE}	CE pin Input High Voltage for Power Down		V _{S+} -0.5			V
V _{ILCE}	CE pin Input Low Voltage for Power Up				V _{S+} -3	V

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Triple 400MHz Fixed Gain Amplifier

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Electrical Characteristics

$V_{S+} = +5V$, $V_{S-} = -5V$, $R_L = 150\Omega$, $T_A = 25^\circ C$ unless otherwise specified.

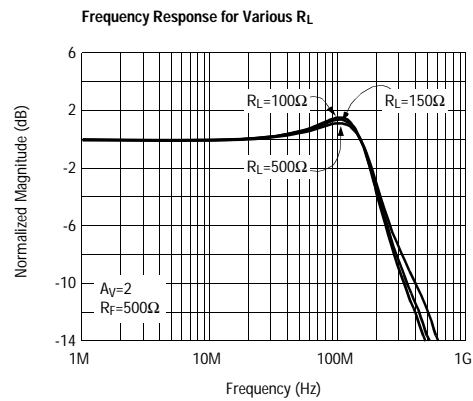
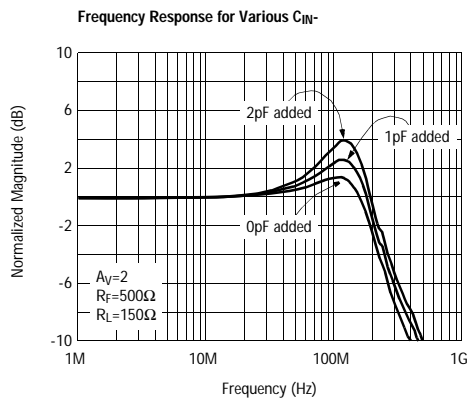
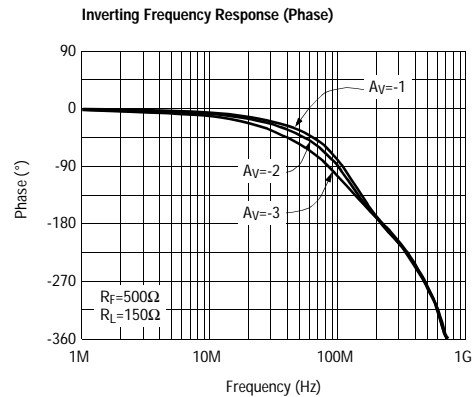
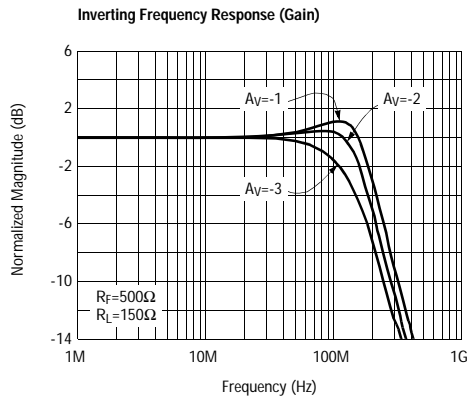
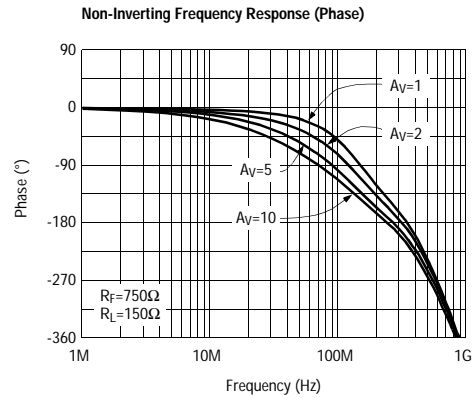
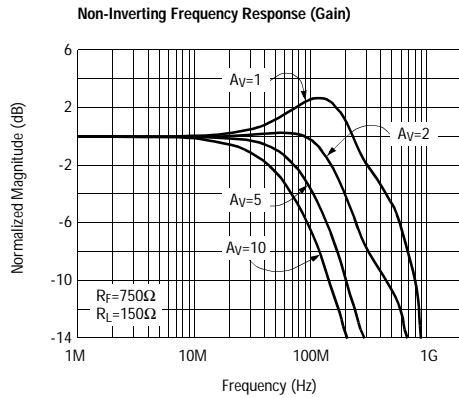
Parameter	Description	Conditions	Min	Typ	Max	Unit
Supply						
I _{ON}	Supply Current - Enabled (per amplifier)	No Load, $V_{IN} = 0V$, $\overline{CE} = -5V$	8	9	10.5	mA
I _{OFF}	Supply Current - Disabled (per amplifier)	No Load, $V_{IN} = 0V$, $\overline{CE} = +4.5V$		95	130	μA
PSRR	Power Supply Rejection Ratio	DC, $V_S = \pm 4.75V$ to $\pm 5.25V$	55	75		dB
-IPSR	- Input Current Power Supply Rejection	DC, $V_S = \pm 4.75V$ to $\pm 5.25V$	-2		2	$\mu A/V$

