

# 5G mmWave cellular infrastructure and SATCOM 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.

 **1st**

Get accurate aging, ruggedness and lifetime predictions before design tape out with industry's first silicon-validated mmWave reliability model.

5G smartphones are already available. This availability, combined with rising expectations for high-bandwidth immersive user experiences such as always-available HD video streaming and multi-user video conferencing, is fueling the demand for rapid deployment and expansion of 5G and satellite communication (SATCOM) networks so 5G can live up to its hype.

The GlobalFoundries (GF®) 45RFSOI solution offers unparalleled performance for 5G mmWave applications. Optimized for 5G mmWave cellular front-end module (FEM) and SATCOM applications, 45RFSOI combines high transmission power capabilities with industry-leading mmWave performance and reliability<sup>∇</sup> for beamformers and integrable low-noise amplifiers (LNAs), power amplifiers (PAs) and switches.

## 45RFSOI at a glance

Platform	Key features <sup>∇</sup>
45 nm PD-SOI	<ul style="list-style-type: none"> <li>FET stacking for 23 dBm <math>P_{sat}</math> at &gt; 40% PAE<sup>†</sup> for PAs, with high reliability (up to 10-year operation)</li> <li>Innovative, output-power enhanced PA FET</li> <li>Higher <math>P_{max}</math> and <math>F_{max}</math> combined with lower noise figure per element for area and system-level cost efficiencies</li> </ul>


**Maximize coverage:**

45RFSOI delivers superior  $f_t/f_{max}$ ,  $P_{out}$ , 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.


**Boost mmWave performance:**

With a trap-rich, high-resistivity substrate and back-end-of-line processing featuring thick copper levels that reduce transmission line and parasitic losses, 45RFSOI helps you take mmWave performance to the next level with best-in-class LNA and switch performance.


**Performance and reliability you can count on:**

45RFSOI provides tools you need to maximize reliability and performance, offering the industry's first silicon-validated reliability model and PAs that deliver up to 23 dBm  $P_{sat}$  at > 40% PAE to help reduce power dissipation and overheating issues.


**Minimize total cost of ownership:**

45RFSOI enables you to achieve greater coverage using fewer base stations or equal coverage using smaller, lower-power base stations.†


**Get results faster:**

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 cellular infrastructure and SATCOM solutions portfolio can help you extend your 5G leadership at [globalfoundries.com/contact-us](https://globalfoundries.com/contact-us)

**Contact Us**

**GF 5G cellular infrastructure and SATCOM solutions**

<b>22FDX™ RF</b> Superior performance with highest level of integration and up to 20 dBm $P_{sat}$ (with power combiners) for 5G mmWave cellular infrastructure and SATCOM FEMs and beamformers	<b>22FDX RF+</b> Superior performance with digital and RF enhancements that deliver 30% better IL and $R_{on} * C_{off}†$ for 5G mmWave cellular infrastructure and SATCOM FEMs and beamformers	<b>45RFSOI</b> Superior performance with high $P_{sat}$ (up to 23 dBm) for 5G mmWave cellular infrastructure and SATCOM FEMs and beamformers
<b>8SW RF SOI</b> Outstanding performance for 5G sub-6 GHz cellular infrastructure FEMs	<b>SiGe HP</b> High performance and efficiency with $P_{sat} > 23$ dBm for 5G sub-6 GHz and mmWave cellular infrastructure and SATCOM discrete power amplifiers	

\* For both mobile and wireless infrastructure applications.

‡ Compared to bulk CMOS and competitive offerings.

◇ At 26 GHz.

† Compared to 22FDX RF.