Gängige MMIC der Firma Sirenza Microdevices
(Als Ersatz für die MSA-Serien)

SGA Series

SiGe Gain Blocks

Silicon Germanium (SiGe) offers benefits not attainable by conventional silicon bipolar technologies. The SGA product family offers lower power consumption, high output power at high efficiency, high integration levels, at lower costs.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SGA-0163	DC-4500	-1.8	9.4	12.7	4.7	2.1	8.0
SGA-0363	DC-5000	2.3	14.2	19.6	3.0	2.5	11.0
SGA-1163	DC-6000	-3.3	7.9	11.5	3.1	4.6	12.0
SGA-1263	DC-4000	-7.8	2.6	15.7	2.7	2.8	8.0
SGA-2163	DC-5000	7.1	21.0	10.5	4.1	2.2	20.0
SGA-2186	DC-5000	7.5	20.0	10.2	4.3	2.2	20.0
SGA-2263	DC-5000	7.5	20.2	14.7	3.2	2.2	20.0
SGA-2286	DC-5000	8.3	20.0	15.0	3.2	2.2	20.0
SGA-2363	DC-5000	8.2	19.4	17.5	2.9	2.7	20.0
SGA-2386	DC-5000	8.5	20.5	17.2	2.9	2.7	20.0
SGA-2463	DC-5000	8.0	20.1	20.0	2.6	2.7	20.0
SGA-2486	DC-5000	8.4	20.0	19.8	2.7	2.7	20.0
SGA-3263	DC-5500	11.6	26.2	15.0	3.6	2.6	35.0
SGA-3286	DC-5000	12.2	25.5	14.5	3.7	2.6	35.0
SGA-3363	DC-3500	11.6	25.4	17.5	2.9	2.6	35.0
SGA-3386	DC-5000	12.3	24.3	17.0	3.2	2.6	35.0
SGA-3463	DC-5000	11.3	24.0	21.5	2.5	2.9	35.0
SGA-3486	DC-5000	12.7	24.6	21.0	2.8	2.9	35.0
SGA-3563	DC-5000	12.9	24.0	26.1	2.3	3.2	35.0
SGA-3586	DC-5000	13.5	25.0	25.0	2.5	3.3	35.0
SGA-4163	DC-5000	13.0	29.7	10.5	4.8	3.2	45.0
SGA-4186	DC-5000	14.6	28.3	10.0	4.7	3.2	45.0
SGA-4263	DC-3500	14.2	29.3	14.0	3.4	3.2	45.0
SGA-4286	DC-5000	15.0	29.1	13.5	3.7	3.2	45.0
SGA-4363	DC-4000	14.3	28.7	17.5	2.7	3.2	45.0
SGA-4386	DC-4500	15.3	28.9	17.0	2.9	3.2	45.0
SGA-4463	DC-3500	14.0	27.0	19.0	2.5	3.2	45.0
SGA-4486	DC-4500	15.4	28.2	18.5	2.7	3.2	45.0
SGA-4563	DC-2500	15.0	27.1	20.2	1.9	3.6	45.0
SGA-4586	DC-4000	16.5	28.6	17.9	1.7	3.6	45.0
SGA-5263	DC-4500	16.3	32.5	13.3	4.0	3.4	60.0
SGA-5286	DC-5000	17.0	31.0	13.5	4.1	3.5	60.0
SGA-5289	DC-5000	15.8	31.8	13.4	4.2	3.5	60.0
SGA-5386	DC-5000	17.0	32.0	16.6	3.5	3.6	60.0
SGA-5389	DC-4500	16.3	31.5	16.4	3.3	3.6	60.0
SGA-5486	DC-3500	17.0	32.0	18.8	3.1	3.5	60.0
SGA-5489	DC-4000	16.0	30.8	19.7	2.8	3.3	60.0
SGA-5586	DC-4000	18.1	31.6	23.1	2.5	3.9	60.0