1. Standard NTSC test, AC signal amplitude = $286mV_{P-P}$, $f = 3.58MHz$

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Triple 400MHz Fixed Gain Amplifier

Typical Performance Curves

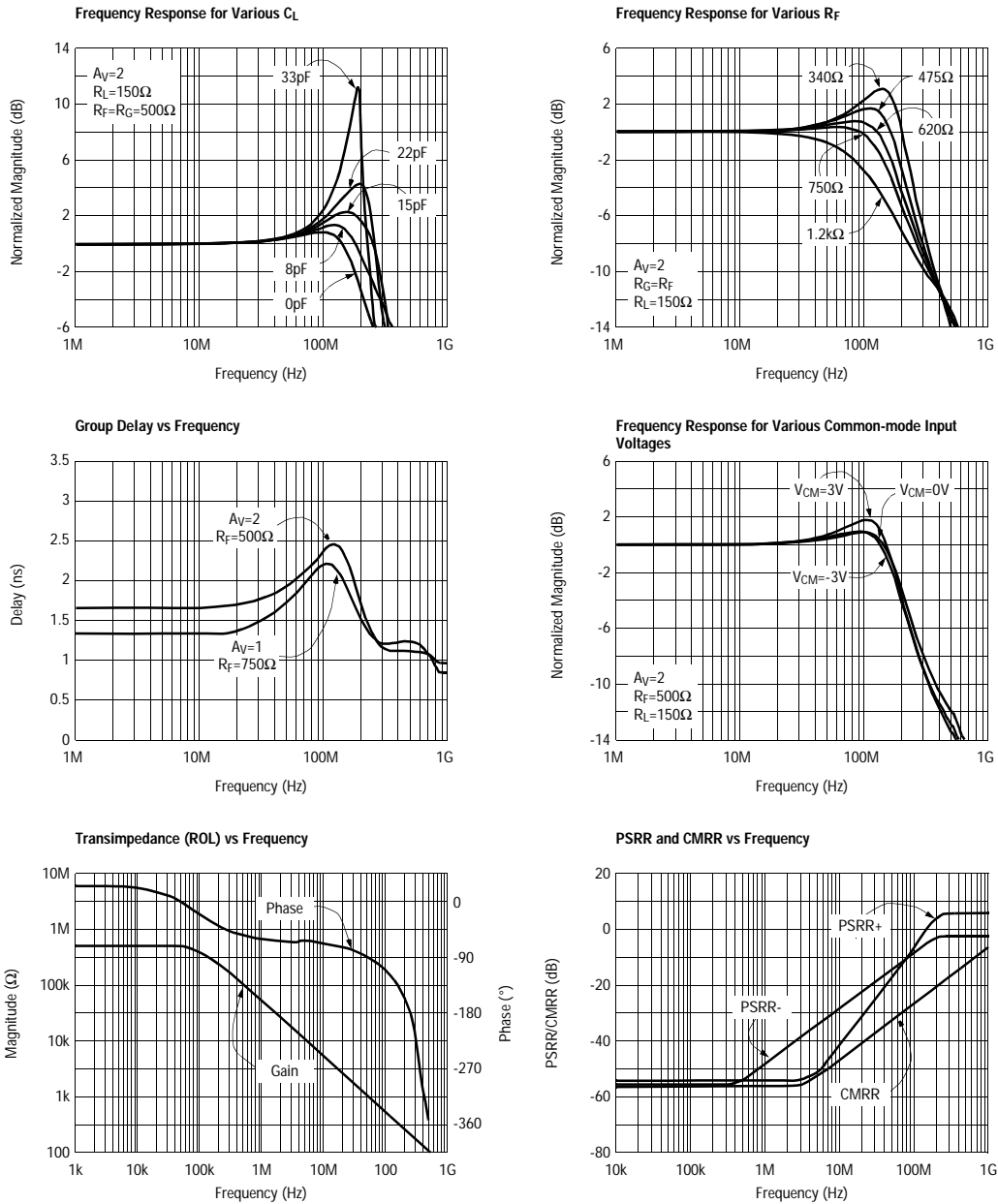


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Triple 400MHz Fixed Gain Amplifier

