



## 5G mmWave cellular infrastructure and SATCOM FEMs using 45RFSOI

Boost RF performance, signal power and reliability

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 for beamformers and integrable low-noise amplifiers (LNAs), power amplifiers (PAs) and switches.

### 45RFSOI at a glance†

Platform	Key Features
45 nm PD-SOI	FET stacking for 23 dBm Psat at > 40% PAE‡ for PAs, with high reliability (up to 10-year operation)
	Innovative, output-power enhanced PA FET
	Higher Pmax and Fmax combined with lower noise figure per element for area and system-level cost efficiencies

More than one billion dollars in 45RFSOI design wins.\*

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

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

**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 takes mmWave performance to the next level with best-in-class LNA and switch performance.

**Performance and reliability you can count on:**  
 45RFSOI provides the tools needed to maximize reliability and performance. GF offers the industry's first silicon-validated reliability model and PAs that deliver up to 23 dBm  $P_{sat}$  at > 40% PAE which helps reduce power dissipation and overheating issues.

**Minimize total cost of ownership:**  
 45RFSOI enables customers to achieve greater coverage using fewer base stations or equal coverage using smaller, lower-power base stations.◊

**Get results faster:**  
 Tap into GF's unrivaled RF expertise built on two decades of experience and partner with the industry's only Foundry with RF post-fab turnkey services, which feature proprietary mmWave test capabilities to get your products to market faster.

## LEARN MORE

### GF 5G cellular infrastructure and SATCOM solutions

### Contact Us



#### 22FDX™ RF

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

#### 22FDX RF+

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

#### 45RFSOI

Superior performance with high  $P_{sat}$  (up to 23 dBm) for 5G mmWave cellular infrastructure and SATCOM FEMs and beamformers

#### 8SW RF SOI

Outstanding performance for 5G sub-6 GHz cellular infrastructure FEMs

#### SiGe HP

High performance and efficiency with  $P_{sat}$  > 23 dBm for 5G sub-6 GHz and mmWave cellular infrastructure and SATCOM discrete power amplifiers

GF knows RF. Learn how GF's extensive cellular infrastructure and SATCOM solutions portfolio strengthens customers' 5G leadership position at [gf.com/contact-us](https://www.gf.com/contact-us)

\* For both mobile and wireless infrastructure applications.

‡ Compared to bulk CMOS and competitive solutions.

◊ At 26 GHz.

† Compared to 22FDX RF.