电子元器件系列(中国.厦门) China.Xiamen

www.rf-china.com **RF-Micom co.,Ltd**

Email:sales@rf-china.com

Telephone:0086-592-5713956 Fax:5201617

General Purpose Gain Blocks

SGA Series SiGe High Linearity Gain Blocks

- Low cost
- Low power consumption
- High integration levels
- Suitable for a variety of RF applications

Part Number	Freq (GHz)	P1dB @ 850 MHz (dBm)	OIP_3 @ 850 MHz (dBm)	Gain @ 850 MHz (dB)	Gain @ 1950 MHz (dB)	NF @ 850 MHz (dB)	Vd (V)	Id (mA)	Package Styles 63	86	89
Low Current, Low Voltage Gain Blocks											
SGA-01	DC-4.5	–1.8	+9.4	12.7	12.0	4.7	2.1	8	SGA-0163		
SGA-03	DC-5.0	+2.3	+14.2	19.6	17.2	3.0	2.5	11	SGA-0363		
SGA-11	DC-6.0	–3.3	+7.9	11.5	11.2	3.1	4.6	12	SGA-1163		
High Reverse Isolation Gain Blocks (>50 dB at 900 MHz)											
SGA-12	DC-4.0	–7.8	+2.6	15.7	14.7	2.7	2.8	8	SGA-1263		
SGA-21	DC-5.0	+7.5	+20.0	10.2	9.3	4.3	2.2	20	SGA-2163	SGA-2186	
General Purpose Gain Blocks											
SGA-22	DC-5.0	+8.3	+20.0	15.0	14.0	3.2	2.2	20	SGA-2263	SGA-2286	
SGA-23	DC-5.0	+8.5	+20.5	17.2	15.3	2.9	2.7	20	SGA-2363	SGA-2386	
SGA-24	DC-5.0	+8.4	+20.0	19.8	16.7	2.7	2.7	20	SGA-2463	SGA-2486	
SGA-32	DC-5.0	+12.2	+25.5	14.5	13.0	3.7	2.6	35	SGA-3263	SGA-3286	
SGA-33	DC-5.0	+12.3	+24.3	17.0	15.3	3.2	2.6	35	SGA-3363	SGA-3386	
SGA-34	DC-5.0	+12.7	+24.6	21.0	18.0	2.8	2.9	35	SGA-3463	SGA-3486	
SGA-35	DC-5.0	+13.5	+25.0	25.0	20.0	2.5	3.3	35	SGA-3563	SGA-3586	
SGA-41	DC-5.0	+14.6	+28.3	10.0	9.2	4.7	3.2	45	SGA-4163	SGA-4186	
SGA-42	DC-5.0	+15.0	+29.1	13.5	12.0	3.7	3.2	45	SGA-4263	SGA-4286	
SGA-43	DC-4.5	+15.3	+28.9	17.0	14.6	2.9	3.2	45	SGA-4363	SGA-4386	
SGA-44	DC-4.5	+15.4	+28.2	18.5	15.9	2.7	3.2	45	SGA-4463	SGA-4486	
SGA-45	DC-4.0	+16.5	+28.6	24.0	17.9	1.7	3.6	45	SGA-4563	SGA-4586	
SGA-52	DC-5.0	+15.8	+31.8	13.4	12.7	4.2	3.5	60	SGA-5263	SGA-5286	SGA-5289
SGA-53	DC-4.5	+16.3	+31.5	16.4	15.4	3.3	3.6	60		SGA-5386	SGA-5389
SGA-54	DC-4.0	+16.0	+30.8	19.7	17.9	2.8	3.3	60		SGA-5486	SGA-5489
SGA-55	DC-4.0	+18.2	+32.9	24.0	20.8	3.0	3.9	60		SGA-5586	SGA-5589
SGA-62	DC-4.5	+18.1	+34.4	13.9	12.6	3.7	4.0	75		SGA-6286	SGA-6289
SGA-63	DC-4.5	+20.2	+35.2	15.5	14.0	3.8	4.9	80		SGA-6386	SGA-6389
SGA-64	DC-3.5	+20.7	+34.0	20.1	17.5	2.7	5.1	75		SGA-6486	SGA-6489
SGA-65	DC-3.5	+21.5	+32.5	25.5	20.0	2.5	4.9	80		SGA-6586	SGA-6589
SGA-74	DC-3.0	+22.4	+36.0	22.0	18.3	2.9	5.0	115			SGA-7489

NOTE: Data displayed is the 63 package version for the SGA-0 and -1 products.
Data displayed is the 86 package version for the SGA-2, -3 and -4 products.
Data displayed is the 89 package version for the SGA-5, -6 and -7 products.
U.S. Patent Pending.

SGB Series SiGe Active Bias Gain Blocks

- High performance
- Darlington configuration, active bias network
- Operates from 3V–5V supply
- Voltage drop resistor not required
- Class 1C ESD rating
- Low thermal resistance

Part Number	Freq (GHz)	P1dB @ 850 MHz (dBm)	P1dB @ 1950 MHz (dBm)	OIP_3 @ 850 MHz (dBm)	OIP_3 @ 1950 MHz (dBm)	Gain @ 850 MHz (dB)	Gain @ 1950 MHz (dB)	NF @ 1950 MHz (dB)	Vs (V)	Is (mA)	Package Style
SGB-2233	DC-4.5	7.9	6.7	20.5	19.0	13.9	12.9	4.2	3.0	25	3x3 QFN 16 PIN
SGB-2433	DC-4.0*	7.7	6.9	19.5	18.0	19.1	17.2	3.5	3.0	25	3x3 QFN 16 PIN
SGB-4333	DC-3.0	11.5	10.0	25.0	22.5	17.3	14.5	4.0	3.0	56	3x3 QFN 16 PIN
SGB-4533	DC-3.0	10.5	9.8	24.5	23.5	24.7	18.5	3.6	3.0	56	3x3 QFN 16 PIN
SGB-6433	DC-3.5	18.6	18.3	33.0	31.5	19.9	16.0	4.1	5.0	88	3x3 QFN 16 PIN
SGB-6533	DC-3.0	19.0	18.4	32.0	32.0	24.8	18.3	3.7	5.0	88	3x3 QFN 16 PIN

*Usable to 6 GHz with external match.

SB Series InGaP HBT Gain Blocks

- Robust 1000V ESD, Class 1C
- Moisture Resistant
- HAST compliant, MSL 1
- High linearity

Part Number	Freq (GHz)	P1dB (dBm)	OIP_3 (dBm)	Gain (dB)	NF (dB)	Vd (V)	Id (mA)	Tj @ 85°C Lead (°C)	ESD (HBM)	Package Styles 86	89
SBA-4086	DC-5.5	18.7	33.7	13.8	4.8	5.0	80	125	Class 1C	86	
SBA-5086	DC-5.0	19.4	34.7	16.9	4.4	5.0	80	125	Class 1C	86	
SBA-4089	DC-5.5	18.7	33.5	14.5	4.8	5.0	80	113	Class 1C		SOT-89
SBA-5089	DC-5.0	19.3	34.1	17.9	4.5	5.0	80	113	Class 1C		SOT-89

SBF Series InGaP HBT IF Amplifiers

Output Part Number	Freq (MHz)	P1dB (dBm)	OIP_3 (dBm)	Gain (dB)	NF (dB)	Vd (V)	Id (mA)	Package Style
SBF-4089	70	20.1	40	14.9	3.3	4.9	90	SOT-89
	240	20.1	42	14.8	3.3	4.9	90	SOT-89
	400	19.9	41	14.7	3.3	4.9	90	SOT-89
SBF-5089	70	21.1	39	20.5	2.8	4.9	90	SOT-89
	240	21	41	20.1	2.8	4.9	90	SOT-89
	400	20.7	39.5	19.8	2.8	4.9	90	SOT-89

SNA Series Broadband GaAs HBT Gain Blocks

- 50 cascadable gain block
- Single supply operation
- Low power consumption
- Patented GaAs HBT technology

Part Number	Freq Range (GHz)	P1dB @ 1950 MHz (dBm)	OIP_3 @ 1950 MHz (dBm)	Gain @ 850 MHz (dB)	Gain @ 1950 MHz (dB)	NF @ 1950 MHz (dB)	Vd (V)	Id (mA)	Package Styles 76	86
SNA-1	DC-8.0	13.0	26.0	12.5	12.0	6.0	3.8	50	SNA-176	SNA-186
SNA-2	DC-6.0	14.0	29.0	16.0	15.5	5.7	3.8	50	SNA-276	SNA-286
SNA-3	DC-3.0	10.0	23.0	21.0	20.0	4.0	3.7	35	SNA-376	SNA-386
SNA-4*	DC-6.5	17.5	30.9	13.9	13.6	5.0	5.0	65		SNA-486
SNA-5*	DC-5.0	18.4	31.6	19.6	18.1	4.0	4.9	65		SNA-586
SNA-6*	DC-6.0	17.7	32.1	11.1	11.2	7.3	5.3	65		SNA-686

*Not recommended for new designs. See SBA and SBW series as alternates. All SNA data provided for the 86 package.