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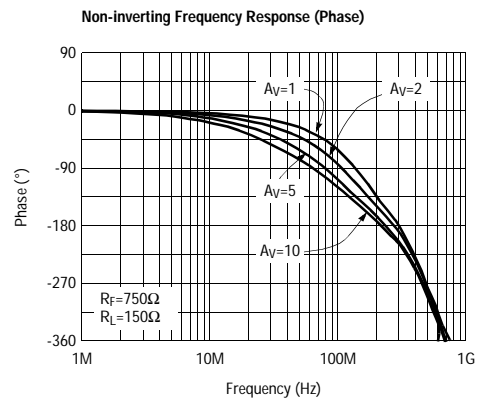
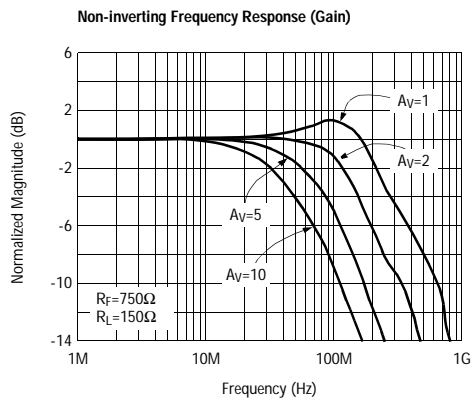
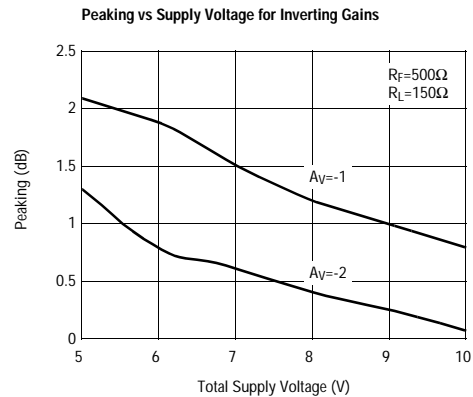
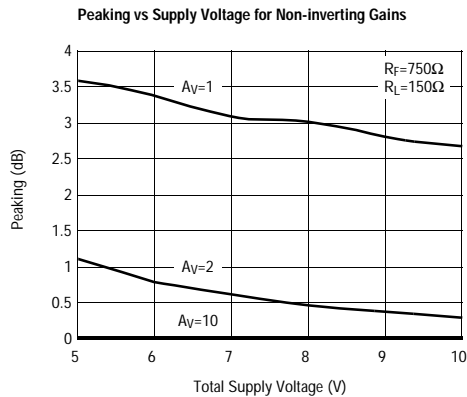
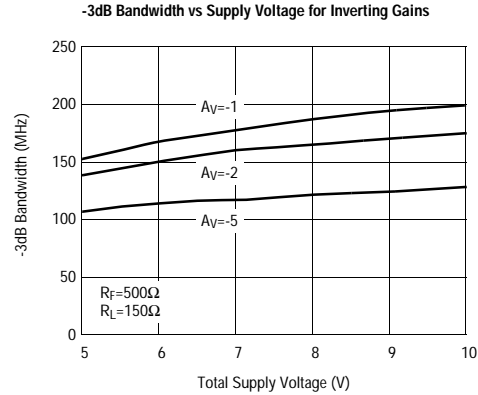
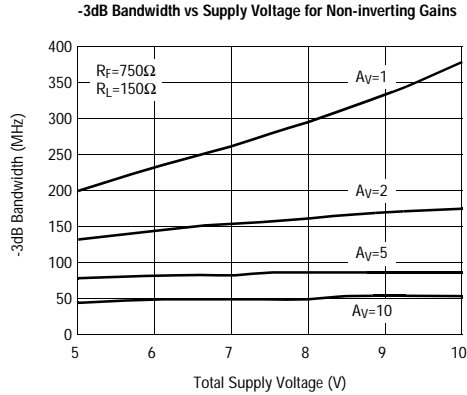
Typical Performance Curves



