

HIGH-PERFORMANCE RFIC/MMIC PRODUCTS



Contact Us



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Cost-Effective High-Performance RFIC Products

Signify RF is dedicated to providing high-performance RFICs and MMICs at competitive prices, with new products set to launch in the next 3 to 6 months. Our upcoming offerings include:

- **RF Front End Modules (FEMs):** Delivering exceptional integration for telecommunications and IoT applications.
- **RF Amplifiers:** Designed for optimal signal enhancement across various frequency bands, including Low Noise Amplifiers (LNAs) and Power Amplifiers (PAs) for enhanced sensitivity and output power.
- **RF Mixers:** Facilitating efficient signal processing for radar and satellite systems.
- **RF Switches:** Including wideband options covering 2 to 40 GHz for seamless signal routing.
- **Digital Variable Attenuators:** Ensuring precise signal control for improved performance in various applications.
- **RF Doublers:** Enhancing signal power and frequency accuracy for Ku and Ka band applications.

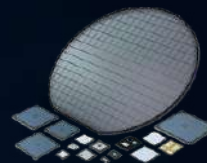
With a strong emphasis on innovation and affordability, Signify RF aims to empower customers with cutting-edge RF technologies, ensuring reliability and efficiency in modern systems. Stay tuned for our exciting product launches!



Product Development & Release Roadmap

1. Die (Bare Silicon) (Immediate Supply)

- Early access for proof-of-concept and wafer-level testing.
- Suitable for advanced R&D customers.



2. Packaged Chips (Immediate Supply)

- Standard IC packages minimizing parasitics.
- Easier to handle for lab validation and integration.
- QFN 3x3 16 Leads, 4x4 24 Leads & 5x5 24 Leads.



3. Evaluation Boards (EVBs) (Immediate Supply)

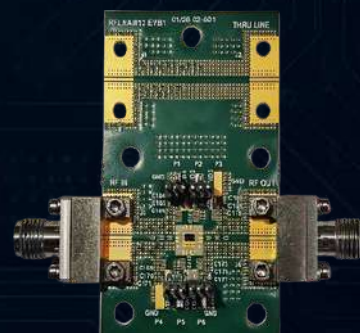
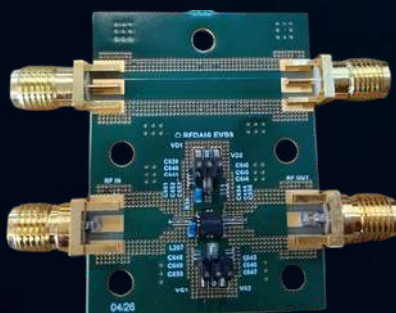
- Fully assembled boards with packaged chips.
- Provide measurement setup convenience and reproducible performance results.



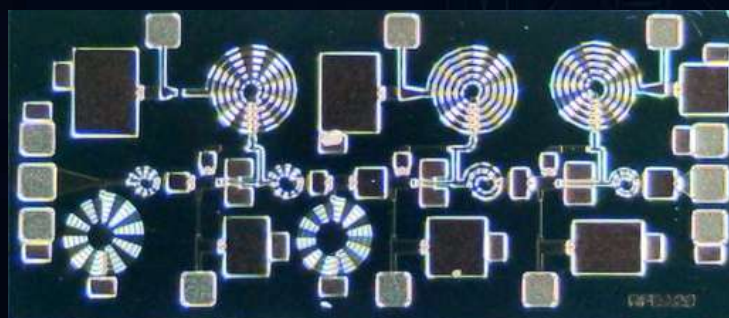
WHY OUR PRODUCTS ARE BETTER:

- High-frequency wideband performance
- Superior gain with low noise
- High linearity with efficient RF performance
- Compact and reliable design
- Advanced GaAs pHEMT technology
- Flexible external matching for easy integration
- Cost-effective, high-performance solution
- Optimized for telecom, radar & SATCOM

Our Evaluation Board (EVBs):



Actual Die :



High-Performance RF Solutions Engineered for Efficiency

Our RF solutions deliver high output power, low noise figures, low current consumption, and superior efficiency to meet the most demanding system requirements. Engineered to maximize performance while minimizing power consumption and system costs, our portfolio offers an exceptional performance-to-value advantage.

