

5G mmWave mobile FEMs using 45RFSOI

Boost RF performance, signal power and reliability


\$1B

More than one billion dollars in 45RFSOI design wins*


1st

Industry's first and only Foundry with post-fab RF turnkey services.



Mobile devices have become more feature packed and indispensable each successive generation. With 5G rollouts promising ultrafast data rates over wider coverage areas, we will expect more from these devices, demanding glitch-free performance for even the most high-bandwidth uses, such as 8K video streaming. Making these advances possible requires new dimensions of innovation.

GlobalFoundries (GF®) delivers this innovation with 45RFSOI. Optimized for 5G mmWave cellular front-end module (FEM) applications, 45RFSOI combines high transmission power capabilities with industry-leading mmWave performance and reliability[‡] for beamformers and integrable low-noise amplifiers (LNAs), power amplifiers (PAs) and switches.

45RFSOI at a glance

Platform	Key features [‡]
45 nm PD-SOI	<ul style="list-style-type: none"> • 23 dBm P_{sat} at > 40% PAE[†] for PAs, with 10-year operation • Innovative, output-power enhanced PA FET • High f_t/f_{max} and device stacking • Lower insertion loss and noise figure



Stretch your reach: 45RFSOI delivers superior f_t/f_{max} , P_{max} , insertion loss, gain and noise figure benefits that help maximize connectivity properties and range, so consumers can keep enjoying data-greedy apps even when there's no cell tower in sight.



Nix the noise: 45RFSOI is built on a high-resistivity substrate and uses loss-optimized, back-end-of-line processing to improve noise isolation and harmonics suppression for high-quality, interference-free connections.



Amp up battery life: PAs that leverage 45RFSOI deliver the higher power gain and efficiency—up to 23 dBm P_{sat} at > 40% PAE—that can help extend battery life when you're on the go, and keep your smartphone cool when you're downloading that full-length 8K video.



Pack more into less space: 45RFSOI lets you integrate multiple RF elements into mmWave FEMs that have superior transmission power—or develop beamformers that use fewer chips for smaller, more cost-effective arrays.



Fast track time to market: Get your products to market faster with the industry's only Foundry with RF post-fab turnkey services, which feature proprietary mmWave test capabilities and that enable you to tap into unrivalled RF expertise built on two decades of experience.

LEARN MORE

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

Contact Us



5G cellular radio solutions from GF

22FDX™ RF	22FDX RF+	45RFSOI
Superior performance with highest level of integration and up to 20 dBm P_{sat} (with power combiners) for 5G mmWave smartphones	Superior performance with digital and RF enhancements that deliver 30% better IL and $R_{on} * C_{off} †$ for 5G mmWave smartphones	Superior performance with high P_{sat} (up to 23 dBm) for 5G mmWave smartphones
7SW RF SOI	8SW RF SOI	
Great performance for entry and mid-tier 4G LTE and 5G sub-6 GHz smartphones, smart watches and other connected mobile devices	Outstanding performance for premium and high-tier 5G sub-6 GHz smartphones	

* For both mobile and wireless infrastructure applications.

‡ Compared to bulk CMOS and competitive offerings.

◇ At 26 GHz.

† Compared to 22FDX RF.

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