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Triple 400MHz Fixed Gain Amplifier

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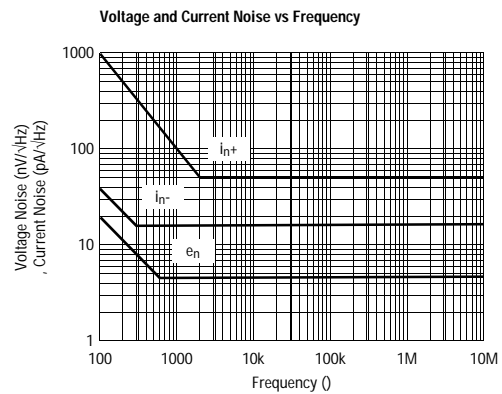
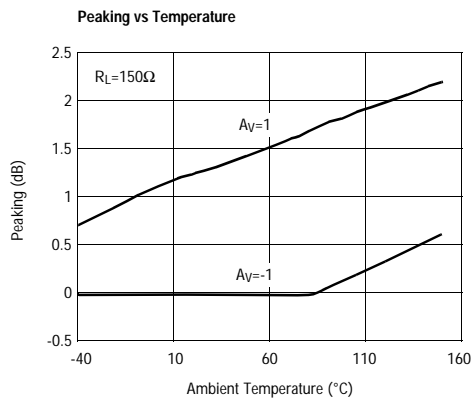
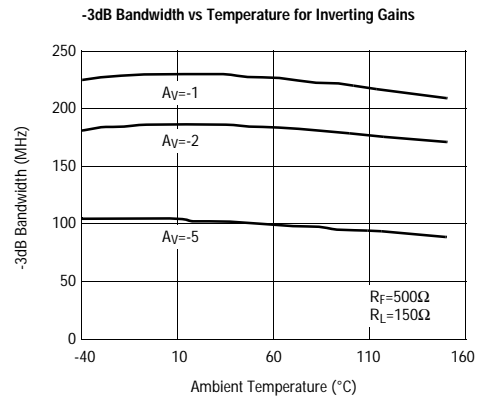
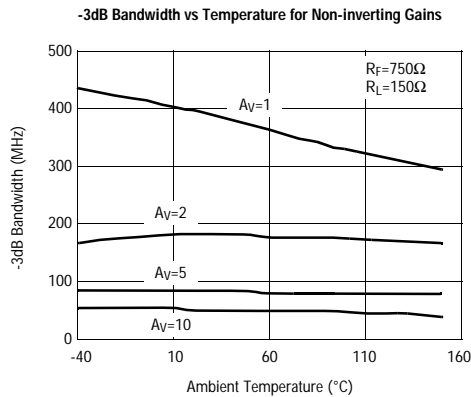
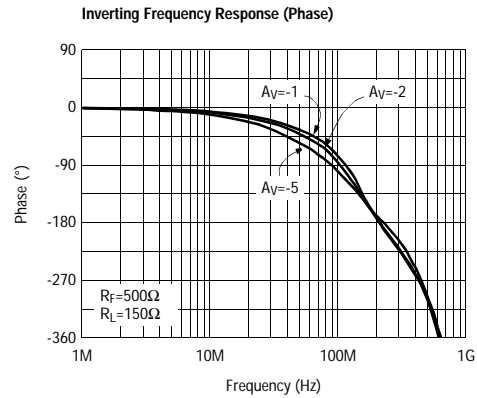
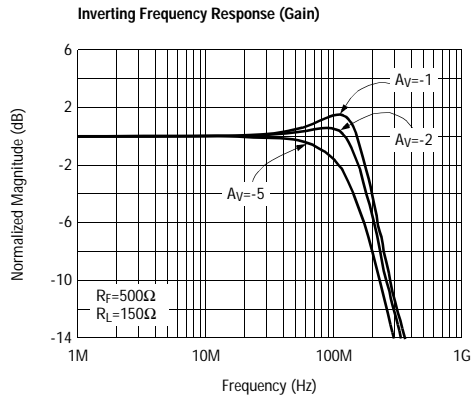