Low Noise Amplifiers

SGL Series SiGe Low Noise Amplifiers

- Low cost
- Internal temperature compensation circuit
- Low noise
- Low power consumption
- Suitable for wireless infrastructure equipment and ISM applications

Part Number	Bandwidth (MHz)	Freq (MHz)	P1dB (dBm)	Input IP_3 (dBm)	Gain (dB)	NF (dB)	Vd (V)	Id (mA)	Package Style
SGL-0163	300-1300	433	5.0	3.5	21.0	1.2	3	11	SOT-363
		433	11.5	7.8	22.1	2.0	4	23	SOT-363
		900	5.0	6.4	15.0	1.1	3	11	SOT-363
SGL-0263	1400-2500	2400	6.0	10.6	11.4	1.8	3	11	SOT-363

SLM Series pHEMT Low-Noise Amplifier Modules

- Internally matched to 50 Ohms I/O with excellent return loss
- No external components required
- Low NF (<1 dB) from 1.7-2.0 GHz
- Low power consumption (5V, 40 mA) with high OIP_3 (30.5 dBm)

Part Number	Freq (GHz)	Gain (dB)	NF (dB)	P1dB (dBm)	OIP_3 (dBm)	Input VSWR	Output VSWR	Vd (V)	Id (mA)	Package Style
SLM-20T	1.7-2.0	15.1	0.9	17.7	30.5	18	15	5	40	T

IF Solutions

- 50–600 MHz range
- OIP_3 as high as +42 dBm
- Multi-carrier and digital applications

SBF Series InGaP HBT IF Amplifiers

Part Number	Freq (MHz)	P1dB (dBm)	OIP_3 (dBm)	Gain (dB)	NF (dB)	Vd (V)	Id (mA)	Package Style
SBF-4089	70	20.1	40	14.9	3.3	4.9	90	SOT-89
	240	20.1	42	14.8	3.3	4.9	90	SOT-89
	400	19.9	41	14.7	3.3	4.9	90	SOT-89
SBF-5089	70	21.1	39	20.5	2.8	4.9	90	SOT-89
	240	21	41	20.1	2.8	4.9	90	SOT-89
	400	20.7	39.5	19.8	2.8	4.9	90	SOT-89

SiGe IF Amplifiers

Part Number	Freq (MHz)	P1dB (dBm)	OIP_3 (dBm)	Gain (dB)	NF (dB)	Vd (V)	Id (mA)	Package Styles 63	86	89
SGA-45	100	15.7	27.0	28.7	1.9	3.6	45	SGA-4563	SGA-4586	
SGA-52	100	16.1	33.6	13.6	3.9	3.4	60	SGA-5263	SGA-5286	SGA-5289
SGA-65	100	21.0	32.0	28.0	2.5	4.9	80			SGA-6589
SGA-74	100	22.8	38.6	23.7	2.9	5.0	115			SGA-7489

SiGe IF Transistors

Part Number	Freq (MHz)	P1dB (dBm)	OIP_3 (dBm)	Gain (dB)	Vd (V)	Id (mA)	Package Style
SGA-9189	400	23	36	22	5.0	180	SOT-89

GaAs HBT IF Transistors

Part Number	Freq (MHz)	P1dB (dBm)	OIP_3 (dBm)	Gain (dB)	Vd (V)	Id (mA)	Package Style
SXA-289	200	24.1	39.3	26	5.0	105	SOT-89
	400	24.1	39.3	23.7	5.0	105	SOT-89

Driver Amplifiers — 0.25 to 1.0 W

SX Series High Linearity GaAs and InGaP HBT Power Amplifiers

- High linearity amplifiers suitable as driver stages in wireless infrastructure equipment
- High OIP3

Part Number	Freq (MHz)	P1dB (dBm)	OIP_3 (dBm)	Gain @ 850 MHz (dB)	Gain @ 1950 MHz (dB)	Gain @ 2450 MHz (dB)	NF (dB)	Vd (V)	Id (mA)	Tj @ 85°C Lead (°C)	Package Style
SXA-289[1]	5-2000	+24.0	+42.0	20.0	15.0		5.0	5.0	105		SOT-89
SXT-289[1]	1800-2500	+24.0	+41.0		15.0	13.8	5.0	5.0	105		SOT-89
SXA-389	400-2500	+25.0	+42.0	19.0	14.0	13.0	5.5	5.0	115	142.5	SOT-89
SXA-389B	400-2500	+25.0	+42.0	18.4	13.6	12.8	5.0	5.0	115	125	SOT-89
SXA-3318B	400-2500	+28.0	+47.0	17.5	12.5		5.5	5.0	240	125	ESOP-8

SPA Series GaAs Power Amplifiers — Wireless Infrastructure

- Optimized for wireless infrastructure frequency bands and applications
- High linearity
- Excellent ACPR
- Suitable for infrastructure LNA applications
- Surface mount plastic package available

Part Number	Frequency (MHz)	P1dB (dBm)	P_{out} (dBm)	OIP_3 (dBm)	Gain (dB)	Supply Voltage (V)	Supply Current (mA)	NF (dB)	Package Style
SPA-1118	810-960	+29.5	+21.0[1]	+48.0	17.0	5	310	7.5	ESOP-8
SPA-1218	1930-1990	+29.5	+21.3[1]	+48.0	12.5	5	320	7.0	ESOP-8
SPA-1318	2110-2170	+29.5	+20.1[2]	+47.0	12.5	5	320	7.0	ESOP-8
SPA-2118	810-960	+30.5	+20.7[1]	+48.0	33.0	5	400	5.0	ESOP-8
SPA-2318	1700-2200	+30.0	+20.7[2]	+47.0	23.5	5	400	5.5	ESOP-8

[1]IS-95 Modulation, 9 Channels Forward, –55 dBc ACPR. [2]W-CDMA Modulation, 64 DPCH + Overhead, –50 dBc ACPR.
U.S. Patent #6,529,080.

Power Modules — 2W to 30W

XD Series LDMOS Power Modules

- Patented LDMOS transistor technology
- Consistent ACPR and spectral re-growth performance
- 50 matching
- Optimized for wireless infrastructure frequency bands and applications

Part Number	Frequency (MHz)	Application	Gain (dB)	Idq (mA) @ 28 volts	P1dB (W)	Output Power (dBm)	Figure of Merit
XD010-12S-D4F	869-894	CDMA, GSM/EDGE	32	380	10	33, 37.8	–51 dBc @ 885 kHz, 1.5% RMS EVM
XD010-42S-D4F	869-894	Class A	30	930	10	30	OIP_3 49 dBm
XD010-14S-D4F	925-960	GSM/EDGE	32	388	10	37.8	1.5% RMS EVM
XD010-22S-D2F	1805-1880	GSM/EDGE	30	345	10	37	1.5% RMS EVM
XD010-24S-D2F	1930-1990	CDMA, GSM/EDGE	28	380	10	33, 36	–51 dBc @ 885 kHz, 1.5% RMS EVM
Advance Information — New Product in Development NEW							
XD025-35A-D5F	2110-2170	WCDMA, CDMA2000	29	360	20	31, 37	–54/–45 dBc @ 5 MHz, Test Model 2

Contact the factory for more information on power modules >30 W.

Hybrid Couplers — 3dB

Stripline Coupler Series

- Low cost, high performance
- Excellent amplitude and phase balance
- Low insertion loss
- Optimized for signal distribution and power amplification applications
- Available in three industry standard SMT packages

Model	Frequency Range (MHz) Min	Max	Coupling Value (dB) Typ	Insertion Loss (dB) Typ	Amplitude Balance (dB) Min	Typ	Max	Phase Balance (degrees) Min	Typ	Max	Power Handling (Watts) Max	Package Style
AH03L	815	960	3	0.1	–0.3	0	0.3	87	90	93	150	L
AN03L	1500	2200	3	0.1	–0.4	0	0.4	87	90	93	100	L
AR03L	1800	2200	3	0.1	–0.25	0	0.25	87	90	93	100	L
AV03L	1800	2700	3	0.1	–0.5	0	0.5	85	90	95	60	L
AS03L	1930	1990	3	0.1	–0.15	0	0.15	88	90	92	60	L
AP03L	2000	2300	3	0.1	–0.2	0	0.2	88	90	92	60	L
AY03L	3400	3500	3	0.1	–0.3	0	0.3	85	90	95	60	L
AM03M	1700	2000	3	0.1	–0.2	0	0.2	88	90	92	60	M
AS03M	1930	1990	3	0.1	–0.15	0	0.15	88	90	92	60	M
AP03M	2000	2300	3	0.1	–0.2	0	0.2	88	90	92	60	M
AW03M	2300	2700	3	0.1	–0.2	0	0.2	87	90	93	60	M
BC03M	3300	3700	3	0.1	–0.2	0	0.2	86	90	94	60	M
Advance Information — New Product in Development NEW												
AM03P	1700	2000	3	0.15	–0.25	0	0.25	87	90	93	25	P
AP03P	2000	2300	3	0.15	–0.25	0	0.25	87	90	93	25	P
AW03P	2300	2700	3	0.15	–0.25	0	0.25	87	90	93	25	P

CATV Products

CGA Series — CATV and Set-top Box Amplifiers

- Excellent CSO/CTB/XMOD Performance
- Single Supply
- 75 applications

Part Number	Freq (MHz)	P1dB (dBm)	Gain @ 500 MHz (dB)	Vd (V)	Id (mA)	OIP_2 (dBm)	OIP_3 (dBm)	CSO[1] (dB)	CTB[1] (dB)	XMOD[1] (dB)	Package Style
Dual Devices, Push-Pull Performance											
CGA-3318	50-860	+20.0	12.5	4.3	150	+68.0	+38.0	–70	–68	–63	ESOP-8
CGA-6618	50-860	+21.0	13.8	5.0	150	+73.0	+40.0	–81	–70	–63	ESOP-8

[1]Push-Pull CSO/CTB/XMOD Tested with 79 channels, +34 dBmV/Tone

CGA Series — CATV and Set-top Box Splitters

- High Isolation
- Flat Gain Response
- 75 applications
- Single device solution replacing multiple discretes

Part Number	Freq (MHz)	NF (dB)	P1dB (dBµV) @ 500 MHz	Isolation (dB)	Vd (V)	Id (mA)	OIP_2 (dBµV)	OIP_3 (dBµV)	Package Style
CGA-0116	50-900	7.5	116	>35	5.0	150	149	129	TSSOP-16

Fiber Optic, Transimpedance Amplifiers

SFT Series Transimpedance Amplifiers for Fiber Optic Receivers

- Low Noise
- High Sensitivity
- Automatic Gain Control
- Adjustable Dynamic Range
- Excellent Power Efficiency
- Suitable for optical receivers and transceivers

Part Number	Vcc (V)	Is (mA)	Gain Diff (Ω)	Bandwidth (GHz)	Sensitivity (dBm)
SFT-0100	+5	52	2200	10.5	–19.5
Advance Information — More TIAs for 10/12.5/40 GB/s Receivers NEW					
SFT-0200	+5	52	1100	11.5	–19.5
SFT-5100	+3.3	44	2000	8.5	–18.0
SFT-6100	+3.3	44	2200	9.5	–18.0
SFT-9100	+3.3	54	1500	45.0	–14.0

Photo-diode current monitor and adjustable dynamic range included.
U.S. Patents #6,404,281, #6,504,429B2.
U.S. Patent Pending.

SGA-8, -9 Series SiGe Transistors

- Low cost, high performance
- Off-chip matching for maximum flexibility
- Low noise figures — NFmin as low as 1.1 dB
- High linearity at low DC power levels

Part Number	Freq (GHz)	P1dB @ 1.9 GHz (dBm)	OIP_3 @ 1.9 GHz (dBm)	NFmin @ 0.9 GHz (dB)	Gain @ 1.9 GHz (dB)	Vd (V)	Id (mA)	Package Style
SGA-8343	DC-6.0	+13.0	+28.5	1.1	17.5	3.0	20	SOT-343
Advance Information								
SGA-8343Z*	DC-6.0	+13.0	+28.5	1.1	17.5	3.0	20	SOT-343

External matching required, see application note.
*Part is RoHS compliant with "green" molding compound and Pb-free lead frame.

