

Power Amplifier Products

Capabilities from HF to C-band with power to 100's of Watts

Mercury Systems designs and manufactures linear and ultra-linear power amplifiers for commercial and military applications. Our products capabilities range from HF to C-band frequencies and RF output power capabilities up to 100's of Watts. Designers have utilized our solid state power amplifiers (SSPAs) designs to significantly improve the performance of their systems, while at the same time reducing size and cost.

Unique internally linearized designs allow us to produce some of the smallest multi-carrier amplifiers in the world. We deliver units that are comparable to 10 to 600 Watt amplifiers in linearity, but are smaller in size and consume a fraction of the power.

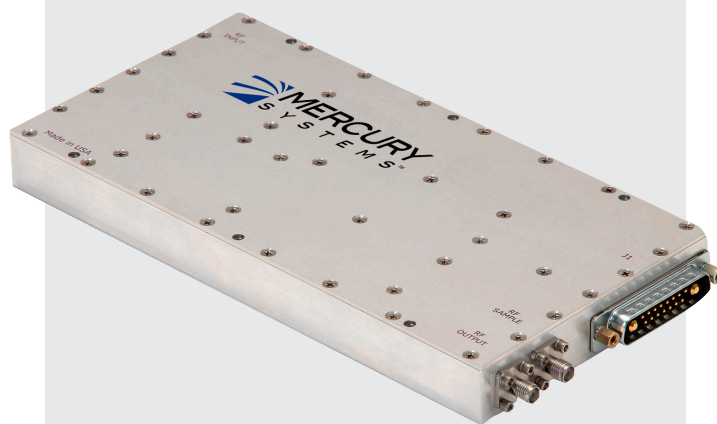
Mercury leverages our superior electrical and mechanical design over 100's of standard SSPA models that form the building blocks to support concept-to-completion of custom amplifier configurations.

RF power amplifiers for up to 1 GHz operation are well suited for applications requiring a high degree of linearity, such as in wireless communications transmitters, covering frequencies from 20 MHz to 1,000 MHz with RF output power levels from 4 Watts to 120 Watts.

Model #	Frequency (MHz)	P1dB (dBm)	Gain (dB)	Input Return Loss (dB)	Voltage (V)	Current (A)	Comments
SM04093-36	400 to 930	36	35	-9	12	1.6	Broadband Amplifier
SM08596-51LD	850 to 960	51	44	-16	28	11.0	Covers LTE DL Bands 5 (869-894 MHz) & 8 (925-960 MHz)
SM0810-47L	800 to 1000	47	55	-16	12	16.5	Internally Linearized Amplifier

Specifications shown are guaranteed nominal performance, +25°C

Mercury's amplifiers are used in commercial and military applications, including:



- Next generation multi-band military radio systems for man-pack, vehicular, and flight applications
- Commercial telecommunications base stations
- Base stations for 4G broadband wireless access standards
- Portable analog and digital mobile video transmitters
- Large analog and digital high power MMDS transmitters
- RF test and measurement systems for commercial products and R&D
- Digital electronic intelligence gathering equipment
- Military countermeasures and jamming systems
- High power RF medical devices
- Transportation tunnel repeaters

RF power amplifiers for operation between 1 – 3 GHz from Mercury offer a wide array of RF power amplifier products for L-band and S-band applications with operating frequencies ranging from 1,000 MHz to 2,700 MHz with RF output power levels from 4 Watts to 100 Watts.

Model #	Frequency (MHz)	P1dB (dBm)	Gain (dB)	Input Return Loss (dB)	Voltage (V)	Current (A)	Comments
SM06927-36	690 to 2700	35†	30	-16	12	1.2	†P _{sat}
SM1923-44L	1900 to 2300	44	55	-16	12	8.8	Internally Linearized Amplifier
SM2425-11G38	2400 to 2500	38‡	26	-14	28	1.6	‡ +38dBm IEEE 802.11g Bi-directional Amplifier

Specifications shown are guaranteed nominal performance, +25°C

RF power amplifiers for operation above 3 GHz also offer several high power CW RF power amplifiers for S-band and C-band applications; these operate in frequencies ranging from 3,100 MHz to 7100 MHz with RF output power levels up to 20 Watts.