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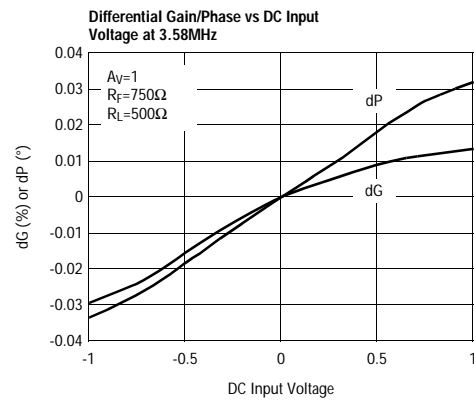
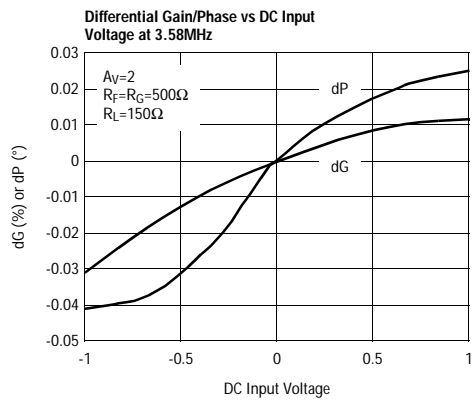
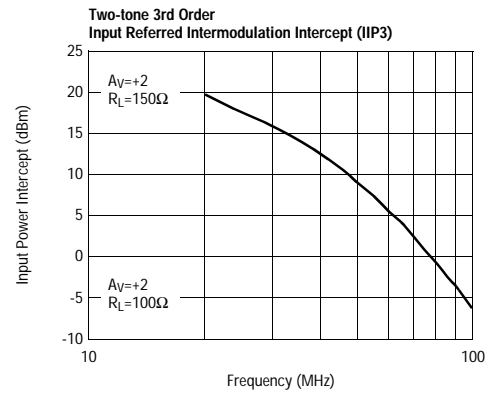
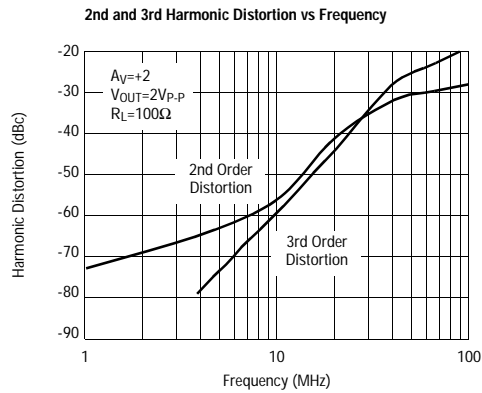
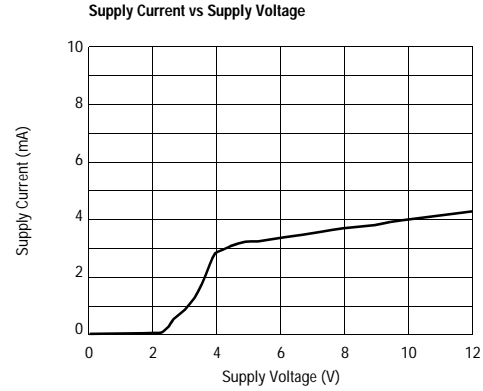
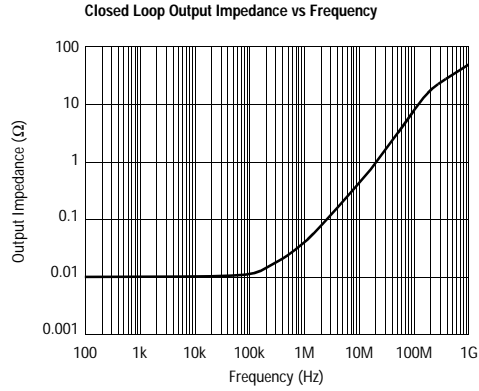
Typical Performance Curves



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Triple 400MHz Fixed Gain Amplifier

