

Highly integrated 5G mmWave mobile FEMs & TRXs using 22FDX RF

Optimize performance, power and area in a single chip



2 of top 3

5G mmWave FEM design companies are designing with 22FDX RF.*



1st & only

22FDX RF is the industry's only solution enabling a single-chip 5G mmWave radio architecture.

~2X + ~20% → 10%

better output power total power savings better battery life

PAs built on 22FDX RF offer dramatic power advantages.†



After years of anticipation, the hype surrounding 5G devices is becoming reality. Crazy-fast downloads, buffer-free live streaming of ultra HD video, more immersive games and other user experiences not previously possible are on the horizon. All this made possible by more powerful, ever sleeker devices that still fit in the palm of a hand or on a wrist.

22FDX® RF from GlobalFoundries (GF®) enables you to integrate critical front-end module (FEM) elements, including data converters, low noise amplifiers (LNAs), power amplifiers (PAs) and switches, with the transceiver (TRX). The result is a mmWave radio solution that delivers the superior RF power efficiency and performance levels these revolutionary 5G mobile devices demand, in an optimized footprint.‡

22FDX RF at a glance

Platform	Key features
22FDX	<ul style="list-style-type: none"> • 22 nm FD-SOI with RF & LDMOS • Ultra-low power (0.4 V logic) • Superior F_{max} (> 350 GHz), using planar device structure • Device stacking



Elevate and integrate designs:

22FDX RF offers up to a 10% area scaling advantage[‡] and is the industry’s only solution that enables a fully integrated 5G mmWave radio architecture, so you can leverage the saved space to add other advanced features.



Extend battery life:

22FDX RF PAs deliver performance, power and thermal efficiency advantages so consumers can enjoy up to 10% longer battery life.[‡]



Boost range:

22FDX RF provides superior noise figure and switch insertion loss performance that can help boost signal quality and extend signal reach up to 6% for fewer dropped connections and better sounding calls.[⋄]



Keep it cool:

22FDX RF PAs generate less heat[‡], and in applications needing up to 20 dBm P_{sat}, can be fully integrated without the need of power combiners for smaller devices, and without the overheating worries.

LEARN MORE

GF knows RF. Learn how our extensive mobile solutions portfolio can help you extend your 5G leadership at globalfoundries.com/contact-us

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5G cellular radio solutions from GF

Solution	Application	Benefits
45RFSOI	5G mmWave	Superior performance with high P _{sat} (up to 23 dBm) for premium smartphones
22FDX RF	5G mmWave	Superior performance with highest level of integration & high P _{sat} (up to 20 dBm) for premium smartphones
8SW RF SOI	5G sub-6 GHz	Outstanding performance for premium & high-tier smartphones
7SW RF SOI	4G LTE & 5G	Great performance for entry & mid-tier smartphones, smart watches & other connected mobile devices

* Current estimate based on design win pipeline.

‡ Compared to bulk CMOS.

⋄ Assumes 28 GHz band, TX and RX antenna gain of 20 dB, line of sight communication.

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