SGA-5589	DC-4000	18.2	32.9	24.0	3.0	3.9	60.0
SGA-6286	DC-5500	18.7	35.0	13.6	3.9	4.0	75.0
SGA-6289	DC-5400	18.1	34.4	13.9	3.7	4.0	75.0
SGA-6386	DC-5000	21.0	35.3	15.4	3.6	4.9	80.0
SGA-6389	DC-4500	20.2	35.2	15.5	3.8	4.9	80.0
SGA-6486	DC-4500	20.2	35.0	19.7	3.0	5.1	75.0
SGA-6489	DC-3500	20.7	34.0	20.1	2.7	5.1	75.0
SGA-6586	DC-4000	21.5	33.8	23.8	2.7	5.0	80.0
SGA-6589	DC-3500	21.5	32.5	25.5	2.5	4.9	80.0
SGA-7489	DC-3000	22.4	35.5	21.5	2.8	5.0	115.0

Typical Performance @ 850 MHz

SGA Series

SiGe Low Noise Transistors

Sirenza Microdevices SGA-8 and SGA-9 series are low-cost, high-performance SiGe HBT transistors that use off-chip matching for maximum flexibility. The SGA-8 series features low noise with NFmin as low as 0.9dB. It also offers high gain and excellent linearity at low DC powers. The SGA-9 series is for higher powered applications with linearity requirements up to +42.0dBm OIP3.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SGA-8343	DC-6000	13.0	28.5	17.5	1.1	3.0	20.0
SGA-8343X	DC-6000	13.0	28.5	17.5	1.1	3.0	20.0

Data measured at 2GHz and is typical

1 - P1dB and IP3 results specified with the device matched to Zs=Zsopt, Zl=Zlopt

2 - NFopt and Gain are specified Zs=Zsopt, Zl=Zlopt at 3V, 10mA

SGA Series

SiGe Medium Power Transistors

Sirenza Microdevices SGA-8 and SGA-9 series are low-cost, high-performance SiGe HBT transistors that use off-chip matching for maximum flexibility. The SGA-8 series features low noise with NFmin as low as 0.9dB. It also offers high gain and excellent linearity at low DC powers. The SGA-9 series is for higher powered applications with linearity requirements up to +42.0dBm OIP3.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SGA-9189	DC-3.5[2]	26.0[2]	39.0[2]	20.5[2]	-[2]	5.0[2]	180.0[2]
SGA-9289	DC-3.5[3]	29.0[3]	41.5[3]	20.6[3]	-[3]	5.0[3]	340.0[3]

1 - Gmax @ 900 MHz

2 - 13.2 dB Gmax @ 1.9 GHz

3 - 13.1 dB Gmax @ 1.9 GHz

SGL Series

SiGe Low Noise Amplifiers

Sirenza Microdevices low cost, SiGe amplifiers provide low noise and low power consumption. These products are suitable for wireless infrastructure equipment and ISM applications.

Part No.	Freq MHz	P1dB dBm	IIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SGL-0163	300-1300	5.0[1]	3.5[1]	21.0[1]	1.2[1]	3.0	11.0
SGL-0263	1400-2500	6.0[3]	10.6[3]	11.4[3]	1.8[3]	3.0	11.0

1 - Performance data @ 433MHz

2 - Performance data @ 900MHz

3 - Performance data @ 2400MHz

SHF Series

HFET Medium Power Transistors

Sirenza Microdevices' SHF series are AIGaAs/GaAs FET power amplifiers, packaged in low-cost plastic surface-mountable packages. When properly matched, these transistors provid out power levels from +27dBm at 2 GHz to +33dBm at 3 GHz. With ultra-linear performance, these power FETs are ideal for subscriber products and/or driving higher power amplifiers.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SHF-0189	50-6000	27.0	40.0	18.5	4.7	8.0	100.0
SHF-0289	50-6000	30.0	43.0	19.0	3.2	7.0	200.0
SHF-0589	50-3000	33.0	46.0	16.5	3.6	7.0	345.0

Typical Performance Data @900 MHz

SLX Series

pHEMT Low Noise Amplifiers

Sirenza Microdevices LNA pHEMT module offers high linearity and a very low noise figure. This module is self-biased and operates from a single supply.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SLX-2143	1700-2200	20.0	34.0	15.0	1.1	5.0	105.0

SNA Series

GaAs Gain Blocks

Sirenza Microdevices SNA series are broadband GaAs HBT (Gallium Arsenide Heterojunction Bipolar Transistor) monolithic microwave integrated circuits (MMICs) housed in low-cost surface-mountable plastic and ceramic packages. These amplifiers provides high output intercept point, high gain, low noise figure and low power consumption.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SNA-176	DC-8000	13.0	26.0	12.0	6.0	4.0	50.0
SNA-186	DC-8000	13.0	26.0	12.5	6.0	3.8	50.0