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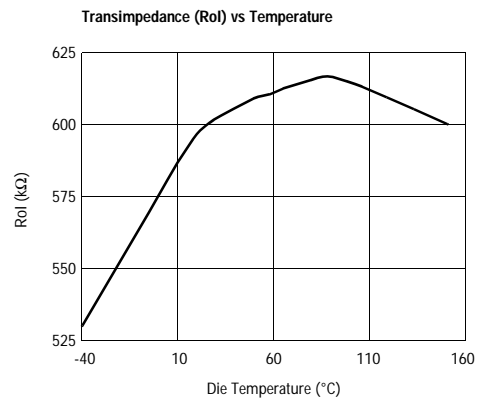
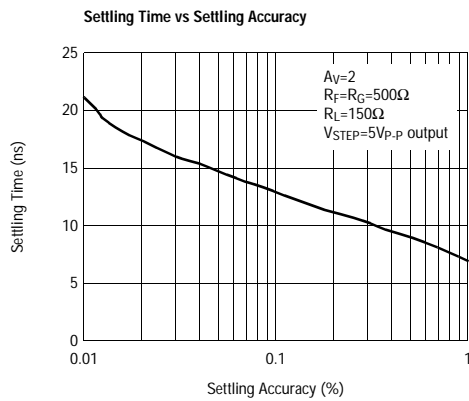
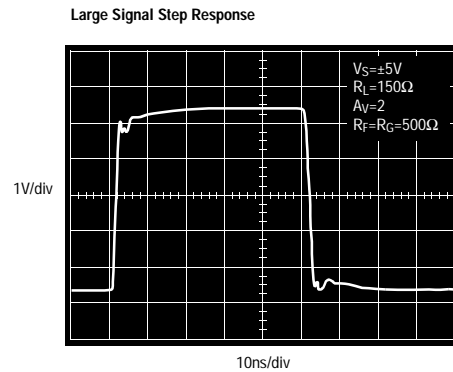
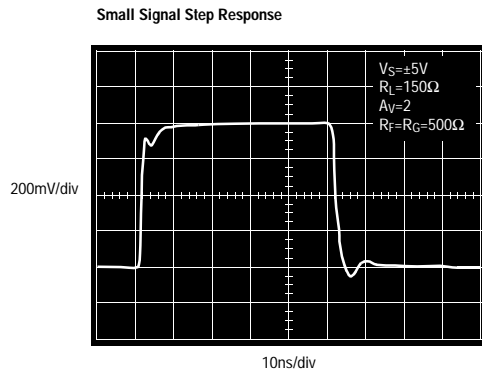
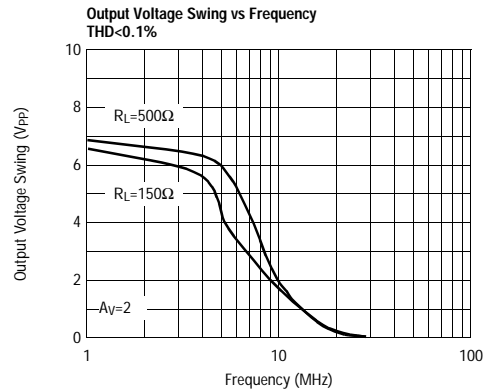
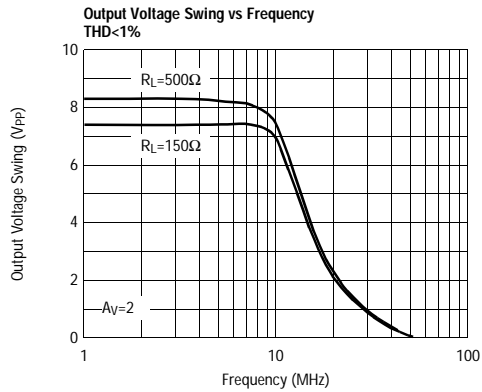