Part Number	Freq (GHz)	P1dB @ 1.9 GHz (dBm)	OIP_3 @ 1.9 GHz (dBm)	NFmin @ 0.9 GHz (dB)	Vd (V)	Id (mA)	Package Style
SGA-9189	DC-3.0	+26.0	+39.0	2.5	5.0	180	SOT-89
SGA-9289	DC-3.0	+27.5	+42.0	2.9	5.0	270	SOT-89

External matching required, see application note.

SHF Series High Linearity 1/2W to 1W Power FETs

- Ultra-linear performance, up to +43 dBm OIP_3
- High drain efficiency
- Suitable as driver stages in wireless and wireline infrastructure

Part Number	Freq (GHz)	P1dB (dBm)	OIP_3 (dBm)	Gain @ 0.9 GHz (dB)	Gain @ 1.96 GHz (dB)	NF @ 0.9 GHz (dB)	Vd (V)	Id (mA)	Package Style
SHF-0189	.05-6.0	27	40	18.5	16.5	3.3	8	100	SOT-89
SHF-0289	.05-6.0	30	43	19	14.5	3.2	7	200	SOT-89

Typical device performance at 900 MHz unless otherwise indicated. External matching required, see application note.

SPF Series Ultra Low Noise Figure, High Linearity FETs

- Low noise figures — NFmin as low as 0.5 dB
- Ultra-linear performance
- Suitable for LNA and low power driver amplifier applications

Part Number	Frequency (GHz)	P1dB[1] (dBm)	OIP_3[1] (dBm)	G_{MAX} @ 0.9 GHz (dB)	NF_{MIN} @ 2 GHz (dB)	Vd (V)	Id (mA)	Package Style
SPF-2086T	0.1-12.0	+20.0	+32.0	25.2	0.55	5.0	40	86
SPF-2086TK	0.1-6.0	+20.0	+32.0	25.2	0.55	5.0	40	86
SPF-3143	DC-6.0	+17.7	+31.0	23.3	0.58	5.0	40	SOT-343

[1]P1dB and IP_3 are specified with the FET matched to optimize these parameters.
External matching required, see application notes.

Bare Die Product

Note: Other products may be available in bare die form upon request.

SNA Series Broadband GaAs HBT Gain Blocks

- General purpose gain blocks
- Gold metallization
- Ideal for hybrid circuits
- Suitable for broadband applications

Part Number	Freq (GHz)	P1dB @ 1950 MHz (dBm)	OIP_3 @ 1950 MHz (dBm)	Gain @ 850 MHz (dB)	Gain @ 1950 MHz (dB)	NF @ 1950 MHz (dB)	Vd (V)	Id (mA)	Chip Size (mm x mm)
SNA-100S[1]	DC-10.0	11.0	24.0	12.5	12.2	5.0	3.6	40	0.35 x 0.35
SNA-200S[1]	DC-6.5	12.0	25.0	15.5	15.0	5.5	3.6	40	0.35 x 0.35
SNA-300[1]	DC-3.0	10.0	23.0	23.0	22.0	4.0	3.7	35	0.35 x 0.35
SNA-400	DC-8.0	17.5	30.9	13.9	13.6	5.0	5.0	65	0.37 x 0.37
SNA-500	DC-3.0	18.4	31.6	19.6	18.1	4.0	4.9	65	0.37 x 0.37
SNA-600	DC-6.5	17.7	32.1	11.1	11.2	7.3	5.3	65	0.37 x 0.37

[1]Die are 100% DC tested.

SPF Series Ultra Low Noise Figure, High Linearity FETs

- Low noise
- High linearity
- Suitable for LNA and low-power amplifier driver applications

Part Number	Freq (GHz)	P1dB @ 1950 MHz (dBm)	OIP_3 @ 1950 MHz (dBm)	Gain @ 1950 MHz (dB)	NF @ 1950 MHz (dB)	Vd (V)	Id (mA)	Chip Size (mm x mm)
SPF-2000	DC-12	20.0	32.0	18.0	0.5	5.0	40	0.51 x 0.62

5–6 GHz Solutions

- WLAN/802.11a/HyperLAN2/5 GHz ISM
- WLL
- Radio

WLAN Power Amplifiers

Part Number	Freq (GHz)	Gain (dB)	P1dB (dBm)	P_{OUT} @ 3% EVM* (dBm)	Current @ 3% EVM* (mA)	OIP_3 (dBm)	NF (dB)	Supply Voltage (V)	Idq (mA)	Package Style
SZA-5044	4.9-5.9	28	29	22	310	**	6.3	5	220	4x4 QFN
Advance Information										
STA-5063	4.8-6.2	14	15	8	51	27	8.5	3.3	51	SOT-363
STA-6033	4.9-5.9	28	25.5	18	200	**	5.7	3.3	155	3x3 QFN
SZA-6044	5.1-5.9	18	24.5	17	165	38.5	7.8	5	165	4x4 QFN

*802.11a OFDM 54Mb/s 64QAM
**Class AB Amplifier

Low Noise Transistors

	Frequency (GHz)	Gain (dB)	P1dB (dBm)	OIP3 (dBm)	NF (dB)	Supply Voltage (V)	Device Current (mA)	Package Style
SGA-8343[1]	DC-6.0	8.0	5.0	25.0	2.0	3.0	10	SOT-343
SPF-3143[1]	DC-6.0	12.0	13.0	26.0	1.0	3.0	20	SOT-343
SPF-3143[1]	DC-6.0	11.0	17.0	30.0	1.5	5.0	40	SOT-343

[1]Data measured at 5.8 GHz. See other sections of the selector guide for additional performance at other frequency ranges.

Medium Power Transistors

	Frequency (GHz)	Gain (dB)	P1dB (dBm)	OIP3 (dBm)	NF (dB)	Supply Voltage (V)	Device Current (mA)	Package Style
SHF-0189[1]	0.05-6.0	11.0	26.5	39.0	4.0	8.0	100	SOT-89

[1]Data measured at 5.8 GHz. See other sections of the selector guide for additional performance at other frequency ranges.

Gain Blocks

	Frequency (GHz)	Gain (dB)	P1dB (dBm)	OIP3 (dBm)	NF (dB)	Supply Voltage (V)	Device Current (mA)	Package Style
SGA-5389[1]	DC-4.5	11.0	7.0	16.5	6.0	5.0	60	SOT-89
SGB-2433[1]	DC-4.0	11.0	3.0	13.0	6.5	3.0	25	QFN 3X3
SBW-5089[1]	DC-8.0	15.5	13.4	25.5	4.3	8.0	80	SOT-89

[1]Data measured at 5.8 GHz. See other sections of the selector guide for additional performance at other frequency ranges.

Commercial Oscillators (VCOs and CROs)

- 100% tested for stability over the entire tuning range
- Various frequency ranges, package styles, resonator types and supply voltages available
- Low cost, high performance
- Excellent tuning linearity
- Monotonic tuning across the entire band
- Low phase noise
- Buffer amplifiers available to reduce frequency pulling effects

Frequency Range (MHz)	Bandwidth NB	Bandwidth WB	Supply Voltage 3V	Supply Voltage 5V	Supply Voltage 12V	Series	Page No.
51-3000	X			X		VCO190	9
210-2800	X		X			VCO191	12
3000-5350	X			X		VCO690	13
950-2150		X		X		VCO790	14
750-2300		X			X	VCO793	14
800-3000	X				X	CRO193	9

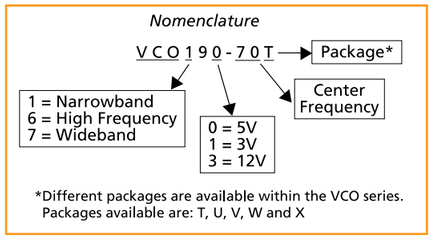
Certain VCOs are covered by U.S. Patents #4,621,241, #5,982,243, and #5,999,061.

How to select the best oscillator for your application

The nomenclature used in oscillator part numbers identifies the devices'

- Bandwidth
- Center Frequency
- Supply voltage
- Package type

As pictured below…



Commercial CRO Series

- CROs provide order of magnitude improvements in phase noise performance
- CROs are commonly applied to narrowband applications from 800 MHz – 6 GHz

Part Number	Frequency Range (MHz)	Tuning Voltage (Vdc) Typ	Phase Noise @ 10 kHz offset (dBc/Hz)	Tuning Sensitivity (MHz/V) Typ	Output Power (dBm) Typ	Supply Current (mA) Typ	Package Style
Advance Information							
CRO193-890T	875-905	11	–124	3.5	3.0	23	T
CRO193-1625T	1600-1650	11	–114	6.0	6.0	25	T

VCO (190 Series) 5V Narrowband

Model[1,2]	Frequency Range (MHz)[3] Min	Frequency Range (MHz)[3] Max	Tuning Voltage (Vdc) Min	Tuning Voltage (Vdc) Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO190-52U	51	53	0.5	4.5	–138	2.5	3.0	5.0	11.0	U
VCO190-70T[5]	68	72	1.0	4.0	–140	3.0	1.0	5.0	10.0	T
VCO190-112T[5]	75	150	1.0	16.0	–138	6.0	0.0	5.0	10.0	T
VCO190-150T	100	200	1.0	16.0	–134	7.0	0.0	5.0	10.0	T
VCO190-125T	120	130	1.0	9.0	–142	1.3	0.0	5.0	12.0	T
VCO190-135T	130	140	1.0	9.0	–143	2.0	0.0	5.0	12.0	T
VCO190-190T	140	240	0.5	4.6	–125	30.0	0.0	5.0	10.0	T
VCO190-157T	148	167	0.8	4.2	–135	10.0	0.0	5.0	9.0	T
VCO190-200T[5]	150	250	1.0	12.0	–130	11.5	0.0	5.0	11.0	T
VCO190-235T	200	270	0.5	4.5	–130	24.0	1.0	5.0	15.0	T
VCO190-250T	200	300	1.0	12.0	–130	11.5	0.0	5.0	11.0	T
VCO190-230T	220	240	0.5	4.8	–135	10.0	0.0	5.0	11.0	T
VCO190-260T[5]	240	280	1.0	4.0	–133	20.0	3.0	5.0	10.0	T
VCO190-300T[5]	250	350	1.0	10.0	–132	14.0	0.0	5.0	11.0	T
VCO190-295T	290	300	1.0	4.0	–138	7.0	1.0	5.0	11.0	T
VCO190-313T	300	325	0.5	4.8	–133	10.0	0.0	5.0	11.0	T
VCO190-360T	335	385	0.5	10.0	–135	10.0	0.0	5.0	10.0	T
VCO190-350T	340	360	1.0	4.0	–140	10.0	3.0	5.0	14.0	T
VCO190-370T[5]	340	400	0.5	4.5	–130	30.0	2.0	5.0	12.0	T
VCO190-395T[5]	375	415	0.5	4.5	–135	14.0	0.0	5.0	10.0	T

*Denotes supply voltages other than 5 Volts

[1]The specified minimums shown are for all conditions including temperature, supply variation and load.
[2]All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tune monotonically.
[3]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply and tuning voltages, the unit will perform over a wider range.
[4]Tuning sensitivity is specified for the frequency range indicated.
[5]In stock and ready for sample.