SNA-276	DC-6000	14.0	27.0	12.8	5.5	4.0	50.0
SNA-286	DC-6000	14.0	29.0	15.5	5.7	3.8	50.0
SNA-376	DC-3000	10.0	23.0	23.0	4.0	4.0	35.0
SNA-386	DC-3000	10.0	23.0	20.0	4.0	3.7	35.0
SNA-486	DC-6500	17.5	30.9	13.6	5.0	5.0	65.0
SNA-586	DC-5000	18.4	31.6	18.1	4.0	4.9	65.0
SNA-686	DC-6000	17.7	32.1	11.2	7.3	5.3	65.0

Typical Performance @ 1950 MHz

SNA Series

GaAs Gain Blocks

The SNA product family is also available in chip form in 100 pc gel packs. Their small size and gold metallization make them an ideal choice for use in hybrid circuits.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SNA-100	DC-10000	13.0	26.0	12.0	5.0	3.8	50
SNA-100S	DC-10000	11.0	24.0	12.2	5.0	3.6	40
SNA-200	DC-6500	14.0	27.0	15.5	5.5	3.8	50
SNA-200S	DC-6500	12.0	25.0	15.0	5.5	3.6	40
SNA-300	DC-3000	10.0	23.0	22.0	4.0	3.7	35
SNA-400	DC-8000	17.5	30.9	13.6	5.0	4.9	65
SNA-500	DC-3000	18.4	31.6	18.1	4.0	4.8	65
SNA-600	DC-6500	17.7	32.1	11.2	7.3	5.4	65

Typical Performance @ 1950 MHz

SNA Series

GaAs Bare Die Products

The SNA product family is also available in chip form in 100 pc gel packs. Their small size and gold metallization make them an ideal choice for use in hybrid circuits.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SNA-100	DC-10000	13.0	26.0	12.0	5.0	3.8	50
SNA-100S	DC-10000	11.0	24.0	12.2	5.0	3.6	40
SNA-200	DC-6500	14.0	27.0	15.5	5.5	3.8	50
SNA-200S	DC-6500	12.0	25.0	15.0	5.5	3.6	40
SNA-300	DC-3.0	10.0	23.0	22.0	4.0	3.7	35
SNA-400	DC-8.0	17.5	30.9	13.6	5.0	4.9	65
SNA-500	DC-3.0	18.4	31.6	18.1	4.0	4.8	65
SNA-600	DC-6.5	17.7	32.1	11.2	7.3	5.4	65

Typical Performance @ 1950 MHz

SPA Series

GaAs Power Amplifiers

Sirenza Microdevices SPA amplifiers are GaAs HBT amplifiers providing excellent adjacent channel power performance. Output IP3 is extremely high for a GaAs MMIC, typically +48 dBm. As power amplifier drivers, these are excellent for use in CDMA, WCDMA, GSM and UMTS systems in addition to being a suitable LNA stage in base station receiver applications.

Part No.	Freq MHz	P1dB dBm	Pout dBm	OIP3 dBm	Gain dB	Vd V	Id mA	NF dB

SPA-1118	810-960	29.5	21.0[1]	48.0	17.0	5.0	310.0	7.5
SPA-1218	1930-1990	29.5	21.3[1]	48.0	12.5	5.0	320.0	7.0
SPA-1318	2110-2170	29.5	20.1[2]	48.0	12.5	5.0	320.0	7.0
SPA-2118	810-960	30.5	20.7[1]	48.0	33.0	5.0	400.0	5.0
SPA-2318	1700-2200	30.0	20.7[2]	47.0	23.5	5.0	400.0	5.5