Featured High-Performance Products:

- RFDA06 – 2–12 GHz Distributed Amplifier with 18 dB Gain, 1.5 dB Noise Figure, and only 60 mA current consumption.
- RFPAF01S – 300 MHz–1 GHz Power Amplifier with 16 dB Gain, 22 dBm Output Power (Pout), 1.5 dB Noise Figure, and 43 mA current consumption.
- RFLN07S – 2–7 GHz Low Noise Amplifier with 26 dB Gain, a 0.8 dB Noise Figure (3–5 GHz), and 48 mA current consumption.
- RFLN28 – 26–30 GHz Low Noise Amplifier with 24 dB Gain.
- RFLN40C – Reverse Gain Slope Amplifier covering 20–40 GHz.

OUR SAMPLE READY PRODUCTS (AMPLIFIERS & ATTENUATORS):

Part Name	Function	Freq (GHz)	Gain (dB)	Noise Figure (dB)	PIdB (dBm)	Package (mm)
RFDA06	DRIVER AMPLIFIER	2-6 GHz	24	1.5	23.5	QFN_3x3_16L_0.5
RFPA06	POWER AMPLIFIER	2-6 GHz	23	-	25	QFN_5x5_24L_0.65
RFLNAM12	LOW NOISE AMPLIFIER	8-12 GHz	22.5	1.78	17.8	QFN_4x4_24L_0.5
RFDA20	DRIVER AMPLIFIER	2-20 GHz	17	3.14	17.4	QFN_5x5_24L_0.65
RFDVA30	DIGITAL VARIABLE ATTENUATOR	DC to 32 GHz	Attenuation = 0.9 to 9 dB			QFN_3x3_16L_0.5
RFDAAM18	DRIVER AMPLIFIER	12-18 GHz	13	2.3	19.7	QFN_4x4_24L_0.5
RFDCA20	DIRECT COUPLED AMPLIFIER	DC-20 GHz	14	-	5.8	QFN_3x3_16L_0.5
RFSW20	SPDT SWITCH	2-20 GHz	Insertion Loss (dB)	Isolation (dB)	IP1dB (dBm)	QFN_3x3_16L_0.5
			1.1	54	28.2	

RF FRONT END MODULE

Signify RF's RF Front End Module(FEM) features a unique wideband design covering 2 to 7 GHz, delivering exceptional performance for telecommunications, Wi-Fi, IoT and automotive applications. Our 5 to 7 GHz FEM is optimized for high-speed data transmission, crucial for 5G networks, while the 24 to 28 GHz FEM excels in millimeter-wave applications, supporting next-gen 5G infrastructure and automotive radar. With superior linearity, low noise and compact design, these modules ensure reliable connectivity and efficiency for modern devices.

FABRICATED RF FRONT END MODULES

Part Name	Function	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Package (mm)
RFFEM06S	Small Die Front End Module	2 - 6	23.2 / 27.2	23 / 11.8	1	QFN_4x4_24L_0.5

UNDER-DEVELOPMENT RF FRONT END MODULES

Part Name	Function	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	P1dB (dBm)
RFFEM07C	Front End Module	2 - 7	TX-28.4 / RX- 24	RX- 1.85	TX-22.3 / RX- 20
RFFEMRX07	Front End Receive Module	2 - 7	32	2	19.5
RFFEM07	Front End Module	5.1 - 7.1	TX-27 / RX- 12	RX- 3	TX-17.9 / RX-10
RFFEM28	Front End Module	24 - 28	TX-23 / RX- 22	RX- 3.1	TX-20.5 / RX- 12

