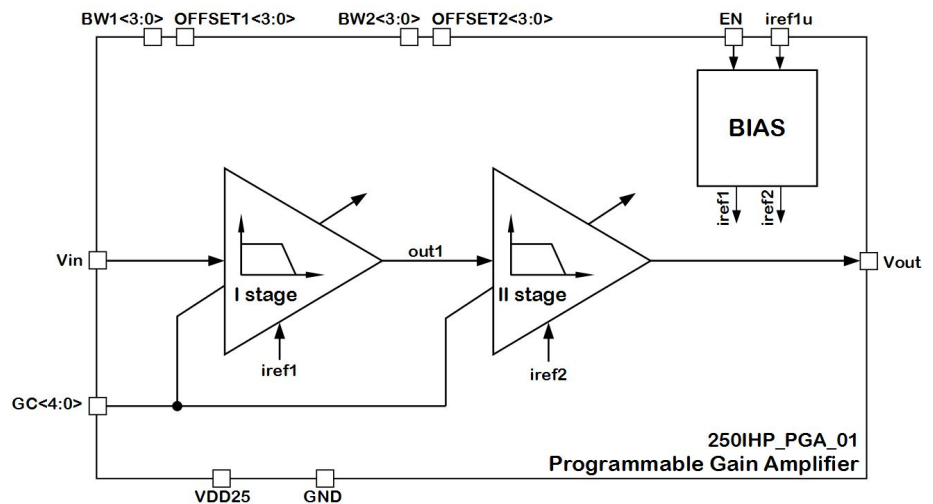


## Programmable gain amplifier

### OVERVIEW

250iHP\_PGA\_01 is a programmable gain amplifier (PGA) with low-pass filter (LPF). The block consists of 2 amplification stages with tunable (5-bit control) gain from 0 to 40dB. Both stages have single-ended input and output and produce max 20dB gain each. Gain can be set by the digital code  $GC<4:0>$ . Internal LPF is targeting 15 kHz cut-off frequency. Cut-off



frequency adjustment can be held by changing of  $BW1<3:0>$  and  $BW2<3:0>$  inputs for 1st and 2nd amplifiers respectively. DC offset adjustment can be held by setting of  $OFFSET1<3:0>$  and  $OFFSET2<3:0>$  inputs. The IP features are low power consumption and compact area.

IP technology: iHP SG25H4 SiGe BiCMOS 0.25um.

IP status: silicon proven.

Area: 0.37mm<sup>2</sup>

### ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			min	typ.	max	
Junction temperature	$T_J$	-	0	50	100	°C
Supply voltage	VDD25	-	2.38	2.50	2.62	V
Current consumption	IDD	-	0.35	0.4	0.45	mA
Gain tuning range	G	-	-0.5	-	40	dB
Gain step	$\Delta G$	-	-	1.3	-	dB
Cut-off frequency	FC	-	11	15	21	kHz
Intermodulation distortion	IM3	@2V $V_{outp-p}$	55	64	75	dB