1 - IS-95 Modulation, 9 Channels Forwar4d, -55 dBc ACPR

2 - W-CDMA Modulation, 64 DPCH + Overhead, -50 dBc ACPR

SPF Series

pHEMT Low Noise Transistors

Sirenza Microdevices SPF series are ultra-low noise Pseudomorphic High Electronic Mobility Transistor (pHEMT) FETs, packaged in low parasitic, plastic surface mountable packages and offered in chip form. The SPF series features low noise figure with NFmin as low as 0.5dB at 2GHz. The ultra-linear performance makes these FETs ideally suited for both LNAs and/or low power driver amps.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SPF-2000	DC-12000	20.0	32.0	17.7	0.5	5.0	40.0
SPF-2086T	DC-12000	20.0	32.0	12.2	0.7	5.0	40.0
SPF-2086TK	DC-6000	20.0	32.0	17.8	0.4	5.0	40.0
SPF-3143	DC-3500	15.0	29.0	14.5	0.50	3.0	20.0
SPF-3143	DC-3500	17.7	31.0	15.1	0.58	5.0	40.0

1 - Data measured at 2GHz and is typical.

2 - Data measured at 6GHz and is typical

SPF Series

pHEMT Bare Die Products

Sirenza Microdevices SPF series are ultra-low noise Pseudomorphic High Electronic Mobility Transistor (pHEMT) FETs, packaged in low parasitic, plastic surface mountable packages and offered in chip form. The SPF series features low noise figure with NFmin as low as 0.5dB at 2GHz. The ultra-linear performance makes these FETs ideally suited for both LNAs and/or low power driver amps.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SPF-2000	DC-12	20.0	32.0	17.7	0.5	5.0	40.0

1 - Typical performance @ 1950MHz

SRF Series

SiGe Demodulators

The SRF product family includes two multi-purpose IF receiver/demodulator devices, applicable to both mobile and terrestrial wireless systems. The SRF device combines two digitally selectable IF gain stages with an IQ demodulator. The SRF provides high output compression and excellent amplitude and phase balance. The SRF is particularly well suited for broadband wireless and SATCOM systems, where broad baseband coverage is required.

Part No.	Freq (MHz)	IF (MHz)	Gain (dB)	NF (dB)	Vd (v)	Id (mA)
SRF-1016	DC-500	65-300	-6/11/31	30/12/7	5.0	180.0
SRF-2016	DC-500	200-600	-6/11/31	30/12/7	5.0	180.0

STQ Series

SiGe Modulators

The STQ product family includes three high-linearity direct quadrature modulators for use in a wide range of communications systems. Each device covers wide bandwidths, for applications such as TETRA, cellular, PCS, DCS, UMTS, broadband wireless and CATV/SATCOM set-top boxes. The modulators have excellent phase (+-2 deg) and amplitude (+-0.2dB) balance, good sideband and carrier suppression and low broadband noise floor.

Part No.	Baseband (MHz)	RF/LO (MHz)	P1dB (dBm)	Vd (v)	Id (mA)
STQ-1016	DC-500	250-1000	5.0	5.0	73.0
STQ-2016	DC-500	700-2500	3.0	5.0	73.0
STQ-3016	DC-500	2500-4000	2.0	5.0	82.0

SX Series

GaAs Medium Power Amplifiers

Sirenza Microdevices SX series are GaAs HBT (Gallium Arsenide Heterojunction Bipolar) amplifiers housed in low-cost surface-mountable packages. These amplifiers provides high gain, high output intercept point, low noise figure and low power consumption. These amplifiers are specially designed for use as driver devices for infrastructure equipment in the 50-2500 MHz cellular, ISM and narrowband PCS bands. Their high linearity performance make them an ideal choice for multi-carrier as well as digital applications.

Part No.	Freq MHz	P1dB dBm	OIP3 dBm	Gain dB	NF dB	Vd V	Id mA
SXA-289	5-2000	24.0[1]	42.0[1]	15.5	5.0[1]	5.0	105
SXA-3318B	400-2500	28.0	47.0[1]	17.5[1]	5.5[1]	5.0	240
SXA-389	400-2500	25.0[1]	42.0[1]	19.0[1]	5.5[1]	5.0	105
SXA-389B	400-2500	25.0[1]	42.0[1]	18.4[1]	5.0[1]	5.0	120
	400-2500	27.5	45.0[1]	19.5[1]	4.8[1]	5.0	270

SXB-4089							
SXT-289	1800-2500	22.9[2]	41.0[2]	15.1[2]	5.0[2]	5.0	110

1 - Data measured at 900MHz and is typical of device performance.

2 - Data measured at 2150MHz and is typical of device performance.

3 - SXA-389B and SXA-3318B provide lower thermal resistance.