



## 5G mmWave mobile FEMs using 45RFSOI

Boost RF performance, signal power and reliability

Mobile devices have become more feature-packed and indispensable each successive generation. With 5G rollouts promising ultrafast data rates over wider coverage areas, consumers are expecting more from their devices. Making advances like glitch-free, high-bandwidth 8K video streaming 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<sup>9</sup> for beamformers and integrable low-noise amplifiers (LNAs), power amplifiers (PAs) and switches.

### 45RFSOI at a glance<sup>†</sup>

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

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

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


**Stretch your reach:**

45RFSOI delivers superior  $f_t/f_{max}$ ,  $P_{max}$ , insertion loss, gain and noise figure benefits that 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 have higher power gain and efficiency—up to 23 dBm  $P_{sat}$  at > 40% PAE—and deliver extended battery life to consumers when they're on the go and keep their smartphones cool when downloading that full-length 8K video.


**Pack more into less space:**

45RFSOI enables the integration of 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:**

Tap into GF's unrivaled RF expertise build 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 smartphones

**22FDX RF+**

Superior performance with digital and RF enhancements that deliver 30% better IL and  $R_{on} * C_{off}^{\dagger}$  for 5G mmWave smartphones

**45RFSOI**

Superior performance with high  $P_{sat}$  (up to 23 dBm) for 5G mmWave smartphones

**7SW RF SOI**

Great performance for entry and mid-tier 4G LTE and 5G sub-6 GHz smartphones, smart watches and other connected mobile devices

**8SW RF SOI**

Outstanding performance for premium and high-tier 5G sub-6 GHz smartphones

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

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