Applications of Signify RF's FEMs

2 to 7 GHz FEM:

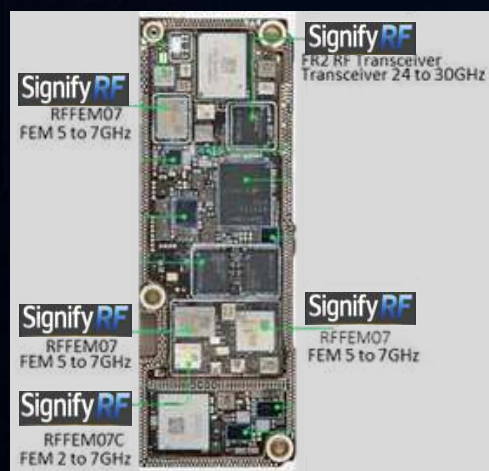
- Telecommunications
- Wi-Fi Networks
- IoT Devices
- Automotive

5 to 7 GHz FEM:

- High-Speed Data Transmission
- Wireless Communications
- Consumer Electronics

24 to 28 GHz FEM:

- Millimeter-Wave Applications
- 5G Infrastructure
- Automotive Radar



RF LOW NOISE AMPLIFIERS

Our RFIC MMIC low noise amplifiers(LNAs) are designed for exceptional performance across various frequency bands, including 2 to 7 GHz, Ku-band and X-band. Ideal for applications in satellite communications, radar systems and electronic warfare, these solid-state amplifiers feature a remarkable low noise figure of just 0.4 dB and deliver significant gain.

FABRICATED RF LOW NOISE AMPLIFIERS						
Part Name	Function	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Package (mm)
RFLN07S	Small Die Low Noise Amplifier	2 - 7	27	10.8	0.7-0.9	QFN_3x3_16L_0.5
RFTLN20	Low Noise Amplifier	12 - 20	14.3	21.2	2.3	QFN_4x4_24L_0.5
RFLN28	Low Noise Amplifier	24 - 28	24.5	15	1.8	QFN_4x4_24L_0.5
RFGLN28	GaAs On Glass Low Noise Amplifier	24 - 28	12.9	17.9	2.8	QFN_3x3_16L_0.5

UNDER-DEVELOPMENT RF LOW NOISE AMPLIFIERS					
Part Name	Function	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	P1dB (dBm)
RFLN04	Low Noise Amplifier	2 - 4	28	1.2	11.4
RFLN06	Low Noise Amplifier	2 - 6	32	1.2	20
RFTLN12	Low Noise Amplifier	1 - 12	25	2 - 2.5	-
RFLN12	Self Bias Low Noise Amplifier	8 - 12	19.1	1.8	12
RFLNAM18	Low Noise Amplifier	12 - 18	21	1.7	21
RFLN18	Low Noise Amplifier	12 - 18	16.7	1.9	9.16
RFLN18D	Low Noise Amplifier	12 - 18	25	1.2	16.2
RFLN30	Low Noise Amplifier	24 - 30	25.5	1.3	16
RFLN30R	Low Noise Amplifier	18 - 30	22	2.2	15
RFLN06A	Low Noise Amplifier	20 - 40	20	2.8	20.5
RFLN123	Low Noise Amplifier	122 - 123	12	11.5	-

Applications of RFIC/MMIC LNAs

- Satellite Communications
- Radar Systems
- Electronic Warfare
- Telecommunications
- Remote Sensing
- WiFi-6E/7



RF AMPLIFIERS

Signify RF's RFIC MMIC amplifiers deliver high-performance power amplification for applications such as satellite communications, radar systems and electronic warfare across 2 to 7 GHz, Ku-band and X-band. With output power ranging from 18 to 29 dBm, these solid-state amplifiers offer high efficiency, customizable solutions and advantages in size, power and cost.

