5G Telecommunications Push Up Demand; 2020 Sees New Growth Momentum for GaAs RF Components, Says TrendForce

2019-07-08 TrendForce

According to TrendForce's latest report, current RF front end component manufacturers are gradually turning to GaAs chips as their main material of choice, according to the functional requirements of the phone component in question. As 5G becomes more and more widespread, the number of RF components used will double compared to that of the 4G era. Both of these factors are expected to herald a new period of growth for the GaAs RF component market beginning from 2020.

TrendForce points out that, due to the characteristics required of RF components, such as resistance to high voltages, temperatures and frequencies, are much needed in the 4G and 5G eras, traditional Si components such as HBTs and CMOSs just won't cut it anymore . Suppliers are therefore turning to semiconductors made with GaAs compounds. Semiconductors made with these compounds are especially suited to high frequency transmission applications in wireless telecommunications, since electron mobility is higher in these materials than in Si components, as well as due to characteristics such as anti-interference, low noise and resistance to high voltages.

Since the frequencies used for telecommunication between phones in the 4G era have already moved to the 1.8-2.7 GHz range, traditional 3G Si RF front end components are no longer adequate. Furthermore, with the 5G telecommunications market recently entering a period of rapid growth, the frequency range available for use will expand (including the 3-5 GHz range and the 20-30 GHz range). Thus we will be seeing RF components in 4G and 5G telecommunication applications gradually switching to GaAs materials.

Judging from current market developments, the revenues of GaAs telecommunication component IDMs were impacted by falling phone shipments in 2H18 and the US-China trade dispute, with the total revenue of IDMs in 2019 to slide to US$5.835 billion, a 8.9% decline YoY. However, the development of 5G telecommunications will significantly raise the number of RF front end components used. For example, the number of power amplifiers (PA) used had risen from 2 in the 3G era to 5-7 in the 4G era, and will go on to become 16 in the 5G era, bringing total revenue up in 2020. The total revenue from GaAs RF components are forecast to reach US$6.492 billion, a YoY growth of 11.3%.

Overall, as countries continue to install 5G base stations and other infrastructures, an activity that is projected to reach peak prevalence in 2021 and 2022, and RF front end component usage doubles compared to the 4G era, major IDMs including Skyworks and Qorvo may enjoy new growth momentum in revenues, while Taiwan RF foundries WIN, Advanced Wireless Semiconductor Company (AWSC) and KY will acquire orders and see an end to declining revenue as IDMs raise production capacity.

About TrendForce

TrendForce is a global provider of the latest development, insight, and analysis of the technology industry. Having served businesses for over a decade, the company has built up a strong base membership base of 435,000 subscribers. TrendForce has established a reputation as an organization that offers insightful and accurate analysis of the technology industry through five major research divisions: DRAMXchange, WitsView, LEDinside, EnergyTrend and Topology. Founded in Taipei, Taiwan in 2000, TrendForce has extended its presence in China since 2004 with offices

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Source URL: Trendforce - Press Center 5G Telecommunications Push Up Demand; 2020 Sees New Growth Momentum for GaAs RF Components, Says TrendForce