VCO (190 Series) 5V Narrowband

Model[1,2]	Frequency Range (MHz)[3] Min	Frequency Range (MHz)[3] Max	Tuning Voltage (Vdc) Min	Tuning Voltage (Vdc) Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO190-435T*	400	470	1.0	8.0	–136	13.0	0.0	8.0	9.0	T
VCO190-450AT	400	500	1.0	9.0	–132	15.0	0.0	5.0	10.0	T
VCO190-419T	405	433	0.5	4.5	–134	13.0	0.0	5.0	11.0	T
VCO190-422T[5]	414	430	1.0	4.0	–140	7.5	3.0	5.0	11.0	T
VCO190-445T	415	475	0.5	10.0	–136	10.0	0.0	5.0	10.0	T
VCO190-450T	442	458	1.0	4.0	–138	7.5	2.0	5.0	10.0	T
VCO190-470T[5]	445	495	0.5	10.0	–135	10.0	0.0	5.0	10.0	T
VCO190-492T*	466	517	0.6	4.4	–137	18.0	3.0	8.0	14.0	T
VCO190-490T	482	498	1.0	4.0	–135	7.5	2.0	5.0	12.0	T
VCO190-493T	485	500	0.5	5.0	–136	7.0	1.0	5.0	12.0	T
VCO190-550T[5]	500	600	1.0	9.0	–130	17.0	0.0	5.0	10.0	T
VCO190-540T[5]	525	555	1.0	4.0	–134	16.0	3.0	5.0	12.0	T
VCO190-548T	535	560	0.5	4.8	–132	16.0	3.0	5.0	12.0	T
VCO190-577U	567	586	1.0	4.0	–136	13.0	2.0	5.0	15.0	U
VCO190-588T	575	601	2.0	8.0	–139	9.5	3.0	5.0	25.0	T
VCO190-598U	590	606	1.0	4.0	–134	16.0	2.0	5.0	14.0	U
VCO190-630T[5]	600	660	0.5	4.5	–132	22.0	1.0	5.0	15.0	T
VCO190-675T[5]	600	750	1.0	9.0	–130	23.0	0.0	5.0	10.0	T
VCO190-640T	620	660	0.5	4.5	–132	19.0	0.0	5.0	13.0	T
VCO190-680T	667	693	1.0	4.0	–136	15.0	1.0	5.0	11.0	T
VCO190-707U*	695	720	1.0	4.0	–132	15.0	1.0	5.7	16.0	U
VCO190-775T[5]	700	850	1.0	9.5	–129	27.0	0.0	5.0	10.0	T
VCO190-744T	724	764	2.0	8.0	–136	10.0	3.0	5.0	28.0	T
VCO190-750U	737	762	1.0	4.0	–132	16.0	1.0	5.0	16.0	U
VCO190-752T	739	765	1.0	4.0	–135	13.0	3.0	5.0	11.6	T
VCO190-768U*	751	786	1.3	3.9	–130	22.0	2.0	5.7	15.0	U
VCO190-773T[5]	760	786	1.0	4.0	–128	12.0	3.0	5.0	12.0	T
VCO190-811U*	793	828	1.3	3.9	–134	21.0	3.0	5.7	13.0	U
VCO190-810T[5]	797	823	1.0	4.0	–136	12.0	3.0	5.0	12.0	T
VCO190-900T	800	1000	1.0	9.0	–126	30.0	0.0	5.0	11.0	T
VCO190-818U	804	836	1.0	4.0	–133	16.0	1.0	5.0	15.0	U
VCO190-818T	805	830	1.0	3.9	–135	17.0	0.0	5.0	22.0	T
VCO190-830X[5]	812	849	0.5	4.5	–134	13.0	3.0	5.0	13.0	X
VCO190-836T[5]	823	849	1.0	4.0	–133	15.0	3.0	5.0	12.0	T
VCO190-845T	832	858	1.0	4.0	–135	14.0	3.0	5.0	12.0	T
VCO190-950T*	840	1060	1.0	10.0	–126	30.0	0.0	12.0	30.0	T
VCO190-884T	842	926	1.0	10.0	–130	13.0	0.0	5.0	10.0	T
VCO190-860T[5]	845	875	1.0	4.0	–133	15.0	3.0	5.0	12.0	T
VCO190-860U	851	869	0.5	4.5	–132	16.0	0.0	5.0	15.0	U
VCO190-864T[5]	851	877	1.0	4.0	–134	15.0	3.0	5.0	11.5	T
VCO190-880T	865	895	0.5	4.8	–131	15.0	3.0	5.0	12.0	T
VCO190-882U	874	889	1.0	4.0	–133	16.0	2.0	5.0	14.0	U
VCO190-888T[5]	875	901	1.0	4.0	–131	13.0	3.0	5.0	11.0	T
VCO190-902T[5]	889	915	1.0	4.0	–135	12.0	3.0	5.0	11.0	T
VCO190-1000T[5]	900	1100	0.7	4.3	–118	80.0	3.0	5.0	11.0	T
VCO190-1150T[5]*	900	1400	0.5	12.0	–122	50.0	0.0	8.0	14.0	T
VCO190-915T[5]	902	928	1.0	4.0	–135	12.0	5.0	5.0	12.0	T
VCO190-926T[5]	913	939	1.0	4.0	–135	12.0	5.0	5.0	12.0	T
VCO190-945T	920	970	0.5	5.0	–133	15.0	1.0	5.0	11.0	T
VCO190-938T[5]	925	951	1.0	4.0	–133	12.0	5.0	5.0	12.0	T
VCO190-943U	925	961	1.0	5.7	–131	15.0	3.0	5.0	13.0	U
VCO190-935X[5]	930	940	1.0	3.5	–130	15.0	3.0	5.0	13.0	X

*Denotes supply voltages other than 5 Volts

[1]The specified minimums shown are for all conditions including temperature, supply variation and load.
[2]All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tune monotonically.
[3]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply and tuning voltages, the unit will perform over a wider range.
[4]Tuning sensitivity is specified for the frequency range indicated.
[5]In stock and ready for sample.

VCO (190 Series) 5V Narrowband

Model[1,2]	Frequency Range (MHz)[3] Min	Frequency Range (MHz)[3] Max	Tuning Voltage (Vdc) Min	Tuning Voltage (Vdc) Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO190-947T[5]	934	960	1.0	4.0	–135	15.0	5.0	5.0	12.0	T
VCO190-964T	951	977	1.0	4.0	–132	13.0	5.0	5.0	11.0	T
VCO190-993T	953	1037	1.0	10.0	–128	10.0	0.0	5.0	10.0	T
VCO190-992T[5]	979	1005	1.0	4.0	–133	14.0	3.0	5.0	12.0	T
VCO190-1007U	994	1019	1.0	4.2	–132	18.0	3.0	5.0	22.0	U
VCO190-1100AT[5]	1000	1200	1.0	9.0	–124	33.0	0.0	5.0	10.0	T
VCO190-1050T[5]	1030	1070	1.0	4.0	–131	18.0	3.0	5.0	24.0	T
VCO190-1055T	1035	1075	0.5	4.5	–126	25.0	3.0	5.0	15.0	T
VCO190-1055U*	1045	1065	1.0	4.0	–132	16.0	1.0	5.7	13.0	U
VCO190-1067U[5]	1049	1085	1.0	4.2	–132	18.5	3.0	5.0	15.0	U
VCO190-1068T*	1055	1080	1.0	3.9	–134	17.0	0.0	7.4	22.0	T
VCO190-1073T*	1060	1085	1.0	3.9	–134	17.0	0.0	7.4	22.0	T
VCO190-1100T[5]	1085	1115	1.0	4.5	–131	14.0	5.0	5.0	11.0	T
VCO190-1120T	1107	1132	1.0	4.0	–131	13.0	3.0	5.0	24.0	T
VCO190-1200AT[5]	1150	1250	1.0	6.0	–122	30.0	0.0	5.0	11.0	T
VCO190-1198T	1178	1218	1.0	4.0	–131	18.0	3.0	5.0	24.0	T
VCO190-1200T[5]	1185	1215	1.0	4.0	–130	15.0	3.0	5.0	12.0	T
VCO190-1275AT	1190	1360	0.5	4.5	–120	60.0	3.0	5.0	14.0	T
VCO190-1275T[5]	1200	1350	0.5	4.5	–122	45.0	1.0	5.0	13.0	T
VCO190-1400T*	1200	1600	0.5	11.0	–118	70.0	0.0	8.0	13.0	T
VCO190-1500AT*	1200	1800	0.5	15.0	–118	45.0	9.5	8.0	23.0	T
VCO190-1225U	1210	1240	1.0	4.2	–129	14.0	3.0	5.0	15.0	U
VCO190-1525T*	1250	1800	1.0	15.0	–118	45.0	9.5	8.0	26.0	T
VCO190-1284U	1265	1302	1.0	4.5	–132	18.0	3.0	5.0	14.0	U
VCO190-1350T[5]	1300	1400	1.0	6.0	–120	33.0	3.0	5.0	11.0	T
VCO190-1450T[5]	1400	1500	1.0	6.0	–120	33.0	3.0	5.0	11.0	T
VCO190-1455T	1445	1465	0.5	4.5	–130	15.0	1.0	5.0	25.0	T
VCO190-1500T[5]	1450	1550	1.0	6.0	–122	33.0	3.0	5.0	11.0	T
VCO190-1499T	1461	1537	2.0	8.0	–129	20.0	3.0	5.0	26.0	T
VCO190-1550T[5]	1500	1600	1.0	6.0	–123	35.0	3.0	5.0	11.0	T
VCO190-1572T	1540	1605	1.0	3.9	–128	34.0	0.0	5.0	23.0	T
VCO190-1578U	1540	1616	1.0	5.0	–126	34.0	3.0	5.0	14.0	U
VCO190-1577T	1545	1610	1.0	3.9	–128	34.0	0.0	5.0	23.0	T
VCO190-1600T[5]	1550	1650	1.0	6.0	–122	35.0	3.0	5.0	11.0	T
VCO190-1631T	1600	1662	1.8	8.0	–128	20.0	2.5	5.0	26.0	T
VCO190-1760T*	1550	1970	1.0	10.0	–120	65.0	7.0	10.0	25.0	T
VCO190-1605T	1567	1642	1.0	4.0	–124	35.0	3.0	5.0	22.0	T
VCO190-1635T[5]	1600	1670	1.0	3.9	–125	33.0	0.0	5.0	23.0	T
VCO190-1650T[5]	1600	1700	1.0	6.0	–121	32.0	3.0	5.0	11.0	T
VCO190-1642U	1616	1667	1.0	4.0	–124	33.0	2.0	5.0	14.0	U
VCO190-1735T	1650	1820	1.0	4.0	–119	72.0	3.0	5.0	12.0	T
VCO190-1925T	1650	2200	0.5	11.0	–110	60.0	0.0	5.0	17.0	T
VCO190-1705T	1680	1730	1.0	3.9	–127	34.0	0.0	5.0	23.0	T
VCO190-1710T	1685	1735	1.0	3.9	–128	34.0	0.0	5.0	23.0	T
VCO190-1710U	1685	1735	0.5	4.5	–121	28.0	0.0	5.0	25.0	U
VCO190-1815T*	1690	1940	1.0	10.0	–120	40.0	7.0	11.5	30.0	T
VCO190-1750T[5]	1700	1800	1.0	6.0	–120	32.0	3.0	5.0	11.0	T
VCO190-1775T	1700	1850	0.5	4.5	–117	70.0	0.0	5.0	11.0	T
VCO190-1740U	1715	1765	1.0	4.0	–125	30.0	0.0	5.0	25.0	U
VCO190-1752T	1725	1780	1.0	3.9	–126	34.0	0.0	5.0	23.0	T
VCO190-1752U	1725	1780	1.0	4.0	–123	27.0	0.0	5.0	25.0	U
VCO190-1850T[5]	1800	1900	1.0	6.0	–120	38.0	3.0	5.0	12.0	T

