

Product Brief

RF medium power amplifiers

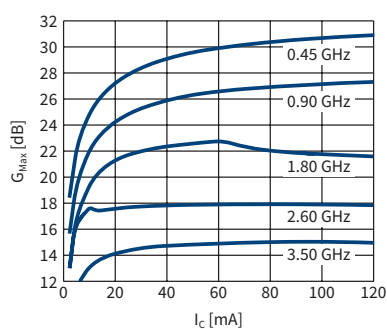
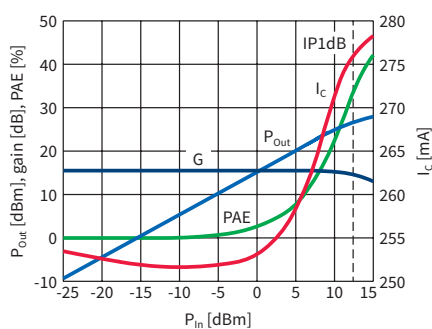
Infineon's first generation

BFP780 and BFQ790 are Infineon's new general purpose high gain drivers amplifier based on Infineon's cost effective Silicon Germanium (SiGe) technology optimized for power gain and addressing broad range of wireless applications, now complementing the existing RF product portfolio.

These single stage driver amplifiers provide with high linearity and high gain for use at frequencies up to 3.0 GHz and they provide with large flexibility in designs where high linearity is a determining factor in components selection.

The emitter-base diode design provides BFP780 and BFQ790 with high ruggedness even at high maximum RF input power whereas the silicon substrate conductivity and the low thermal resistance of the package make the devices thermally resistant enabling high dissipated power values during operation.

Alike all other Infineon RF BJT products discretés, these driver amplifiers are 100% DC and RF tested.



P_{Out} , gain, I_C , PAE vs. P_{In} at $V_{CE} = 5V$,
 $I_{Cq} = 250\text{ mA}$, $f = 2.6\text{ GHz}$, $Z_1 = Z_{opt}$

Maximum power gain G_{Max} vs. I_C
at $V_{CE} = 5V$, $f = \text{parameter}$

Applications

- > Commercial & Industrial wireless infrastructure e.g. 3G/4G
- > Set-top-boxes and CATV
- > Indoor & outdoor wireless access point, e.g. WiFi
- > Broadband and general ISM systems
- > Smart metering
- > Solid state microwave oven

www.infineon.com/rf

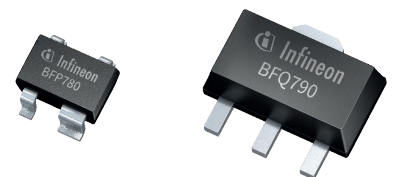
Key features

Product features

- > OP1dB of 200 mW / 23 dBm and 500 mW / 27 dBm at 5 V Supply
- > Enhanced 3rd order (IP3/CTB) & 2nd order (IP2/CSO) distortion
- > Linear amplifiers with OIP3 > 35 dBm
- > 40% and 45% collector efficiency at OP1dB for BFQ790 and BFP780
- > 400 MHz to 3500 MHz frequency range
- > High gain at 900 MHz and at 2.6 GHz
- > > 20 dBm RF overdrive protection

Benefits

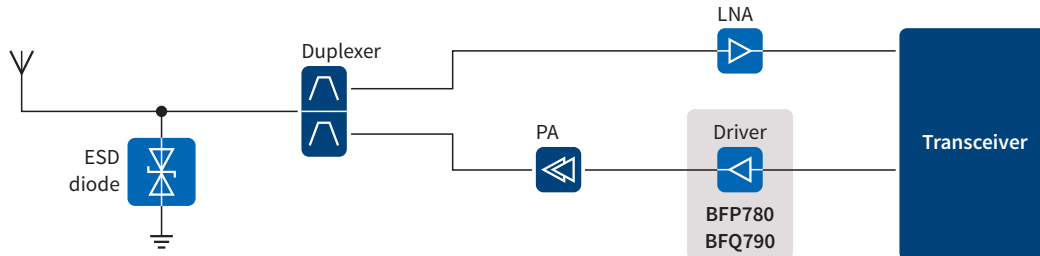
- > Easy to use large signal compact (VBIC) model in development
- > **Cost effective NPN SiGe** technology running in very high volume
- > **Easy to use Pb-free** (RoHS compliant) and halogen-free industry standard package SOT343 and SOT89



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Block diagram



Driver amplifier, also known as high linear gain block, is an important functional block in RF transceiver systems. The final stage of the transmitter chain in the transceiver system, Power Amplifier (PA), requires a certain input power level to operate in the linear mode, which usually cannot be delivered by the transceiver IC directly.

In these cases, external one or two stage driver amplifiers are required. Driver amplifiers provide the high gain linear signal amplification from the transceiver IC to PA. They are generally operated in linear class-A mode to enable high linearity and high gain at the same time, thereby keeping spurious signals generated by the PA low.

Orderable part No.

Product type	OPN	@ 1.9 GHz			@ 2.7 GHz			Package
		Gain [dB]	OIP3 [dBm]	OP1dB [dBm]	Gain [dB]	OIP3 [dBm]	OP1dB [dBm]	
BFP780	BFP780H6327XTSA1	18	35	23	14.4	35	23	SOT343
BFQ790	BFQ790H6327XTSA1	17	40	27	14.0	40	27	SOT89

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