FABRICATED RF POWER AMPLIFIERS

Part Name	Function	Frequency (GHz)	Gain (dB)	P1dB (dBm)	PAE (%) @ Pavg.	Package (mm)
RFPA06S	Small Die Power Amplifier	2 - 6	28	26.3	34	QFN_3×3_16L_0.5
RFPAF06S	Small Die Tunable Power Amplifier	2 - 6	30.5	6	–	QFN_3×3_16L_0.5
RFPA5.8S	Small Die Power Amplifier	5.5 - 6	23.7	30.9	32	QFN_3×3_16L_0.5

FABRICATED OTHER RF AMPLIFIERS

RFDA06S	Direct Coupled Amplifier	DC to 12	8.5	6	–	QFN_3×3_16L_0.5
RFDBA26	Distributed Amplifier	DC to 26	15.7	11.65	–	QFN_5×5_24L_0.65

UNDER-DEVELOPMENT POWER AMPLIFIERS

Part Name	Function	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	P1dB (dBm)
RFPA03S	Power Amplifier	2 - 7	28	2.4	27.7
RFHEPA06	Power Amplifier	5.6 - 6	20	–	21
RFPA24	Power Amplifier	24 - 24.25	20	2.5	27
RFPA62	Power Amplifier	60 - 62	10	3.7	25

UNDER-DEVELOPMENT DRIVER AMPLIFIERS

RFDAAM12	Driver Amplifier	8 - 12	30	1.8	17
RFDA17	Driver Amplifier	12 - 17	25	3.5	23.4
RFDA11A	Driver Amplifier	18 - 40	25	2.9	16
RFDA12A	Driver Amplifier	36 - 42	20	3.2	24

Applications of RFIC/MMIC Amplifiers

- Satellite Communications
- Radar Systems
- Electronic Warfare (EW)
- Telecommunications
- Test and Measurement Equipment
- Remote Sensing
- Wireless Communication
- WiFi-6E/7



OTHER RF BULIDING BLOCKS

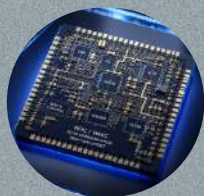
Signify RF offers a comprehensive portfolio of high-performance RF components for applications across multiple frequency bands. Our RF Switches (2–40 GHz) provide reliable signal routing for telecommunications and satellite systems. RF Mixers enable efficient signal processing for radar, satellite, and communication applications. RF Doublers enhance signal power and frequency generation in Ku- and Ka-band systems. Digital Variable Attenuators deliver precise signal control for wireless communications and broadcasting, while RF-to-DC Converters efficiently convert RF energy into DC power for energy harvesting and sensing applications. Designed for superior performance, reliability, and compact integration, our products meet the demands of modern RF systems.