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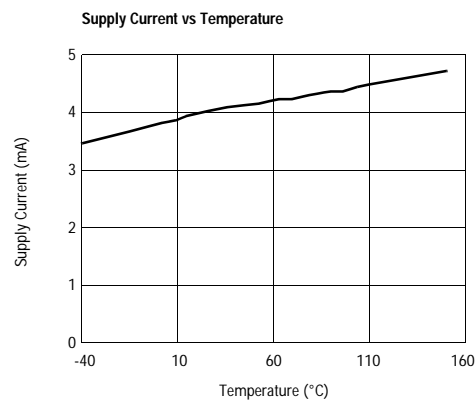
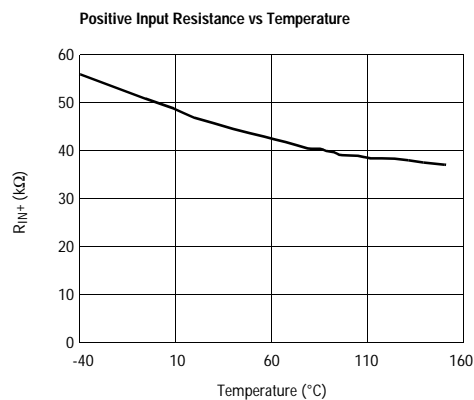
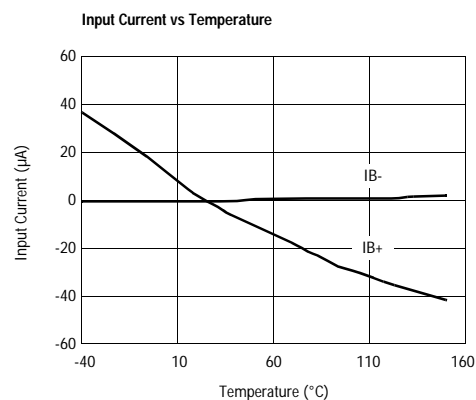
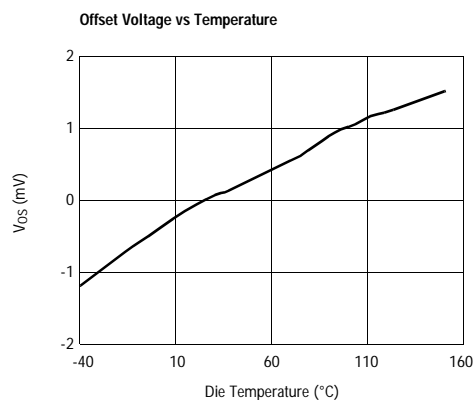
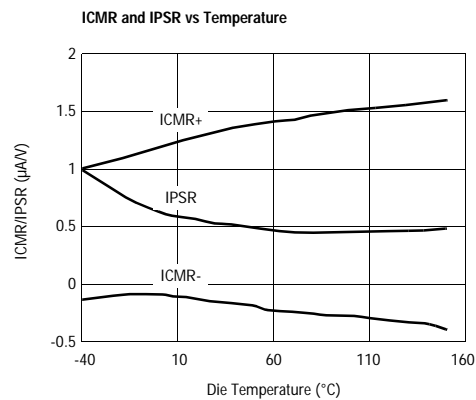
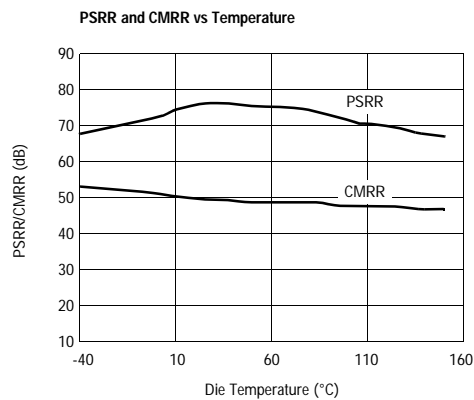
Typical Performance Curves