*Denotes supply voltages other than 5 Volts

[1]The specified minimums shown are for all conditions including temperature, supply variation and load.
[2]All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tune monotonically.
[3]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply and tuning voltages, the unit will perform over a wider range.
[4]Tuning sensitivity is specified for the frequency range indicated.
[5]In stock and ready for sample.

All specifications are subject to change without notice.

VCO (190 Series) 5V Narrowband

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO190-1843T[5]	1805	1880	1.0	4.0	–125	38.0	1.0	5.0	14.0	T
VCO190-1900T	1850	1950	1.0	6.0	–120	35.0	3.0	5.0	12.0	T
VCO190-1920U[5]	1865	1975	0.8	4.1	–119	58.0	1.0	5.0	25.0	U
VCO190-1950T[5]	1900	2000	1.0	6.0	–120	35.0	3.0	5.0	11.0	T
VCO190-1960T	1930	1990	1.0	4.5	–121	35.0	0.0	5.0	10.0	T
VCO190-1960U	1935	1985	1.0	4.0	–121	32.0	2.0	5.0	14.0	U
VCO190-2225T[5]	1950	2500	0.5	11.0	–115	70.0	1.0	5.0	14.0	T
VCO190-2050T[5]	2000	2100	1.0	6.0	–116	35.0	3.0	5.0	11.0	T
VCO190-2100T[5]	2000	2200	0.5	4.5	–110	67.0	0.0	5.0	11.0	T
VCO190-2150T[5]	2100	2200	1.0	6.0	–118	35.0	0.0	5.0	12.0	T
VCO190-2200T[5]	2100	2300	0.5	4.5	–116	80.0	0.0	5.0	12.0	T
VCO190-2140T	2115	2165	1.0	4.0	–123	33.0	1.0	5.0	14.0	T
VCO190-2210U[5]	2185	2235	0.5	4.5	–124	28.0	0.0	5.0	25.0	U
VCO190-2250T[5]	2200	2300	1.0	6.0	–117	35.0	0.0	5.0	13.0	T
VCO190-2350T[5]	2300	2400	1.0	6.0	–118	35.0	0.0	5.0	13.0	T
VCO190-2420T	2370	2470	0.5	4.5	–119	45.0	2.0	5.0	14.0	T
VCO190-2450AT[5]*	2400	2500	1.0	4.0	–117	50.0	0.0	4.5	11.0	T
VCO190-2450T[5]	2400	2500	1.0	6.0	–116	35.0	0.0	5.0	12.0	T
VCO190-2453T[5]	2400	2506	0.5	4.5	–117	55.0	2.0	5.0	16.0	T
VCO190-2590T	2480	2700	0.5	4.5	–113	90.0	0.0	5.0	12.0	T
VCO190-2488T[5]	2487	2489	1.0	4.0	–115	24.0	3.0	5.0	12.0	T
VCO190-2600T[5]	2500	2700	0.5	4.5	–113	90.0	0.0	5.0	12.0	T
VCO190-2600AT[5]	2550	2650	0.5	4.5	–116	45.0	2.0	5.0	16.0	T
VCO190-2670T[5]	2620	2720	0.5	4.5	–120	45.0	2.0	5.0	14.0	T
VCO190-2800T[5]	2750	2850	0.5	4.5	–116	45.0	2.0	5.0	16.0	T
VCO190-2760T	2755	2765	0.5	4.5	–121	24.0	1.0	5.0	15.0	T
VCO190-2840T	2835	2845	0.5	4.5	–121	24.0	1.0	5.0	15.0	T
VCO190-2875T[5]	2850	2900	1.0	4.0	–117	25.0	3.0	5.0	16.0	T
VCO190-2950T[5]	2900	3000	0.5	4.5	–114	55.0	2.0	5.0	16.0	T

VCO (191 Series) 3V Narrowband

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO191-220U	210	230	1.0	2.9	–135	16.0	0.0	3.0	7.0	U
VCO191-294U	279	308	0.6	2.9	–136	18.0	0.0	3.0	8.0	U
VCO191-450U	435	465	0.5	3.0	–132	20.0	0.0	3.0	11.0	U
VCO191-752U	739	765	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-773U[5]	760	786	0.4	2.6	–129	18.0	–3.0	3.0	6.0	U
VCO191-810U	797	823	0.4	2.6	–129	20.0	–3.0	3.0	6.0	U
VCO191-836U	823	849	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-864U[5]	851	877	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-890U[5]	860	920	0.4	2.6	–122	45.0	–3.0	3.0	6.0	U
VCO191-888U[5]	875	901	0.4	2.6	–130	18.0	–3.0	3.0	6.0	U
VCO191-902U[5]	889	915	0.4	2.6	–130	18.0	–3.0	3.0	6.0	U
VCO191-920U	890	950	0.4	2.6	–125	48.0	–3.0	3.0	6.0	U
VCO191-915U	902	928	0.4	2.6	–129	18.0	–3.0	3.0	6.0	U
VCO191-915W	902	928	0.4	2.5	–127	25.0	–3.0	3.0	7.0	W
VCO191-909W*	907	911	0.5	2.0	–123	10.0	–11.5	2.5	3.0	W
VCO191-926U[5]	913	939	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U

*Denotes supply voltages other than 5 Volts

[1]The specified minimums shown are for all conditions including temperature, supply variation and load.
[2]All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tune monotonically.
[3]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply and tuning voltages, the unit will perform over a wider range.
[4]Tuning sensitivity is specified for the frequency range indicated.
[5]In stock and ready for sample.

VCO (191 Series) 3V Narrowband

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO191-926X	913	939	0.4	2.7	–128	20.0	–3.0	3.0	7.0	X
VCO191-950U[5]	920	980	0.4	2.6	–122	50.0	–3.0	3.0	6.0	U
VCO191-938U	925	951	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-947U	934	960	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-964U	951	977	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-967X[5]	954	980	0.5	2.7	–128	20.0	–3.0	3.0	7.0	X
VCO191-985U[5]	970	1000	0.4	2.6	–128	24.0	–3.0	3.0	6.0	U
VCO191-992U	979	1005	0.4	2.6	–128	18.0	–3.0	3.0	6.0	U
VCO191-1013U[5]	996	1031	0.4	2.6	–128	25.0	–3.0	3.0	6.0	U
VCO191-1305U[5]	1280	1330	0.4	4.0	–122	24.0	–3.0	3.0	6.0	U
VCO191-1310U	1281	1339	0.4	2.8	–122	34.0	–3.0	3.0	8.0	U
VCO191-1439U[5]	1397	1480	0.8	3.7	–120	39.0	–2.0	3.0	16.0	U
VCO191-1597U[5]	1559	1635	0.5	2.7	–116	58.0	–3.0	3.0	7.0	U
VCO191-1715U[5]	1684	1746	0.5	2.7	–116	45.0	–3.0	3.0	7.0	U
VCO191-1740X[5]	1700	1780	0.4	2.7	–119	65.0	–3.0	3.0	7.0	X
VCO191-1960U[5]	1930	1990	0.5	2.7	–118	45.0	–3.0	3.0	7.0	U
VCO191-2100U*	2050	2150	0.5	3.6	–115	45.0	1.0	3.5	10.0	U
VCO191-2170U[5]*	2132	2204	0.5	3.5	–118	45.0	–3.0	3.5	10.0	U
VCO191-2450U	2400	2500	0.4	2.7	–113	55.0	–3.0	3.0	7.0	U
VCO191-2488T	2487	2489	0.4	2.8	–110	25.0	–3.0	3.0	8.0	T
VCO191-2650U[5]	2600	2700	0.4	2.7	–115	72.0	–3.0	3.0	7.0	U
VCO191-2750U[5]	2700	2800	0.4	2.8	–113	65.0	–3.0	3.0	7.0	U

VCO (690 Series) 5V High Frequency

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity (MHz/V)[4] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO690-3100T[5]	3000	3200	0.5	4.5	–110	90.0	0.0	5.0	12.0	T
VCO690-3300T[5]	3200	3400	0.5	4.5	–110	90.0	0.0	5.0	14.0	T
VCO690-4000T[5]	3800	4200	0.0	5.0	–103	135.0	2.0	5.0	14.0	T
VCO690-4300T[5]	4200	4400	0.5	5.5	–104	75.0	–1.0	5.0	8.0	T
VCO690-4450T[5]	4300	4600	0.5	7.0	–107	60.0	0.0	5.0	8.0	T
VCO690-4790T[5]	4690	4890	0.5	4.5	–107	94.0	0.0	5.0	7.0	T
VCO690-5250T[5]	5150	5350	0.5	5.0	–105	85.0	–1.0	5.0	8.0	T

VCO (790 Series) 5V Wideband

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity Mid-Band (MHz/V)[4] Freq	Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO790-600T[5]	400	800	0.5	20.0	–122	600	32.0	6.0	5.0	23.0	T
VCO790-1550T[5]	950	2150	0.5	22.0	–118	1550	75.0	6.0	5.0	25.0	T
VCO790-1500T[5]	1000	2000	0.5	20.0	–120	1500	75.0	6.0	5.0	25.0	T
VCO790-2300T[5]	2100	2500	0.5	4.5	–112	2300	192.0	3.0	5.0	15.0	T
VCO790-915K	800	1030	0.5	4.0	–113			6.5	4.1	27.0	K
VCO790-1835K	1735	1935	1.0	3.5	–111			6.0	4.1	25.0	K
VCO790-2560K	2435	2685	1.0	3.5	–113			6.0	4.1	26.0	K
VCO790-2965K	2865	3065	1.0	3.5	–112			6.5	4.1	26.0	K

*Denotes supply voltages other than 3 Volts

[1]The specified minimums shown are for all conditions including temperature, supply variation and load.
[2]All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tune monotonically.
[3]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply and tuning voltages, the unit will perform over a wider range.
[4]Tuning sensitivity is specified for the frequency range indicated.
[5]In stock and ready for sample.