FABRICATED RF MIXER , SWITCH , RECTIFIER & OSCILLATOR						
Part Name	Function	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	P1dB (dBm)	Package (mm)
RFTSSI07	TSSI – Voltage Detector	5 - 7	Input Return Loss : 16.5	Power Detection : -10 to 30		QFN_3×3_16L_0.5
RFTSSI28	TSSI – Voltage Detector	24 - 28	Input Return Loss : 13	Power Detection : -20 to 20		QFN_3×3_16L_0.5
RFSBDN17	Single Balanced Mixer	12 - 17	6.5	14.2	-0.3	QFN_4x4_24L_0.5
RFSW20	SPDT Switch	2 - 20	Insertion Loss : 1.87/1.27/1.61		24.7/28.2/26.5	QFN_3×3_16L_0.5
RFTOSLN10	Tunable Oscillator and LNA	1 - 10	28.9/26/23.15/19	1.9/1.5/1.2/1.6	15/14.6/9.18/-5.7	QFN_4x4_24L_0.5
UNDER-DEVELOPMENT RF MIXERS						
Part Name	Function	Frequency (GHz)	Gain (dB)	Noise Figure (dB)	P1dB (dBm)	
RFDBDN08	Double Balanced Mixer	8 - 12	Conversion Gain = 6.2		-2.6	
RFSBDN08	Single Balanced Mixer	8 - 12	Conversion Gain = 7.7		-0.5	
RFDBDN12	Double Balanced Mixer	12 - 18	Conversion Gain = 2.4		-3.6	
RFSBDN12	Single Balanced Mixer	12 - 18	Conversion Gain = 5.2		-4.9	
UNDER-DEVELOPMENT RF DOUBLERS						
RFDBL03A	Frequency Doubler	7.75 - 8.75	Conversion Loss = 1.8 dB			
RFDBL04A	Frequency Doubler	15.5 - 17.5	Conversion Loss = 15.7 dB			
UNDER-DEVELOPMENT DIGITAL VARIABLE ATTENUATOR						
RFDVA20	Digital Variable Attenuator	8 to 20	Insertion Loss = 2 to 9 dB			
UNDER-DEVELOPMENT RF TO DC CONVERTERS						
RFHERE06	Rectifier	5.6 to 6	Conversion Efficiency = 60%			
RFHERE25	Rectifier	24 to 25	Conversion Efficiency = 50%			
UNDER-DEVELOPMENT RF SWITCHES						
RFSW20	SPDT RF Switch	2 to 20	Insertion Loss = 1.85 dB			
RFSW44	SPDT RF Switch	2 to 44	Insertion Loss = 2.5 dB			
FABRICATED RF DIFFERENTIAL AMPLIFIER						
RF DFA12	Differential Amplifier	DC - 12 GHz	Gain = 7.8 dB			

TECHNOLOGY INNOVATIONS FOR HIGH-PERFORMANCE RF & MICROWAVE SOLUTIONS

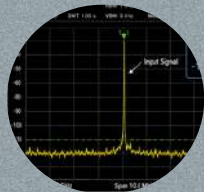
Signify RF is a fabless semiconductor company specializing in advanced RFIC, MMIC, and mixed-signal solutions for commercial, industrial, aerospace, and defence applications.

- **Broadband RFIC & MMIC Solutions** – High-performance products from DC to millimeter-wave frequencies.
- **Advanced Semiconductor Technologies** – Expertise in GaAs, GaN, CMOS, SiGe BiCMOS, and InGaP platforms.
- **Custom RFIC Development** – End-to-end design from architecture to production support.
- **Complete RF Front-End Portfolio** – LNAs, Driver Amplifiers, PAs, Mixers, RF Switches, FEMs, and more.
- **High-Performance RF Design** – Optimized for high gain, ultra-low noise, and excellent linearity.



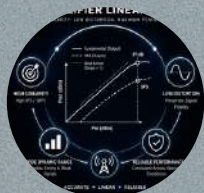
Broadband RF & Millimeter-Wave Technology

Signify RF develops broadband RFICs and MMICs covering frequencies from DC to 50 GHz, with design expertise extending into the millimeter-wave spectrum. Advanced circuit architectures deliver excellent gain flatness, impedance matching, and stable performance for multi-band RF systems.



Ultra-Low Noise & High Dynamic Range

Signify RF designs high-performance receiver solutions with noise figures as low as 0.6 dB at 4 GHz, maximizing receiver sensitivity and dynamic range. These innovations enhance signal detection in satellite communications, phased-array radar, wireless infrastructure, and precision instrumentation.



High-Linearity & Efficient Transmit Solutions

Signify RF develops Driver and Power Amplifier technologies that combine excellent linearity, high gain, and optimized power efficiency. Our amplifier architectures preserve signal integrity while meeting the demanding performance requirements of modern communication and radar transmitters.



Advanced Semiconductor Technology Platform

Signify RF leverages proven GaAs pHEMT, GaN, CMOS, SiGe BiCMOS, and InGaP technologies to develop high-performance RFICs tailored to diverse application requirements. Our technology expertise enables the optimal balance of frequency, power, efficiency, integration, and reliability.



