



## NXP digital VGAs BGA7204 & BGA7210

# Digital wideband VGAs with high linearity & flexible current settings

These 6-bit digital VGAs offer high linearity (35 dBm@2.2-2.8 GHz) and high output power (23 dBm@2.2-2.8 GHz) across a large bandwidth without external matching. Smart routing with no connection crosses simplifies design and decreases footprint by 25%. The unique power-save mode can effectively reduce the current consumption in TDD systems up to 45%. The BGA7210 adds flexible current distribution across its two amplifiers, depending on the attenuation state, to save current.

### Key features

- ▶ Internally matched for 50  $\Omega$ 
  - BGA7204 = 0.4 to 2.75 GHz
  - BGA7210 = 0.7 to 3.8 GHz
- ▶ High maximum power gain
  - BGA7204 = 18.5 dB
  - BGA7210 = 30 dB
- ▶ High output third-order intercept,  $IP3_o$ 
  - BGA7204 = 38 dB
  - BGA7210 = 39 dB
- ▶ Attenuation range of 31.5 dB, 0.5 dB step size (6 bit)
- ▶ High output power,  $P_{L(1dB)}$ 
  - BGA7204 = 21 dB
  - BGA7210 = 23 dB
- ▶ Fast switching power-save mode (power down pin)
- ▶ Digitally controlled current setting from 120 to 195 mA with an optimum at 185mA (BGA7210 only)
- ▶ Simple control interfaces
  - BGA7204 SPI and parallel
  - BGA7210 SPI

- ▶ ESD protection on all pins (HBM 4 kV; CDM 2 kV)
- ▶ HVQFN32 (5 x 5 x 0.85 mm)

### Key benefits

- ▶ Wideband operation supports platforms with multiple frequency ranges
- ▶ Smart lead routing produces simpler design, decreases footprint by 25%
- ▶ Power-save mode can reduce current consumption in TDD systems up to 45%
- ▶ Flexible current setting (BGA7210) saves power
- ▶ Monolithic design enables high quality

### Applications

- ▶ GSM, W-CDMA, WiMAX, LTE basestations
- ▶ Wireless point-to-point and repeaters
- ▶ Cable modem termination systems
- ▶ Temperature-compensation circuits