VCO (793 Series) 12V Wideband

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity Mid-band (MHz/V)[4] Freq	Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Package Style
VCO793-750T[5]	500	1000	0.0	20.0	–124	750	40.0	6.0	12.0	25.0	T
VCO793-1550T[5]	950	2150	0.5	22.0	–118	1550	75.0	7.0	12.0	25.0	T
VCO793-1500T[5]	1000	2000	0.5	20.0	–120	1500	75.0	7.0	12.0	25.0	T
VCO793-2300T[5]	2100	2500	0.5	4.5	–112	2300	192.0	3.0	12.0	15.0	T

[1]The specified minimums shown are for all conditions including temperature, supply variation and load.
[2]All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tune monotonically.
[3]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply and tuning voltages, the unit will perform over a wider range.
[4]Tuning sensitivity is specified for the frequency range indicated.
[5]In stock and ready for sample.

PLL Synthesizer Modules

- Complete synthesizer modules including a Sirenza VCO and loop filter, and a programmable PLL IC
- Supply voltage, three-wire serial programming and a reference oscillator required
- Various frequency ranges, package styles, step sizes and supply voltages available
- Integrated switch available to reduce the number of components at the system level design
- Low cost, high performance
- Low phase noise, fast settling time

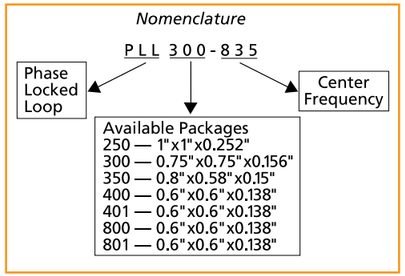
Frequency Range (MHz)	Bandwidth NB	WB	Supply Voltage 3V	5V	6V	PLL Series	Package Dimensions (Inches)
575-1990	X				X	250	1x1x0.252
830-1943	X	X	X	X		300	0.75x0.75x0.156
264-2170	X			X		350	0.8x0.58x0.15
680-2500	X			X		400	0.6x0.6x0.138
1700-2800	X		X			401	0.6x0.6x0.138
5200-5900	X			X		800	0.6x0.6x0.138
5275-5880	X		X			801	0.6x0.6x0.138

How to select the best PLL for your application

The nomenclature used in PLL part numbers identifies the devices'

- Package type
- Center frequency

As pictured below…



PLL Synthesizer Module (250 Series) Integrated Switch*

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm)	Min	Typ	Max	Supply Voltage (Volts) Nom		Supply Current (mA) Typ	Phase Noise (dBc/Hz) @ Offset Freq (kHz) Typ		Settling Time (msec) to Within 5° Typ	App Note[3]
PLL250-588[4]	575	600	200	RF Switch On	0	2	4	VCC 1	6	15	–153	800	0.4	113
				RF Switch Off		–56	–50	VCC 2	5	30				
								VCC 3	3.3	10				
PLL250-647[4]	625	665	200	RF Switch On	–1	2	5	VCC 1	6	14	–151	800	0.4	113
				RF Switch Off		–56	–50	VCC 2	5	45				
								VCC 3	3.3	10				
PLL250-882[4]	870	895	200	RF Switch On	0	2	4	VCC 1	6	15	–141	400	0.4	113
				RF Switch Off		–58	–50	VCC 2	5	45				
								VCC 3	3.3	10				
PLL250-941[4]	920	960	200	RF Switch On	–1	2	5	VCC 1	6	12	–138	400	0.4	113
				RF Switch Off		–58	–50	VCC 2	5	45				
								VCC 3	3.3	10				
PLL250-1960[4]	1930	1990	200	RF Switch On	–8	–5	–2	VCC 1	6	14	–135	400	0.4	113
				RF Switch Off		–50	–48	VCC 2	5	48				
								VCC 3	3.3	10				

***Functionally enhanced with integrated switches, supply line filters and programming line filters.**

[1]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply voltage, the unit will typically lock and perform over a wider range.
[2]The step size indicated is the frequency which the loop filter was optimized to operate at. The unit will operate at other step sizes close to the value but the sideband performance and phase noise may be degraded.
[3]The application note gives detailed instructions and timing for the required serial command words.
[4]In stock and ready for sample.

PLL Synthesizer Module (300 Series)

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL300-835[4]	830	840	2.5	–4	3	22	–100	10	110.0	113
PLL300-1200[4]	950	1450	250.0	0	5	35	–100	55	5.0	109
PLL300-1018[4]	1000	1036	200.0	7	5	45	–150	800	0.4	113
PLL300-1634[4]	1384	1884	250.0	0	5	35	–75	10	2.0	109
PLL300-1668[4]	1630	1705	200.0	5	5	50	–136	800	0.4	113
PLL300-1906[4]	1868	1943	200.0	5	5	50	–136	10	0.4	113

PLL Synthesizer Module (350 Series)

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom		Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL350-265[4]	264	266	2.5	5	VCC1	5	25	–135	100	20.0	113
					VCC2	3.3					
PLL350-777[4]	760	795	200.0	3	VCC1	5	35	–153	800	0.4	113
					VCC2	3					
PLL350-881[4]	869	894	200.0	3	VCC1	5	35	–152	800	0.4	113
					VCC2	3					
PLL350-942[4]	925	960	200.0	3	VCC1	5	35	–151	800	0.4	113
					VCC2	3					
PLL350-1120[4]	1090	1150	100.0	2	VCC1	5	30	–118	30	15.0	113
PLL350-1260[4]	1230	1290	100.0	2	VCC1	5	40	–112	30	15.0	113
PLL350-1590[4]	1560	1620	200.0	3	VCC1	5	35	–140	800	2.0	113
					VCC2	3					
PLL350-1627[4]	1590	1665	200.0	3	VCC1	5	35	–143	800	0.4	113
					VCC2	3					
PLL350-1760[4]	1730	1790	200.0	3	VCC1	5	35	–142	800	0.4	113
					VCC2	3					
PLL350-1760A	1730	1790	200.0	0	VCC1	5	25	–100	10	10.0	109
PLL350-1810[4]	1780	1840	50.0	3	VCC1	5	35	–127	100	10.0	113
PLL350-1842[4]	1805	1880	200.0	3	VCC1	5	35	–142	800	0.4	113
					VCC2	3					
PLL350-1875[4]	1840	1910	50.0	3	VCC1	5	35	–126	100	10.0	113
PLL350-1960[4]	1930	1990	200.0	3	VCC1	5	35	–141	800	0.4	113
					VCC2	3					
PLL350-2140[4]	2110	2170	200.0	3	VCC1	5	35	–140	800	2.0	113
					VCC2	3					
PLL350-2140A	2110	2170	200.0	3	VCC1	5	40	–140	800	10.0	109

PLL Synthesizer Module (400 Series) 5V

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL400-698	680	716	200.0	6	5	25	–136	100	3.0	113
PLL400-735	717	752	200.0	3	5	25	–148	600	0.4	109
PLL400-744	726	761	200.0	6	5	40	–135	100	3.0	113
PLL400-755*	742	768	30.0	2	5	18	–112	10	12.0	107
PLL400-875[4]	750	1000	250.0	0	5	30	–111	100	5.0	109
PLL400-782*	769	795	30.0	2	5	18	–112	10	12.0	107
PLL400-810*	797	823	30.0	2	5	18	–112	10	12.2	107
PLL400-836*	823	849	30.0	2	5	18	–112	10	12.0	107
PLL400-884*	871	897	30.0	2	5	18	–111	10	12.0	107
PLL400-926*	913	939	30.0	3	5	18	–111	10	12.0	107
PLL400-938	925	951	30.0	3	5	18	–111	10	12.5	107
PLL400-947*	934	960	30.0	3	5	18	–111	10	12.0	107
PLL400-992*	979	1005	30.0	3	5	18	–110	10	12.0	107
PLL400-1143[4]	1125	1160	200.0	3	5	25	–152	800	0.4	109
PLL400-1500[4]	1450	1550	1000.0	1	5	30	–120	100	1.0	113
PLL400-1550[4]	1510	1590	200.0	1	5	25	–143	600	4.0	109

***Not recommended for new designs. All PLL Synthesizer Modules with application notes 107 will be redesigned with new PLL chips.**

[1]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply voltage, the unit will typically lock and perform over a wider range.
[2]The step size indicated is the frequency which the loop filter was optimized to operate at. The unit will operate at other step sizes close to the value but the sideband performance and phase noise may be degraded.
[3]The application note gives detailed instructions and timing for the required serial command words.
[4]In stock and ready for sample.

