

MICROWAVE SYSTEMS JOIN-STOCK COMPANY

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- Modern precision HMIC production line.
- Optimum price-quality ratio
- Service in the design, preproduction and production of specific-application MMIC, HMIC, modules and supercomponents from 0,3 to 22 GHz and from 10 mW to 1 kW CW output power.



Microwave Systems JSC is a multifunction RF & microwave equipment and engineering service company, it established in 2004 and has been operating since that time. At present, it has a design department and a production line, which allows producing a variety of microwave electronic products. Today 90 people work at the enterprise, all of them qualified specialists.

During the operation the enterprise has developed and produces more than 100 different microwave modules. Among them:

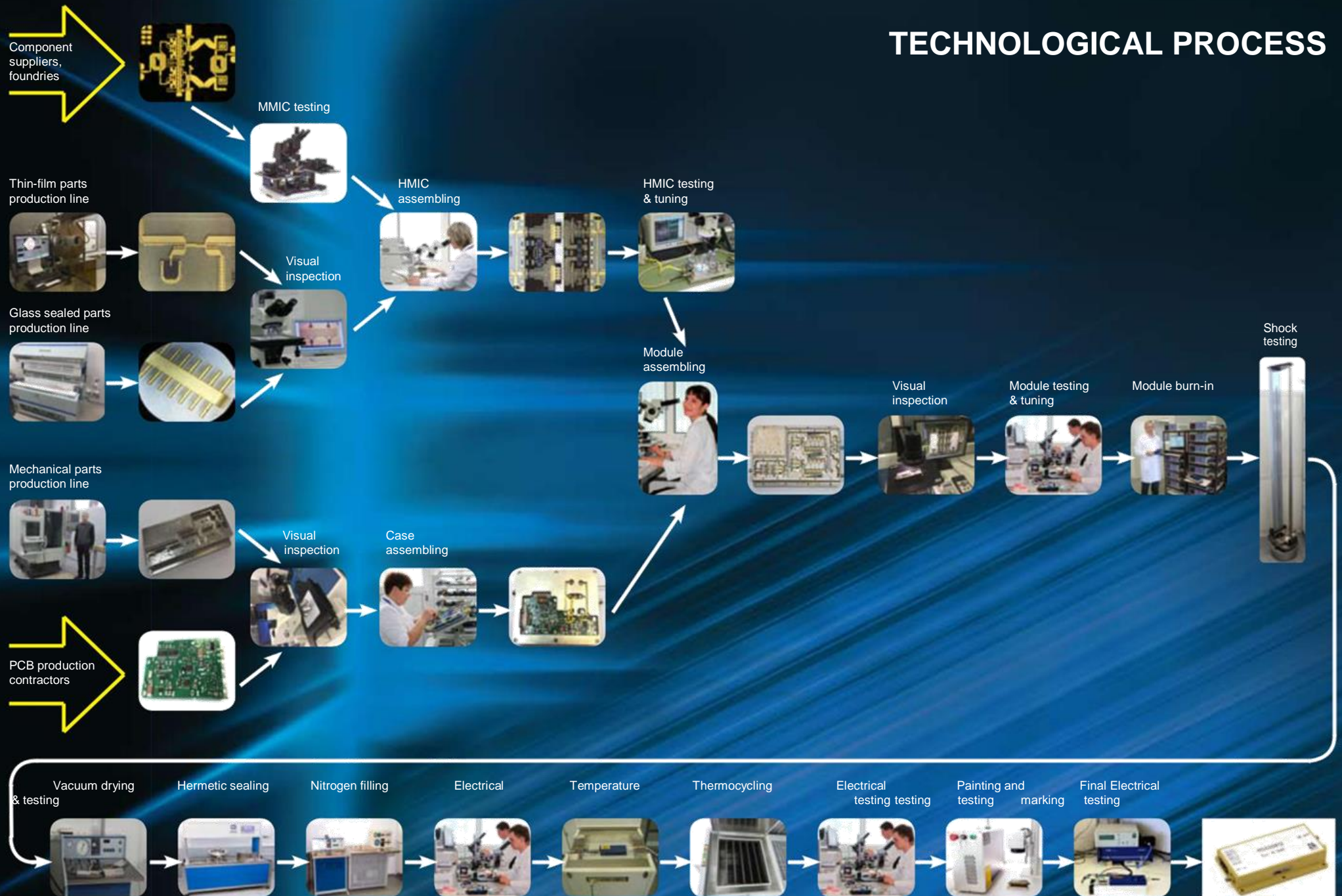
- wideband CW power amplifiers, preamplifiers, multi-channel amplifiers and microwave T/R modules operating from 200 MHz to 22 GHz;
- pulse mode power amplifiers and transceiver modules with an output power up to 1 kW and pulse duration from 100 ns to 42 ms;
- universal ultra-wideband low-noise microwave amplifiers operating in the range from 1 to 18 GHz.

