



NXP medium-power MMICs BGA7xxx for broadband applications

Broadband QUBiC4 MMICs for all 400-2700 MHz applications

Produced in NXP's proven QUBiC4 Si BiCMOS process, these MMICs bring improved thermal performance and added-value features to all 400-2700 MHz applications – at a lower cost than GaAs versions.

Features

- ▶ ESD protection at all pins
- ▶ Single-supply operation (3.3 or 5 V)
- ▶ Integrated active biasing
- ▶ Fast shutdown
- ▶ Quiescent current adjustment
- ▶ Two package options: smallest leadless package (3 x 3 mm) and leaded SOT-89

Manufactured in NXP's breakthrough QUBiC4 process, these MMICs deliver a comparable level of RF performance as their GaAs equivalents, but at a lower cost and with additional features, like thermal performance and ESD robustness. The QUBiC4 process makes it possible to support even more features, including active biasing, quiescent adjustment, VGA interfaces, and a power-saving shutdown mode.

Applications

- ▶ Wireless infrastructure (basestation, repeater)
- ▶ eMetering
- ▶ Broadband CPE (customer premises equipment)
- ▶ Satellite Master Antenna TV (SMATV)
- ▶ Industrial applications
- ▶ WLAN / ISM / RFID
- ▶ MoCA (Multimedia over Cable Alliance)
- ▶ Defense & Aero

To increase design flexibility, all MMICs support single-supply (3.3/5 V) operation. They are packaged in SOT89 form, or for space constrained applications, a smaller, leadless package (3 x 3 mm) is available.

MoCA

These MMICs are exceptionally well-suited for use in MoCA power amplifiers for set-top boxes or PC dongles. They make it possible to tailor the gain or P1dB for specific platform requirements, and the gain flatness between 475-625 MHz and 1.15-1.5 GHz is unrivaled. The devices operate at low power consumption and offer a fast shutdown function to save as much power as possible.

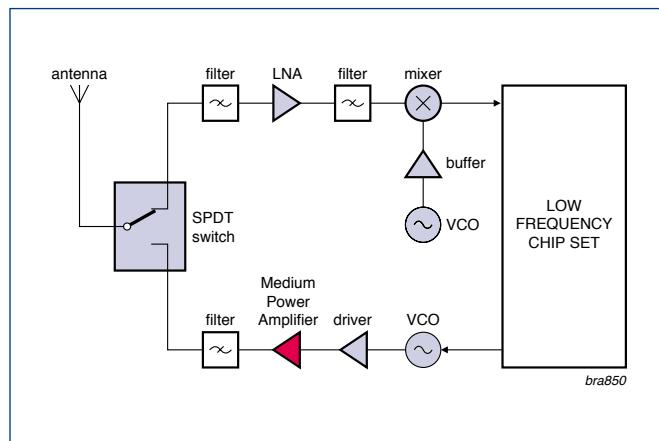


ESD protection and active biasing, along with the SOT89 package option, simplifies design and minimizes the number of external components.

Basestation

The high power level of these MMICs makes them an excellent choice for mobile-infrastructure applications. They offer the highest gain over all basestation frequencies. The quiescent-current feature allows for high efficiency and linearity in Class-AB operation. The bias circuitry delivers a stable performance over temperature and supply variations. The integrated shutdown function is a power-saving feature and can be used for fast shutdown. The MMICs can be tuned for any band between VHF and 2.7 GHz. Unbeatable thermal performance (30 °C/W) improves overall quality and reliability.

Generic RF front-end with single antenna (eMetering, WLAN, ISM applications)



eMetering

These MMICs are also very well suited to eMetering applications in the 900-2400 MHz ISM band. High integration and single-supply operation mean that the MMICs can be combined with just a few other components to create a full-featured solution. The MMICs can be operated on battery power (with an energy-saving shutdown mode) and are tunable between Class A and AB. They can also work on a power-line network, so they support gas metering with or without a power connection. The built-in reliability and quality of a silicon-based process provides longevity, as does the improved ESD performance.

Defense & Aero

NXP's medium power MMICs are a perfect fit for drivers in radar line-ups upto S-Band frequencies with excellent gain and efficiency. These MMICs are also a great fit for military communication with their wideband performance from HF to 3 GHz - offering good gain flatness and power over large bandwidths.

Quick reference Medium Power Amplifying MMICs

Type	Package	f	supply			shutdown control				RF performance				RF performance					
			V _{cc}	I _{cc}		V _{I(D)IL(SHDN)}		V _{I(D)H(SHDN)}		I _{I(D)IL(SHDN)}		Typ @ f = 940 MHz				Typ @ f = 1960 MHz			
				Typ	Typ	Max	Min	Max	Min	Max	Typ	Gp	P _{L(1dB)}	OIP3	NF	Gp	P _{L(1dB)}	OIP3	NF
			(MHz)	(V)	(mA)	(mA)	(V)	(V)	(V)	(V)	(μA)	dB	dBm	dBm	dB	dB	dBm	dBm	dB
BGA7124	SOT908	leadless	400 - 2700	5	130	200	0	0.7	2.5	Vbias	4	22	25	38	5	16	24	38	5
BGA7024	SOT89	leaded	400 - 2700	5	110	-	-	-	-	-	-	22	24	38	3	16	25	38	4
BGA7127	SOT908	leadless	400 - 2700	5	180	325	0	0.7	2.5	Vbias	4	20	28	44	3	13	28	43	5
BGA7027	SOT89	leaded	400 - 2700	5	170	-	-	-	-	-	-	19	28	41	3	12	28	43	4
BGA7130	SOT908	leadless	400 - 2700	5	-	-	0	0.7	2.5	Vbias	4	18	30	45	4	12	30	45	4
BGA7133	SOT908	leadless	400 - 2700	5	-	-	0	0.7	2.5	Vbias	4	18	33	46	4	12	33	47	4

The specifications of the BGA7130 and BGA7133 are target specifications until development is completed.