PLL Synthesizer Module (400 Series) 5V

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL400-1650*	1600	1700	200.0	1	5	25	–119	100	4.2	108
PLL400-1800*	1600	2000	1000.0	–1	5	25	–110	100	2.0	108
PLL400-1644	1606	1681	200.0	1	5	25	–143	600	4.0	109
PLL400-1681	1651	1711	200.0	1	5	25	–143	600	4.0	109
PLL400-1750*	1700	1800	200.0	1	5	25	–119	100	4.2	108
PLL400-1761	1731	1791	200.0	1	5	25	–143	600	4.0	109
PLL400-1850*	1800	1900	200.0	1	5	25	–119	100	4.2	108
PLL400-2200*	2000	2400	1000.0	0	5	25	–110	100	1.0	108
PLL400-2150*	2100	2200	1000.0	1	5	25	–112	100	1.0	108
PLL400-864A	851	877	30.0	2	5	18	–112	10	12.5	113
PLL400-902A	889	915	100.0	3	5	18	–131	100	8.0	107
PLL400-915A	902	928	200.0	3	5	18	–131	100	9.0	113
PLL400-964A	951	977	30.0	3	5	18	–110	10	12.0	107
PLL400-1950A	1900	2000	200.0	1	5	25	–119	100	4.2	113
PLL400-2450A	2400	2500	1000.0	1	5	25	–112	100	1.0	113

*Not recommended for new designs. All PLL Synthesizers with application notes 107 and 108 will be redesigned with new PLL chips.

PLL Synthesizer Module (401 Series) 3V

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL401-1750*	1700	1800	200.0	–3	3	18	–93	10	4.0	108
PLL401-1850*	1800	1900	200.0	–3	3	18	–93	10	4.0	108
PLL401-2050*	2000	2100	1000.0	–3	3	18	–86	10	2.0	108
PLL401-2150*	2100	2200	1000.0	–3	3	18	–85	10	4.0	108
PLL401-2250*	2200	2300	1000.0	–3	3	18	–85	10	4.0	108
PLL401-2350*	2300	2400	1000.0	–3	3	18	–88	10	4.0	108
PLL401-2442*	2400	2484	1000.0	–3	3	15	–115	100	1.0	108
PLL401-2550	2500	2600	1000.0	–3	3	18	–87	10	4.0	109
PLL401-2650[4]	2600	2700	1000.0	–3	3	18	–87	10	4.0	109
PLL401-2750	2700	2800	1000.0	–3	3	18	–108	100	1.0	109
PLL401-1950A	1900	2000	200.0	–1	3	18	–90	10	4.0	113
PLL401-2450A	2400	2500	1000.0	–3	3	18	–83	10	4.0	113

*Not recommended for new designs. All PLL Synthesizers with application notes 107 and 108 will be redesigned with new PLL chips.

PLL Synthesizer Module (800 Series) 5V HF

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL800-5250[4]	5200	5300	1000.0	0	5	45	–105	100	5.0	112
PLL800-5800[4]	5700	5900	500.0	0	5	50	–105	100	12.0	112

PLL Synthesizer Module (801 Series) 3V HF

Model	Frequency Range (MHz)[1] Min	Max	Step Size[2] Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ	Phase Noise (dBc/Hz) Typ	@ Offset Freq (kHz)	Settling Time (msec) to Within 1 kHz Typ	App Note[3]
PLL801-5300	5275	5325	1000.0	–2	3	35	–100	100	4.0	112
PLL801-5820	5790	5850	200.0	–3	3	35	–105	100	1.0	112
PLL801-5840	5800	5880	200.0	–3	3	35	–105	100	1.0	112

[1]The frequency range is the guaranteed frequency of operation. At 25°C and nominal supply voltage, the unit will typically lock and perform over a wider range.
[2]The step size indicated is the frequency which the loop filter was optimized to operate at. The unit will operate at other step sizes close to the value but the sideband performance and phase noise may be degraded.
[3]The application note gives detailed instructions and timing for the required serial command words.
[4]In stock and ready for sample.

Signal Processing Components

STQ Series SiGe Direct Quadrature Modulator RFICs

- Ultra broad bandwidth
- Excellent phase and amplitude balance
- Good sideband and carrier suppression
- Low broadband noise floor

Part Number	RF/LO (GHz)	Baseband (MHz)	Output P1dB (dBm)	Carrier Feedthru (dBm)	Sideband Suppression (dB)	Broadband Noise Floor (dBm/Hz)	Vcc (V)	Icc (mA)
STQ-1016	0.25-1.0	DC-500	+5	–40	40	–154	5	80
STQ-2016	0.7-2.5	DC-500	+3	–40	40	–155	5	80
Advance Information — New Product in Development NEW								
STQ-3016	2.5-4.0	DC-500	+2	–42	33	–153	5	84

SRQ Series SiGe Direct Quadrature Demodulator RFICs

Part Number	RF/LO (MHz)	Baseband (MHz)	Gain (dB)	Output P1dB (dBm)	Noise Figure (dB)	I/Q Amplitude Balance (dB)	I/Q Phase Balance (Deg)	Vcc (V)	Icc (mA)
Advance Information — New Product in Development									
SRQ-2016	700-2500	DC-100	10	0	14	±0.2	±1	5	160
SRQ-3016	2500-4000	DC-100	10	–1	14	±0.2	±2	5	160

SRF Series IF Receiver/Demodulator Series

- High output compression
- Excellent phase and amplitude balance
- Applicable to mobile and terrestrial wireless systems
- Well suited for broadband wireless and SATCOM systems

Part Number	IF/LO (MHz)	Baseband (MHz)	Gain (dB)	Output P1dB (dBm)	Noise Figure (dB)	I/Q Amplitude Balance (dB)	I/Q Phase Balance (deg)	Vcc (V)	Icc (mA)
SRF-1016	65-300	DC-500	–5/12/31*	+5	31/14.5/11*	±0.2	±2	5	180
SRF-2016	200-600	DC-500	–5/12/31*	+5	31/14.5/11*	±0.2	±2	5	180

*3 gain settings

STM Series SiGe Active Transmit Mixers

- High gain
- High IIP_3 at a low LO drive
- Low RF leakage

Part Number	RF (MHz)	IF (MHz)	Gain (dB)	SSB Noise Figure (dB)	Output IP_3 (dBm)	Output P1dB (dBm)	Leakage LO-RF (dBm)	Vcc (V)	Icc (mA)
STM-1116	800-1000	30-400	13	9	+22	+8	–30	5	200
STM-2116	1800-2100	30-400	17	9.5	+24	+11	–20	5	200
STM-3116	2100-2500	30-400	17	9	+24.5	+11	–20	5	200

SPM Series Passive FET Mixers

- High linearity
- Efficient over a wide range of local oscillator powers
- High IIP3
- Low RF leakage

Part Number	RF Frequency (GHz)	LO Frequency (GHz)	IF Frequency (MHz)	Conversion Loss (dB)	Input IP_3 LO Drive Level (dBm) 10	14	17	20	Leakage LO-RF (db)	Leakage LO-IF (dB)	Leakage RF-IF (dB)
Advance Information — New Product in Development NEW											
SPM-1045	0.5-1.0	0.7-0.8	50-300	7.5	27	32	32		–50	–30	–30
SPM-1945	1.9-2.2	1.8-2.3	40-300	8.0	25	28	32	35	+30	+30	+30
SPM-2045	1.7-2.3	1.7-2.3	50-500	7.5		28	31	33	–30	–30	–35

SPM Series Passive Schottky Diode Mixers

- Low cost
- Low conversion loss
- Excellent port-to-port isolation
- High IIP3
- Industry standard footprint

Part Number	RF Frequency (MHz)	LO Frequency (MHz)	IF Frequency (MHz)	Conversion Loss (dB)	Input IP_3 LO Drive Level (dBm) 17	Leakage LO-RF (db) Typ	Leakage LO-IF (dB) Typ	Leakage RF-IF (dB) Typ
SPM-6-250	50-250	50-250	DC-150	5.5	+30	–50	–45	–25
SPM-6-2200	10-2200	10-2200	5-2000	6.0	+26	+30	+30	+25

Aerospace and Defense Products

Sirenza's Aerospace and Defense products are suitable for mil/aero/space and industrial applications. All of Sirenza's products are:

- Tested to MIL-STD-883 available
- MIL-PRF-38534 hybrid specifications
- Class H and K screening available
- Quality systems per MIL-Q-9858 and MIL-I-45208
- Element evaluation per MIL-S-19500 available

VCO Series

- Various frequency ranges from 25 MHz to 10 GHz
- Hermetic packaging available
- Extremely stable
- Monotonic tuning across the entire band
- Ruggedized for military and aerospace applications

Model[1,2]	Frequency Range (MHz)[3] Min	Max	Tuning Voltage (Vdc) Min	Max	Phase Noise @ 100 kHz offset (dBc/Hz) Typ	Tuning Sensitivity Mid-band (MHz/V)[4] Freq	Typ	Output Power (dBm) Typ	Supply Voltage (Volts) Nom	Supply Current (mA) Typ
VCO-102	25	50	0	20	–135	37.5	2.4	12.5	15	12.5
VCO-103	50	100	0	20	–128	75	3.8	13	15	12.5
VCO-104	100	200	0	20	–122	150	7.5	12.5	15	12.5
VCO-105	200	400	0	20	–120	300	17	12.5	15	14.5
VCO-106	400	800	0	20	–120	600	39	12	15	16
VCO-107	500	1000	1	20	–117	750	45.6	13.5	15	15.4
VCO-108	800	1600	0	20	–115	1200	77	13	15	15
VCO-109	900	1800	0	20	–112	1350	65.5	12.5	15	15
VCO-110	1000	2000	0	20	–112	1500	73.1	13	15	17.5
VCO-111	1500	2750	0	20	–98	2125	92.2	12	15	18
VCO-112	2000	3200	0	20	–105	2600	142	12.5	15	19
VCO-113	40	80	0	20	–133	60	3.4	13	15	13
VCO-114	60	120	0	20	–130	90	5	12.5	15	12.5
VCO-116	150	300	0	20	–120	225	11	12.5	15	12.5
VCO-117	300	600	0	20	–122	450	24.2	13	15	14.5
VCO-118	250	500	0	20	–123	375	19.8	13	15	14.5
VCO-119	3000	4800	0	20	–97	3900	112	13	15	22
VCO-120	600	1200	0	20	–113	900	66.3	13	15	15.5
VCO-121	700	1400	0	20	–115	1050	72.9	13	15	15
VCO-202	25	50	0	20	–140	37.5	2	12	15	14
VCO-204	100	200	0	20	–135	150	7.7	13	15	13.5
VCO-205	200	400	0	20	–130	300	21.5	12	15	13
VCO-206	400	800	0	20	–125	600	31.3	12.5	15	17
VCO-305	200	400	0	20	–125	300	19.5	11	5	11
VCO-306	400	800	0	20	–120	600	34.1	10	5	17
VCO-317	300	600	0	20	–120	450	25.5	11	5	14
VCO-500	2700	3200	0	12	–115		80	1	5	18
VCO-510	4700	5100	0	8	–105		150	0	5	18.5
VCO-520	4900	5900	0	12	–102		210	–1	5	18
VCO-530	5700	6700	0	12	–99		180	–1	5	19
VCO-215	2500	4000	0	20	–106	3250	160	0.5	15	19
VCO-219	3000	4800	0	20	–103	3900	182	0.5	15	19
VCO-3500	3450	3510	0	5	–123	3500	12	1	5	18
VCO-4500	4490	4510	0	5	–120	4500	14	2	5	18
VCO-5500	4510	5510	0	5	–118	5500	13	1	5	18

VCO Series Special Notes:
1. All Sirenza VCOs oscillate with a tuning voltage of 0 Vdc applied and tuned monotonically.
2. All models are rated 0° to +70°C.
3. TC versions available rated –55° to +100°C.
4. Low noise, narrow band versions are available on special order.
5. Various supply voltages and dual priority tuning voltages are available on special order.