Integrated RF Front-End Solutions

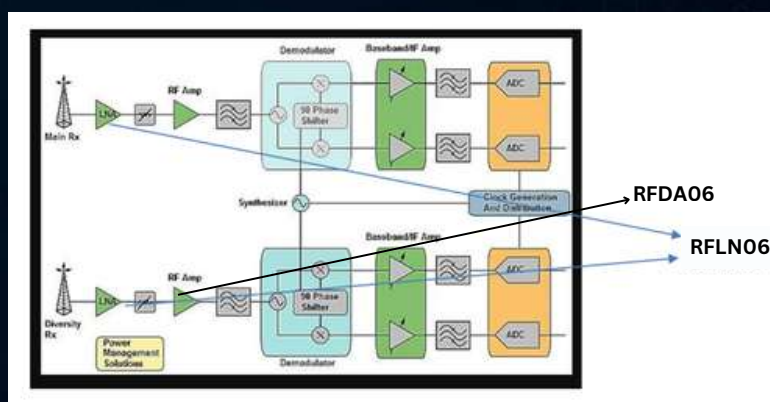
Signify RF offers highly integrated RF building blocks, including LNAs, Driver Amplifiers, Power Amplifiers, RF Switches, Mixers, Phase Shifters, Frequency Multipliers, Voltage Detectors, Differential Amplifiers, and Front-End Modules (FEMs). These solutions simplify RF system integration while reducing board space, component count, and development time.

POTENTIAL ARCHITECTURES FOR OUR IPS

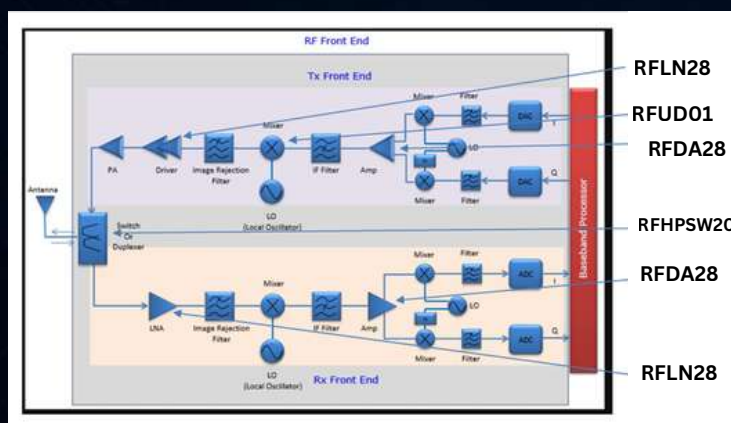
Our IPs are designed to deliver high-performance Signify RF with exceptional efficiency and reliability, tailored for diverse applications. We prioritize cost-effectiveness, ensuring our clients receive cutting-edge technology that meets their budgetary and technical requirements.

Design Architecture sub 6 5G Base station

A sub-6 GHz 5G base station architecture integrates a multi-channel RF transceiver with Power Amplifiers (PAs) and Low Noise Amplifiers (LNAs) for massive MIMO and beamforming. The digital baseband processor interfaces with the RF chain, optimizing signal modulation, demodulation, and spectral efficiency.