Model #	Frequency (MHz)	P1dB (dBm)	Gain (dB)	Input Return Loss (dB)	Voltage (V)	Current (A)	Comments
SM3436-37HS	3400 to 3600	37	36	12	12	1.9	
SM4450-43L	4400 to 5000	43	55	10	12	8.8	Internally Linearized Amplifier
SM6471-43	6400 to 7100	43	57	13	12	10.3	

Specifications shown are guaranteed nominal performance, +25°C

GSM mobile band power amplifiers provide P1dB power up to 200 Watts for use as boosters or small cell amplifiers. These designs utilize GaAs FET or LDMOS devices, depending on the efficiency, bandwidth and input voltage requirements of the systems.

Model #	Frequency (MHz)	P1dB (dBm)	OIP3 (dBm)	Linear Gain (dB)	Current +24V Linear/CDMA (Amps)
SM08010-47L	800 - 1000	47	60	55	15 ⁵
SM0825-40	800 - 2500	40.5	50	39	5.5 ⁵
SM08596-51LD	850 - 960	51	50	39	28 ⁶
SM09296-47L ²	925 - 960	47	66	58	17.0 ⁵

Wideband power amplifiers are used in a wide variety of applications including lab test equipment, multi-band radios and transmitters. Bandwidths range from 400 MHz to 1 GHz with output powers from 2 to 25 Watts. These designs exhibit unmatched gain flatness and incorporate temperature compensation for consistent performance across the operating bandwidth.

PCS/UMTS band power amplifiers offer up to 160 Watts of RF output power. Predistortion linearization is available for applications that have stringent ACPR requirements, and many optional features provide easy integration into new or legacy systems.

Model #	Frequency (MHz)	P1dB (dBm)	OIP3 (dBm)	Linear Gain (dB)	Current +12V Linear (Amps)
SM1720-50L ^{1,2}	1700 - 2000	50 ⁴	66	57	19.0
SM1727-37	1700 - 2700	38	50	33	1.9
SM1819-52LD	1800 - 1900	50.5	N/A	45	11.0 ⁶
SM1822-44	1800 - 2200	44	55	45	6.9
SM1920-47L	1900 - 2000	47	66	55	15.0
SM1920-51LD	1900 - 2000	51	N/A	45	11.0 ⁶

Model #	Frequency (MHz)	P1dB (dBm)	OIP3 (dBm)	Linear Gain (dB)	Current +12V Linear (Amps)
SM1923-44L	1900 - 2300	44	55	45	7.4
SM1923-47	1900 - 2300	47.5	59	55	15.0
SM2024-44L	2000 - 2400	44	55	45	7.4
SM2025-46L	2000 - 2500	46	63	55	8.5
SM2122-51LD	2110 - 2170	51 ⁴	---	45	3.9 ⁶

ISM band power amplifiers provide power outputs up to 200 Watts and are optimally suited for license-free commercial and military video equipment.

Model #	Frequency (MHz)	P1dB (dBm)	OIP3 (dBm)	Linear Gain (dB)	Current +12V Linear (Amps)
SM2325-50L	2300 - 2500	50	68	59	31.0
SM2327-47L	2300 - 2700	47	60	55	15.0
SM2527-50L ¹	2500-2700	50	68	59	31.0

Bench-top/19" rack mount power amplifiers all of our power amplifier products are available in either a bench-top lab or a 19" rack mount unit, making our superior performance amplifiers available for a myriad of mounting options.

Notes:

- 1). Tuned in 100MHz bands
- 2). Built-in Linearizer for improved IMDs
- 3). Peak
- 4). +10VDC option
- 5). +12VDC
- 6). +28VDC



Visit our website at <http://rf.mrcy.com> for more information regarding our proven amplifier solutions or to connect with our power amplifier engineers for detailed engineering support.

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