Wideband Mixers (+7 dBm LO Level)

- 100% tested in production to ensure full compliance
- Hermetic packaging
- Broad range of communications systems
- Ruggedized for military and aerospace applications

Model	Frequency Range L	R	IF	Electrical Performance Conversion Loss Typ	RF Level (1dB) Compression) Typ	3rd Order Intercept Typ	Isolations (dB) L-R Typ	L-X Typ	R-X Typ	Package Style	Special Notes
CM-1	0.5-500	0.5-500	DC-500	6	0	+13	40	30	20	Metal PC Mount	Low Cost, Shielded, General Purpose
CM-2	10-1000	10-1000	DC-1000	6	0	+13	35	25	20	Metal PC Mount	Low Cost, Shielded, General Purpose
DBM-141	0.4-400	0.4-400	DC-400	6	0	+10	40	35	25	To-5	Miniature Size, Shielded, PC Mount
DBM-142	10-1000	10-1000	DC-1000	6	0	+10	40	40	40	Metal Flatpack	Shielded, PC or Microstrip Mount, High Performance, General Purpose
DBM-143	30-1500	30-1500	DC-1000	6	0	+10	40	38	30	Metal Flatpack	Shielded, PC or Microstrip Mount, High Performance, General Purpose
DBM-145	10-1500	10-1500	DC-1500	5	0	+12	40	40	30	Subminiature, Metal Flatpack	Very Small, High Performance, Hermetic Package
DBM-177	5-1500	5-1500	DC-1500	6.5	0	+10	40	35	30	To-8	High Performance, Very High Reliability
DBM-182	600-2000	600-2000	DC-1000	7	0	+13	45	35	35	Metal Flatpack	Miniature, Shielded, PC Mount
DBM-185	600-2000	600-2000	DC-1400	6.5	0	+11	30	25	20	To-5	Miniature, Shielded, PC Mount
DBM-190	10-1000	10-1000	DC-1000	8	–8	+7	35	35	35	Metal Flatpack	Very Low Lo Level Type, Shielded
DBM-300B	300-1500	300-1500	DC-700	6	+2	+12	50	30	20	SMA Connector	Shielded, SMA Connector, Tacan.Dme
DBM-400	10-3000	10-3000	5-800	8	0	+10	40	40	25	SMA Connector	Shielded, SMA Package, High Performance, Replaceable Diodes
DBM-500	1700-4200	1700-4200	DC-1500	5	0	+8	35	30	25	SMA Connector	Shielded, SMA Package, Excellent Lband and Satellite Band Mixer

High Level Mixers (10 to 20 dBm LO Level)

- Class H or K screening available
- Hermetic Packaging
- Excellent port to port isolation
- Frequency Ranges up to 4 GHz

Model	Frequency Range L	R	IF	Electrical Performance Conversion Loss Typ	RF Level (1dB) Compression) Typ	3rd Order Intercept Typ	Isolations (dB) L-R Typ	L-X Typ	R-X Typ	Package Style	Special Notes
CM-1H8	0.5-500	0.5-500	DC-500	5.5	+13	+25	40	35	25	Metal PC Mount	Low Cost, Shielded, High Level
CM-2H8	10-1000	10-1000	DC-1000	6	+13	+25	40	35	20	Metal PC Mount	Low Cost, Shielded, High Level
DBM-176	5-1500	5-1500	DC-1500	6	+13	+25	35	35	30	To-8	Miniature, Shielded, High Level
DBM-178	5-1500	5-1500	DC-1500	7	+13	+25	40	30	25	Metal Flatpack	Miniature, Shielded, High Level, PC or Microstrip Mount
DBM-183	10-4000	10-4000	5-4000	7	+6	+20	35	35	30	Metal Flatpack	Miniature, Shielded, Medium High Level PC or Micro-strip Mount, High Flat Intercept Point Over Full Band
DBM-184	2-3000	2-2500	5-1500	6	+6	+20	40	35	35	Metal Flatpack	Miniature, Shielded, Medium High Level, Very Good VSWR, Flat Intercept Point Over Full Band
DBM-186	10-4000	10-4000	5-4000	7	+6	+17	35	20	20	To-8	Miniature, Shielded, Medium High Level, Flat Intercept Across the Full Band
DBM-188	0.5-450	0.5-450	DC-800	5.5	+15	+30	35	35	30	Metal PC Mount	Shielded, PC, Very High Level
DBM-600	250-5000	250-5000	5-3000	6.5	+6	+20	25	35	30	Metal Flatpack	Miniature, Shielded, Medium High Level PC or Micro-strip Mount, High Flat Intercept Point Over Full Band
DBM-601	500-8000	500-8000	5-5000	6.5	+6	+16	20	30	30	SMA Connector	Shielded, Connector Type, Medium High Level PC or Microstrip Mount, High Flat Intercept Point Over Full Band
DBM-700	1-3500	1-3500	5-2500	7	+7	+17	42	33	30	Metal Flatpack	Shielded Package, Mismatch Insensitive Mixer, High Performance
DBM-700H	1-3500	1-3500	5-2500	7	+16	+20	35	40	30	Metal Flatpack	High Level Mismatch Insensitive Mixer
DBM-701	1-3500	1-3500	5-2500	7	+7	+17	35	30	30	To-8	Mismatch Insensitive Mixer, High Performance
DBM-701S	1-3500	1-3500	5-2500	7	+7	+17	35	30	30	SMA Connector	SMA Connectorized, Shielded Package, Mismatch Insensitive
DBM-1200	500-13000	500-13000	5-5000	8	+6	+15	25	25	30	SMA Connector	Shielded, Connector Type, Medium High Level, Flat Intercept Point Over Full Band

All specifications are subject to change without notice.

Packages Available

Amplifier Products

16

TSSOP16 Plastic Package
w/exposed ground paddle
0.197” x 0.252” x 0.039”
(5.0 x 6.4 x 1.0 mm)

18

ESOP-8 Plastic Package
w/ exposed ground paddle
0.194” x 0.236” x 0.061”
(4.9 x 6.0 x 1.6 mm)

Ceramic SMT Module
0.272” x 0.394” x 0.096”
(6.9 x 10.0 x 2.4 mm)

43

SOT-343
0.08” x 0.08” x 0.035”
(2.0 x 2.0 x 0.9 mm)

63

SOT-363
0.08” x 0.08” x 0.035”
(2.0 x 2.0 x 0.9 mm)

76

Ceramic
0.070” dia. (1.78 mm dia.)

86

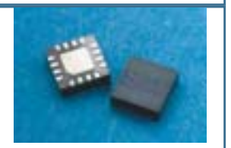
Plastic
0.085” dia. (2.15 mm dia.)

89

SOT-89
0.180” x 0.165” x 0.067”
(4.55 x 4.20 x 1.7 mm)

XD

1.11” x 0.55” x 0.28”
(28.1 x 14.0 x 7.1 mm)



QFN 3x3 16 pin*

3 x 3 mm
(*QFN package also available in
20 pin 4 x 4 mm package)

Signal Source Products

T

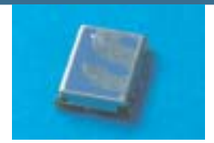
0.5” x 0.5” x 0.16”
(12.7 x 12.7 x 4.0 mm)

U

3.74” x 0.374” x 0.13”
(9.5 x 9.5 x 3.3 mm)

V

0.394” x 0.316” x 0.094”
(10.0 x 8.0 x 2.4 mm)



W

0.316” x 0.238” x 0.079”
(8.0 x 6.0 x 2.0 mm)

X

0.354” x 0.276” x 0.079”
(9.0 x 7.0 x 2.0 mm)

K

0.3” x 0.3” x 0.079”
(7.6 x 7.6 x 2.0 mm)

N

0.468” x 0.390” x 0.166”
(11.9 x 9.9 x 4.2 mm)

250

1.0” x 1.0” x 0.252”
(25.4 x 25.4 x 6.4 mm)

300

0.75” x 0.75” x 0.156”
(19.0 x 19.0 x 4.0 mm)

350

0.8” x 0.58” x 0.15”
(20.3 x 14.7 x 3.8 mm)

PLL400,401,800,801

0.6” x 0.6” x 0.138”
(15.2 x 15.2 x 3.5 mm)

L

0.560” x 0.350” x 0.072”
(14.2 x 8.9 x 1.8 mm)

M

0.560” x 0.200” x 0.072”
(14.2 x 5.0 x 1.8 mm)

P

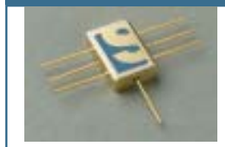
6.35 x 5.08 x 1.37 mm

SPM FET

0.5” x 0.38” x 0.15”
(12.7 x 9.7 x 3.8 mm)

Packages Available

Aerospace & Defense Products



Flatpack

0.275” x 0.410” x 0.125”

Flatpack

0.375” x 0.5” x 0.125”

4 Pin FP

0.25” x 0.25” x 0.125”

SMT

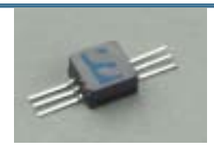
0.5” x 0.375” x 0.175”

Flatpack

0.625” x 0.625” x 0.135”

6 Pin DP

0.28” x 0.31” x 0.215”



6 Pin FP

0.25” x 0.25” x 0.125”

6 Pin HF

0.5” x 0.5” x 0.32”

6 Pin LF

0.76” x 0.76” x 0.5”

CSP-2

0.31” x 0.28” x 0.20”

CSP-3

0.75” x 0.38” x 0.20”

SMA

0.90” x 0.90” x 0.55”

TO-5 4 Pin

0.34” x 0.265”

TO-5 6 Pin

0.340” x 0.265”

TO-8

0.5” x 0.272”

SMT-2

0.45” x 0.45” x 0.17”

Please visit www.sirenza.com to view our ISO certificate number.