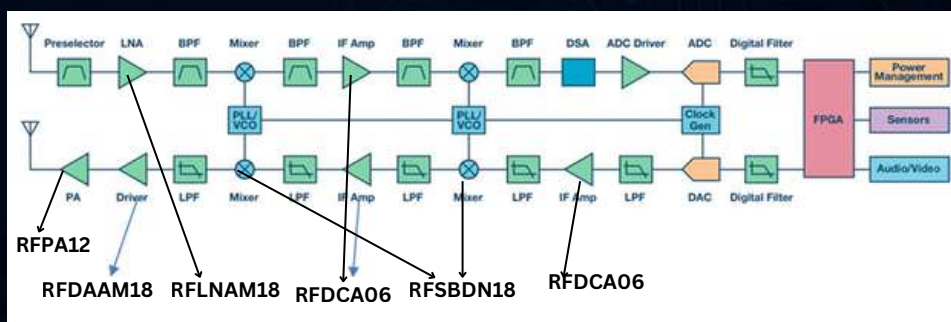
RF Front End for the 5G Transceiver



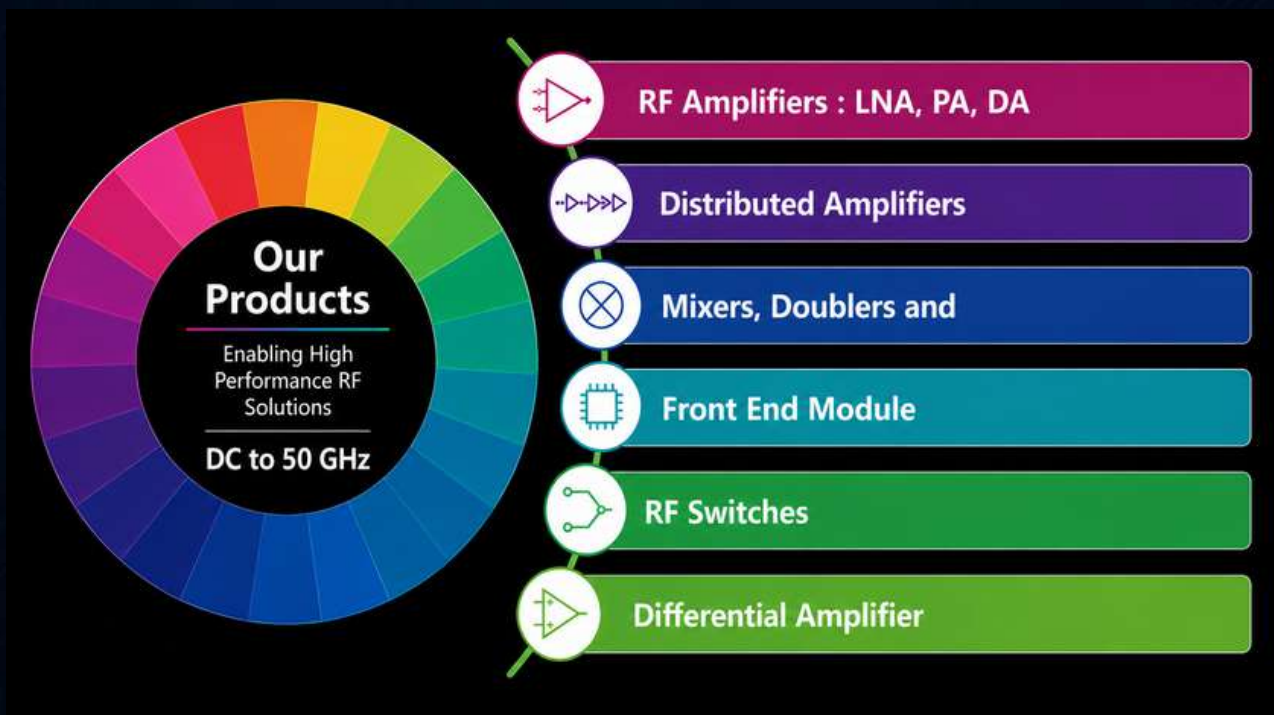
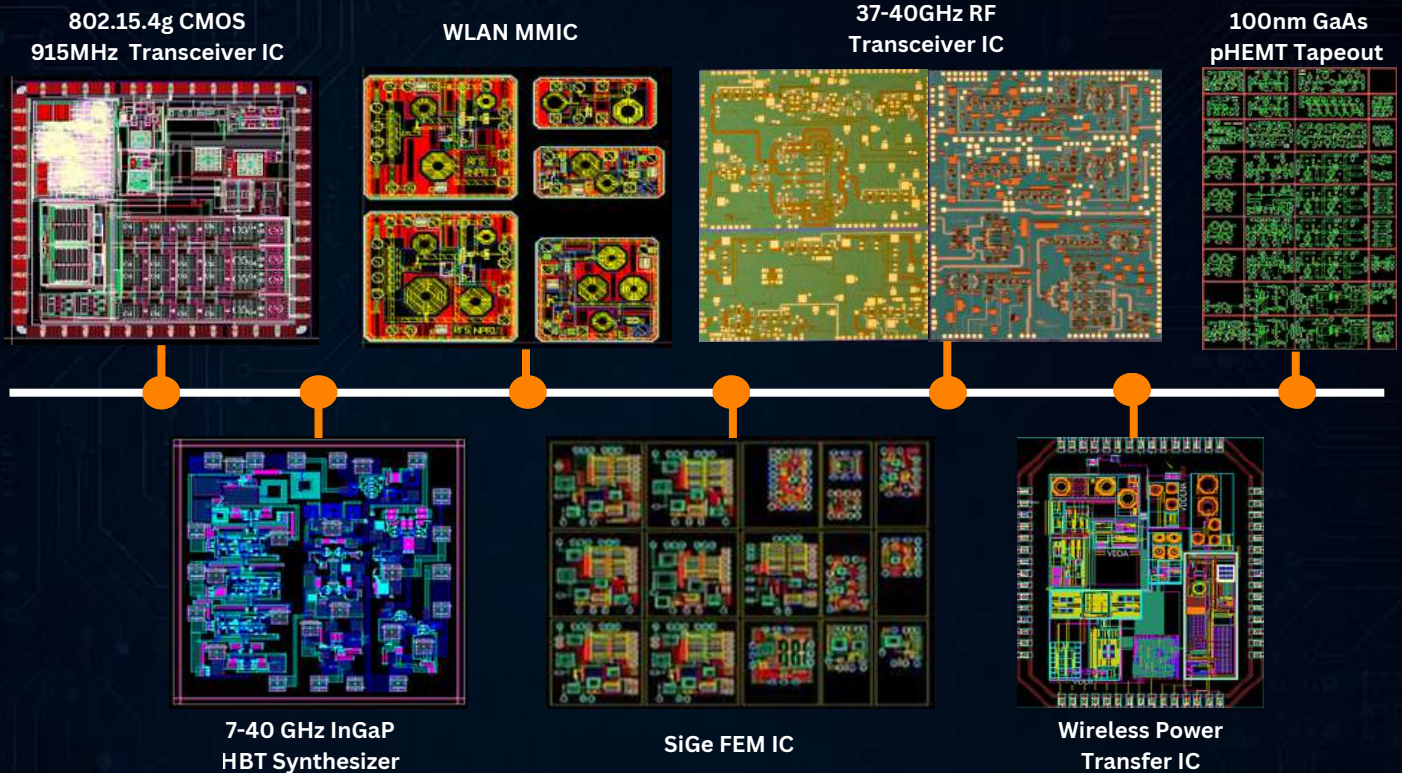
The RF front-end architecture for a 5G transceiver typically includes a Low Noise Amplifier (LNA) for signal reception, a Power Amplifier (PA) for signal transmission, and RF switches to toggle between transmit (TX) and receive (RX) paths. Integrated filters and duplexers ensure signal integrity by reducing interference and isolating TX/RX channels. Advanced designs may include beamforming support for mmWave frequencies and support for multiple-input multiple-output (MIMO) configurations.

Traditional Ku-band superheterodyne transceiver chain

A traditional Ku-band superheterodyne transceiver chain includes a Low Noise Amplifier (LNA) for RF signal amplification, a mixer for downconversion to an intermediate frequency (IF), followed by filtering and amplification stages. For transmission, an upconverter converts the IF signal back to Ku-band RF, amplified by a Power Amplifier (PA), and sent through a high-gain antenna.



ROADMAP FOR STATE OF THE ART TECHNOLOGIES



PROCESS TECHNOLOGIES EXPERTISE

