



## NXP broadband gain blocks BGA70xx

# Wideband SiGe amplifiers with flat gain

These internally matched SiGe devices present the flattest gain from 100 MHz to 5.5 GHz and can be connected directly to a 5 V supply without an external dropping resistor. The result is a smaller, cost-saving design with fewer power supply rails.

### Key features

- ▶ Frequency operating range: 30 MHz to 6 GHz
- ▶ P1dB from 14.5 dBm (BGA7014) to 19.5 dBm (BGA7020) @ 1 GHz
- ▶ 13 dB gain with flat response (100 MHz to 5.5 GHz)
- ▶ Integrated active biasing
- ▶ 5 V single supply operation
- ▶ No external  $V_{cc}$  bias resistor required
- ▶ All pins ESD protected to 2 kV HBM
- ▶ SOT89 package

### Applications

- ▶ Wireless and fixed infrastructure
- ▶ Consumer entertainment
- ▶ ISM band
- ▶ Aerospace and defense
- ▶ Test and measurement

The NXP BGA7014, BGA7017, and BGA7020 are broadband amplifiers with flat broadband gain.

The BGA70xx series extends NXP's portfolio of amplifiers into a new set of application areas, including wireless and fixed

(CATV, SMATV) infrastructure and consumer (STB) designs. In the ISM band, they enhance designs in eMetering and test and measurement, and in aerospace and defense, they are an excellent choice for military radio, electronic warfare, and radar.

At 1 dB gain compression, output power for the BGA7014 is 14.5 dBm, for the BGA7017 is 17 dBm, and for the BGA7020 is 19.5 dBm @ 1 GHz. All three devices deliver superior performance between 30 MHz and 6 GHz, with minimal external components.

Each device offers flat (1.5 dBpp) gain from 100 MHz to 5.5 GHz enabling broadband and multiband systems, so a single product can be used across multiple designs and applications, for maximum cost savings through even the highest volumes. The devices connect directly to a 5 V supply, so there's no need for an external  $V_{cc}$  bias resistor. This shrinks the design and reduces system cost.

To protect against ESD events caused by the end user, the devices ensure robustness by offering the highest ESD protection rating (2 kV HBM) on all pins.



Selection guide

		BGA7014	BGA7017	BGA7020
I <sub>cc</sub> [mA]		70	87	120
Gain [dB]	@ 2 GHz	12.5	12.5	12.5
	@4 GHz	14.0	14.0	14.0
	@ 5.5 GHz	12.5	12.5	12.5
P1dB [dBm]	@ 2 GHz	12.5	15.5	18.2
OIP3 [dBm]	@ 2 GHz	25.0	29.0	32.7
V <sub>cc</sub> [V]		5.0	5.0	5.0
NF [dB]	@ 2 GHz	6.5	6.5	6.5
Temperature compensation		Yes	Yes	Yes

BGA70xx functional diagram