High technical parameters and reliability of microwave modules are provided for by:

- advanced schematic decisions and experience of designers;
- modern in-house thin-film hybrid integrated circuit technologies, state-of-the-art GaAs and GaN discrete transistors, and MMICs;
- a leak proof construction;
- careful checking and automated full-function tests of devices.



TECHNOLOGICAL PROCESS





MS010620

Ultra-wideband high power amplifier

Main features:

- Frequency range 1-6 GHz
- GaN technology
- Output power 25-40 W
- Gain temperature compensation
- Low weight and size
- High-speed 0,3 μ s on/off modulated
- Built-in power detector
- Built-in 5-bit gain control

MS020440

Octave-band high power amplifier

Main features:

- Frequency range 2-4 GHz
- GaN technology
- Output power 35-50 W
- High PAE 35%
- Gain temperature compensation
- Low weight and size
- High-speed 0,3 μ s on/off modulated
- Built-in power detector
- Built-in 5-bit gain control



MS020812

Ultra-wideband power amplifier

Main features:

- Frequency range 2-8 GHz
- GaN technology
- Output power 12-18 W
- Gain temperature compensation
- Low weight and size
- High-speed 0,3 μ s on/off modulated
- Built-in power detector
- Built-in 5-bit gain control



MS061802

Wideband medium power amplifier

Main features:

- Frequency range 6-18 GHz
- GaAs technology
- Output power 1,8 - 3 W
- Gain temperature compensation
- High-speed 0,3 μ s on/off modulated
- Built-in power detector
- Built-in 5-bit gain control



MS061805

Wideband power amplifier

Main features:

- Frequency range 6-18 GHz
- GaAs technology
- Output power 5-6 W
- Gain temperature compensation
- Low weight and size
- High-speed 0,3 μ s on/off modulated
- Built-in power detector
- Built-in 5-bit gain control



MS061810

Wideband high power amplifier

Main features:

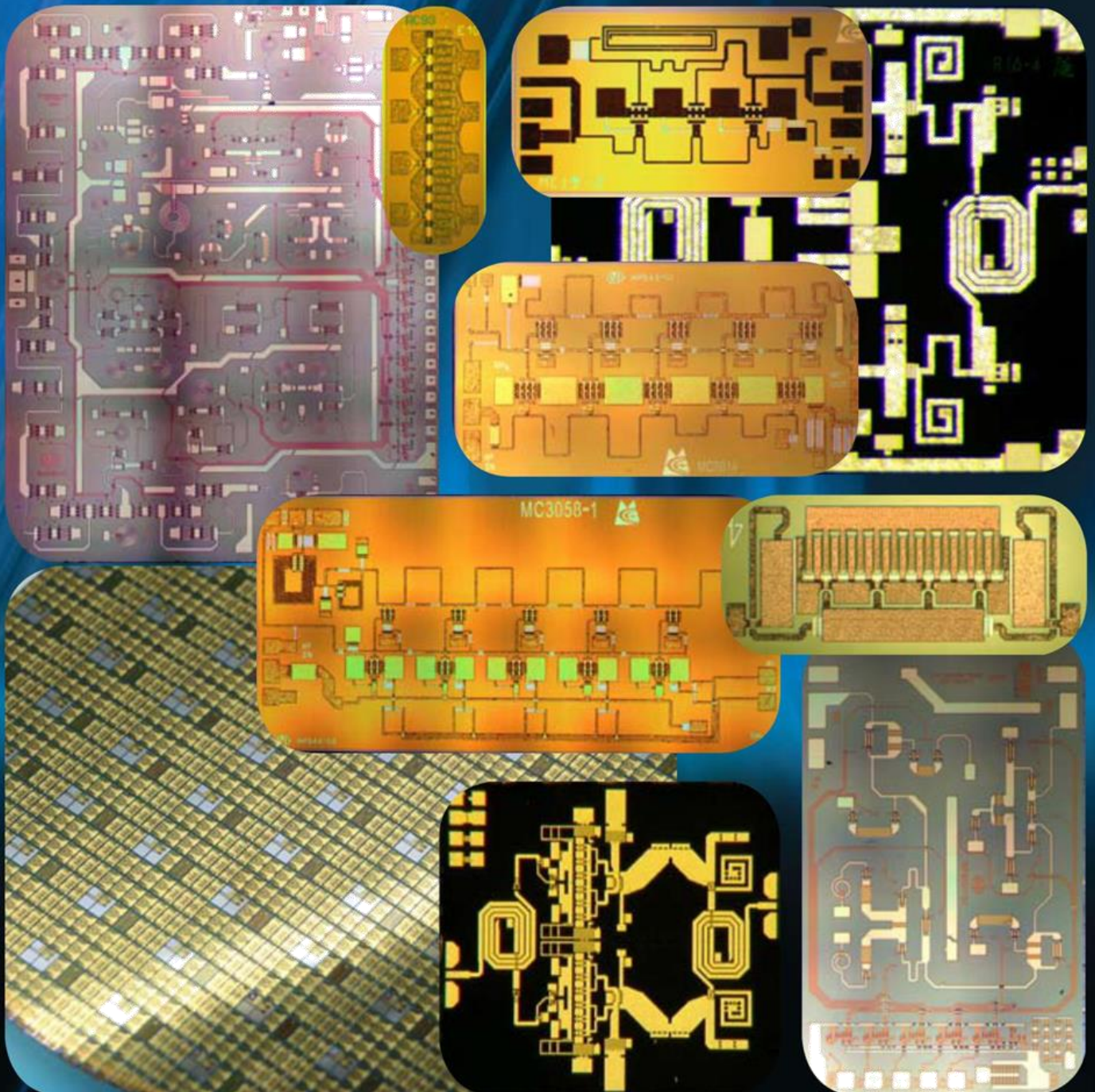
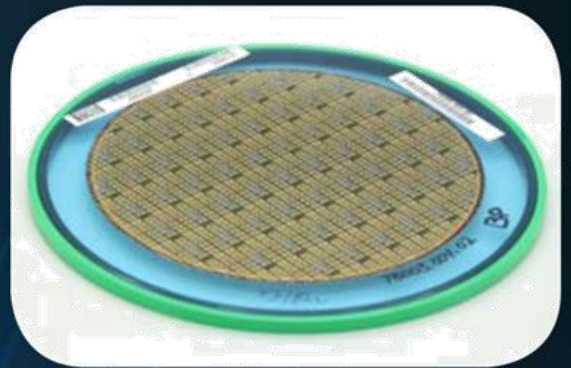
- Frequency range 6-18 GHz
- GaN technology
- Output power 10-12 W
- Gain temperature compensation
- High-speed 0,3 μ s on/off modulated
- Low weight and size
- Built-in power detector
- Built-in 5-bit gain control



