

### General Description

The SINAMP Class A high speed operational amplifier standard cell is part of PE's sensor signal acquisition IP library. In conjunction with the digitally controllable sinusoidal oscillator cell, it can be used as a high frequency harmonic voltage source for sensor stimulation.

The amplifier is designed to drive large capacitive loads (max. capacitance is depending on actual operation frequency and gain factor). Being as versatile as possible, the gain factor can be adjusted digitally in the range between 1 and 15.

### Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
<b>Electrical Parameters:</b>						
Supply Voltage	$V_{dd}$	4.75	5	5.25	V	
Supply Current	$I_{dd}$		7		mA	typ. value @10MHz
Gain Bandwidth	GBW		150		MHz	typ. value with 25pF load
gain factor	G	1		15		
capacitive load	$C_{load}$			50	pF	
slew rate	SR	40			V/ $\mu$ s	
<b>Absolute Maximum Ratings:</b>						
Operating Temperature	$T_{range}$	-20		80	$^{\circ}$ C	
Supply Voltage	$V_{dd}$	-0.3		7	V	
Input Voltage	$V_{in}$	-0.3		$V_{dd}+0.7$		
Output Voltage	$V_{out}$	-0.3		$V_{dd}+0.7$		
<b>Operating Conditions:</b>						
Ambient Temperature	$T_{amb}$	-20	27	80	$^{\circ}$ C	

### IO-Description

Interface	I/O	Function	Comment
GND A	Input	Supply	ground
VDD A	Input	Supply	supply voltage
Bias V	Input	Supply	frequency dependent bias
Bias20u	Input	Supply	constant bias
VMIDAMP	Input	Supply	amplifier reference voltage
IN	Input	Signal	signal in
OUT	Output	Signal	signal out
C0 - C4	Input	Control	compensation control port
G0 - G14	Input	Control	gain control port

### Symbol / external schematic