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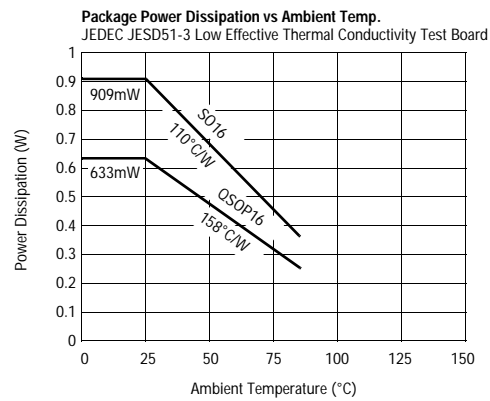
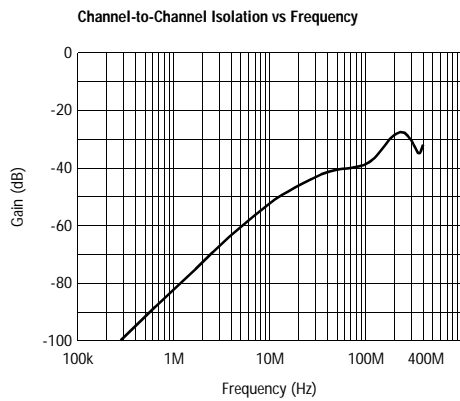
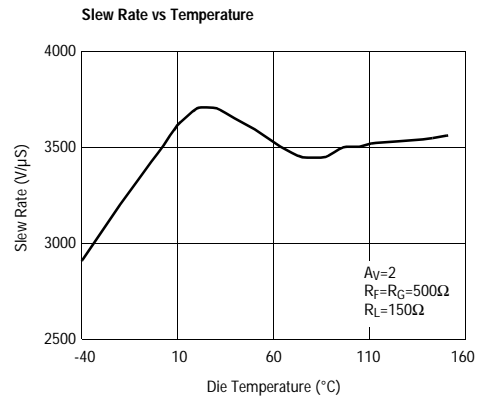
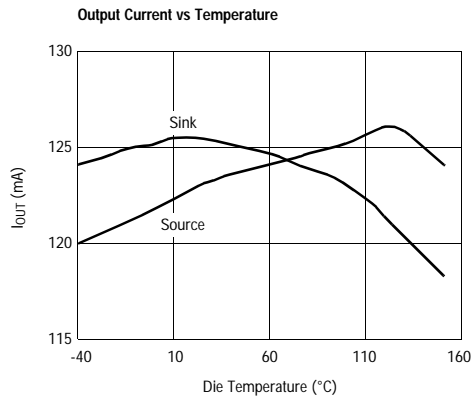
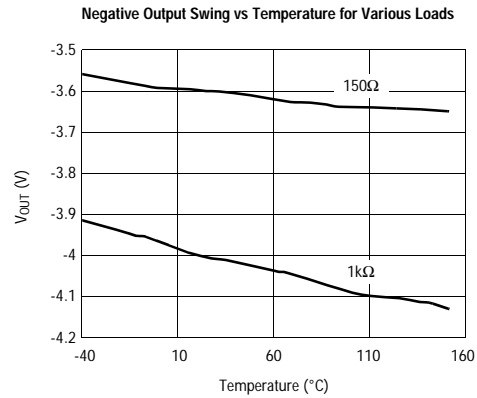
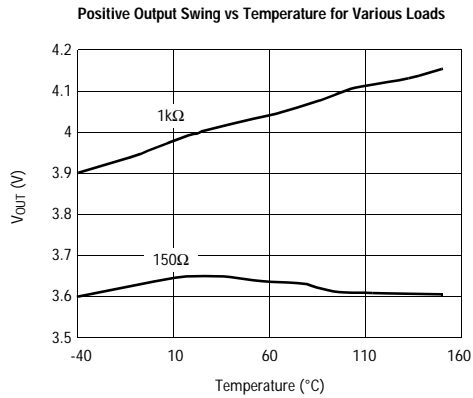


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Triple 400MHz Fixed Gain Amplifier

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Typical Performance Curves



EL5396C - Preliminary**Triple 400MHz Fixed Gain Amplifier****Pin Descriptions**

EL5396C 16-Pin SO & 16-Pin QSOP	Pin Name	Function	Equivalent Circuit
1	INA+	Non-inverting input, Channel A	<p>Circuit 1</p>
2	CEA	Amplifier A enable	<p>Circuit 2</p>
3	VS-	Negative supply	
4	CEB	Amplifier B enable	(Reference Circuit 2)
5	INB+	Non-inverting input, Channel B	(Reference Circuit 1)
6	NC	Not connected	
7	CEC	Amplifier C enable	(Reference Circuit 2)
8	INC+	Non-inverting input, Channel C	(Reference Circuit 1)
9	INC-	Inverting input, Channel C	(Reference Circuit 1)
10	OUTC	Output, Channel C	<p>Circuit 3</p>
11	NC	Not connected	
12	INB-	Inverting input, Channel B	(Reference Circuit 1)
13	OUTB	Output, Channel B	(Reference Circuit 3)
14	VS+	Positive supply	
15	OUTA	Output, Channel A	(Reference Circuit 3)
16	INA-	Inverting input, Channel A	(Reference Circuit 1)

EL5396C - Preliminary*Triple 400MHz Fixed Gain Amplifier***General Disclaimer**

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élantec

HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

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