MMIC DESIGN SERVICE

Main features:

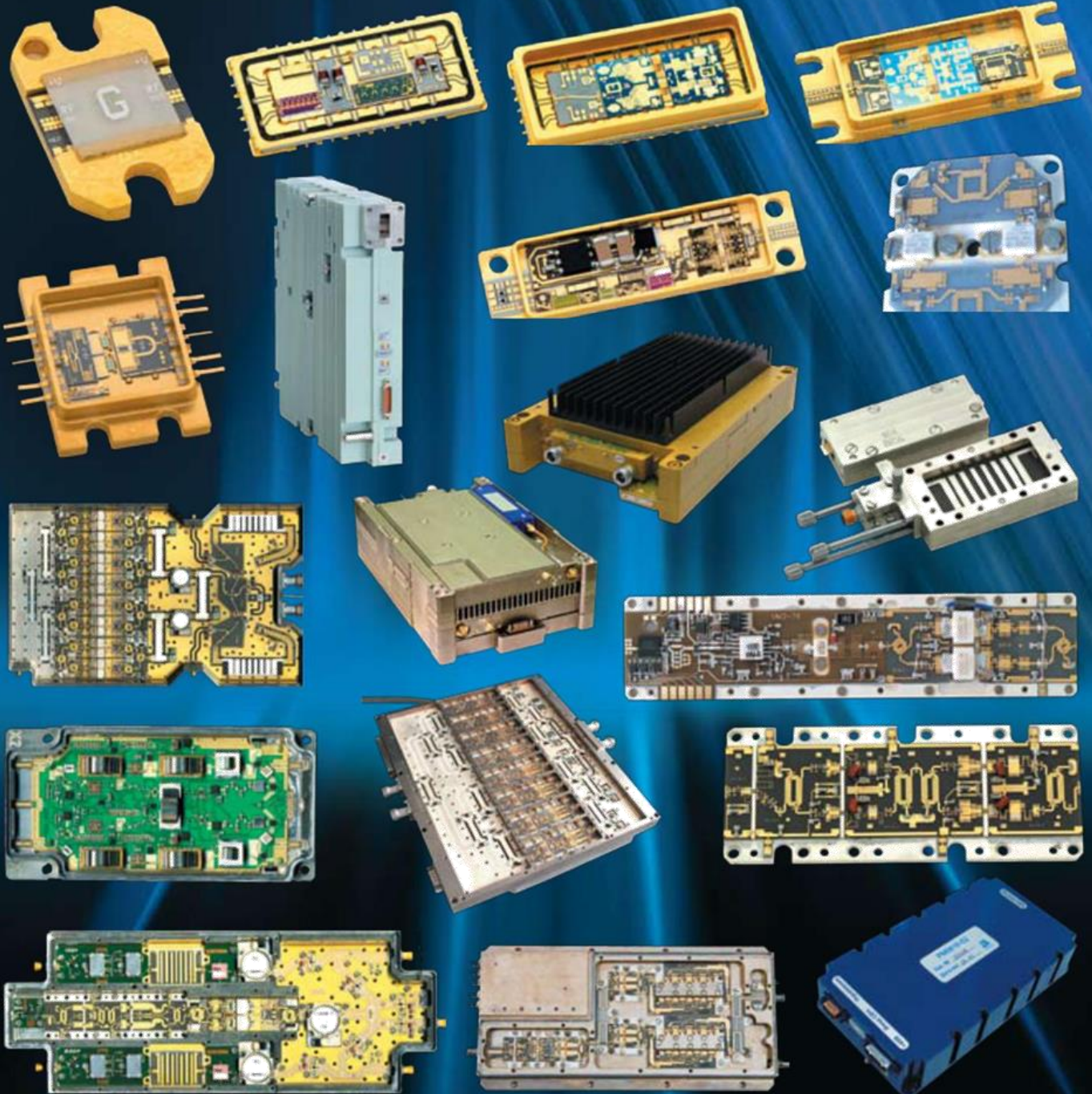
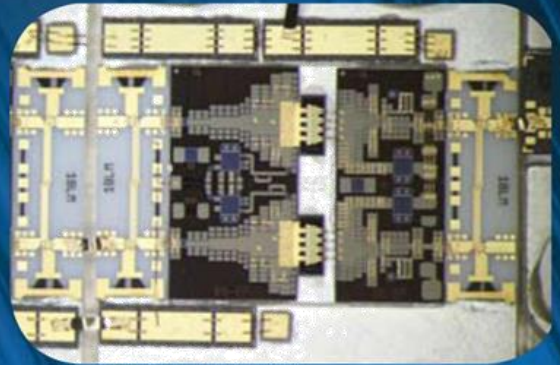
- Frequency range from 0 to 45 GHz
- Narrow-band, octave & multi-octave designs
- GaAs pHEMT, GaN HEMT, PIN technologies
- Output power from 0,01 to 10 W
- Custom-specified amplifiers, digital attenuators, phase shifters, core-chip MMICs, passive MMICs
- Re-design obsolete parts



HMIC & MODULE DESIGN SERVICE

Main features:

- Frequency range from 0,3 to 22 GHz
- Narrow-band, octave & multi-octave designs
- Output CW power up to 300 W
- Output pulse power up to 1 kW
- Custom-specified power amplifiers, T/R modules & super-components
- Hermetic nitrogen-filled housing
- Temperature range from -55°C to +65°C



Standard wideband power amplifiers

Linear parameters

Model №	Linear gain (dB)	Gain ripple (dB)	Δ Gain (-55...+65°C, dB)	Δ A (dB)	VSWR _{in}	VSWR _{out}	I _{dc0} (A)
	min	max	max	typ	max	max	typ
MS061802	34	±2,5	4	0.9–27.9	2.5	2.5	1.7
MS061805	39	±2,5	5	0.9–27.9	2.0	2.5	4
MS061810	42	±1,5	4	0.9–27.9	2.2	2.0	2.5
MS010620	54	±2,5	5	1–31	2.0	2.5	2.1
MS020812	46	±2,5	3	0.9–27.9	2.5	2.5	0.8
MS020440	48	±1,5	4	0.9–27.9	2.0	2.0	1.2

Power parameters

Model №	Saturated Output power (dBm)		Power gain (dB)	PAE (%)	P ₋₁ (dBm)	I _{dc} (A)	P _{dc} (W)	V _{det} (V)
	min	typ	typ	typ	typ	max	max	typ
MS061802	33	35	36	13	33	2.5	23	0.75
MS061805	37	38	43	13	37	6.0	54	0.9
MS061810	40	41	46	14	37	3.5	105	1.4
MS010620	43	46	42	23	42	7	210	1.1
MS020812	41	42	52	23	33	2.4	70	0.9
MS020440	45	47	46	35	38	5.5	150	0.7

Application parameters

Model №	Voltage (V)	Voltage (V)	Operating temperature (°C)		Storage temperature (°C)		Size (mm)	Weight (g)
	min	max	min	max	min	max	max	max
MS061802	8.6	10	-55	65	-55	85	102 x 55 x 24	180
MS061805	8.6	10	-55	65	-55	85	130 x 52 x 24	250
MS061810	26	30	-55	65	-55	85	120 x 78 x 24	350
MS010620	26	30	-55	65	-55	85	170 x 80 x 24	540
MS020812	26	30	-55	65	-55	85	124 x 68 x 24	320
MS020440	26	30	-55	65	-55	85	190 x 76 x 24	620