

# Global and China RF Industry Report, 2013-2014

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## Abstracts

This report studies GaAs RF components, including:

Introduction to GaAs

Analysis on GaAs Industry

Analysis on RF downstream market

Trends of mobile RF systems

19 RF companies

Qualcomm's RF360 design is changing the entire mobile RF industry revolutionarily. GaAs PA is facing a fierce attack from CMOS PA. Qualcomm's CMOS PA subverts the opinion that CMOS PA can only be used on low-end phones. Specifically for CMOS PA, Qualcomm designs QFE1100, which is a front-end module involved with envelope tracking technology. QFE1100 can help CMOS PA improve thermal efficiency, reduce heat by 30% and cut down power consumption by 20%.

ZTE's flagship mobile phone Grand S II LTE uses Qualcomm's CMOS PA - QFE2320 and QFE2340 for the first time. The combination of QFE2320 and QFE2340 can cover all major cellular modes, including LTE TDD / FDD, WCDMA / HSPA +, CDMA 1x, TD-SCDMA and GSM / EDGE, with the RF band of 700MHz to 2700MHz. Qualcomm has basically monopolized smartphone Modem or CPU markets, and may dominate the PA field. However, mobile phone vendors will still cooperate with GaAs PA suppliers in

order to ensure their equal status.

Nevertheless, the focus of mobile RF industry has been shifting from PA to filter. In the 4G era, the most valuable part of mobile RF system is filter, especially BAW, rather than PA. The biggest difference between 4G and 3G lies in BAW which is an essential part for 4G. A regional LTE phone needs a BAW valued USD1.25, a SAW worth USD2.25 and a PA which only costs USD1.75. As for a global roaming LTE phone, a SAW tagged with USD3, a BAW with USD3.5 and a PA with USD2 are required.

The biggest event in the RF industry in 2014 must be RFMD's takeover on Triquint. Triquint suffered consecutive losses in 2012-2013; in Q1 2014, its revenue fell by 3.6% year on year, and its operating margin was negative 11.3% (negative 18.8% in the same period of previous year, negative 3.2 % in the fourth quarter of previous year). The company's losses were mainly attributed to the aggressive capacity expansion (as much as seven manufacturing centers) before 2011 and excessive expectations. Additionally, Triquint showed serious dependence on large customers, particularly 57% of its revenue came from Apple. On the contrary, RFMD just went out of its predicament. RFMD placed undue reliance on its client NOKIA in its early years, but it witnessed poor performance in 2011-2012 under the impact of NOKIA. However, RFMD recovered in 2013 and its operating revenue increased substantially. RFMD took a fancy to Triquint's BAW technology.

## Contents

### **1 OVERVIEW OF GAAS**

- 1.1 Introduction
- 1.2 Application
- 1.3 Comparison between GaAs, GAN and SIGE
- 1.4 GaAs Manufacturing Process
  - 1.4.1 BiHEMT
  - 1.4.2 BiHEMT

### **2 GAAS INDUSTRY**

- 2.1 Industry Chain
- 2.2 Global Capacity
- 2.3 Supply and Demand
- 2.4 Ranking of Enterprises

### **3 GAAS DOWNSTREAM MARKETS**

- 3.1 Network Equipment
- 3.2 Mobile Phones
- 3.3 Global Mobile Phone Market Size
- 3.4 Smart Phone Market and Industry
- 3.5 Chinese Mobile Phone Market and Industry
- 3.6 Tablet PC
- 3.7 Laptop Computer

### **4 WIRELESS RF FRONT-END SYSTEM**

- 4.1 Analysis on RF System of Latest Mobile Phones and Tablet PCs
- 4.2 Mobile RF Front-end System
- 4.3 Mobile Filter
  - 4.3.1 BAW and SAW
  - 4.3.2 TDK-EPC
- 4.4 Mobile Phone Antenna Switch
- 4.5 Mobile Phone
- 4.6 Relationship between Mobile PA and Mobile Phone Brands
- 4.6 QUALCOMM RF

#### 4.7 Comparison between GaAs PA, RF MEMS and CMOS PA

### **5 GAAS ENTERPRISES**

5.1 MURATA

5.2 KOPIN

5.3 Semiconductor Division of Sumitomo Electric

5.4 FREIBERGER

5.5 AXT

5.6 IQE

5.7 WIN Semiconductor

5.8 AWSC

5.9 VPEC

5.10 GCS

5.11 TRIQUINT

5.12 AVAGO

5.13 ANADIGICS

5.14 RFMD

5.15 RDA

5.16 SKYWORKS

5.17 SEDI

5.18 HITTITE MICROWAVE

5.19 M/A-COM TECHNOLOGY

## Selected Charts

### SELECTED CHARTS

Major GaAs Industry Chain Enterprises

Capacity of Major Global GaAs IDM Enterprises, 2008-2013

Capacity of Major Global GaAs Foundry Vendors, 2008-2013

Global GaAs Demand, 2010-2015E

Market Share of Global GaAs Enterprises by Capacity

Global Wireless Home Network Device Shipment, 2010-2015E

Global Wireless Corporate Network Device Shipment, 2010-2015E

Global Wi-Fi Device Shipment, 2010-2014

Proportion of 4G Mobile Phones, 2010-2015E

PA Usage per Mobile Phone, 2010-2015E

Global Mobile Phone Shipment, Q1 2011-Q4 2013

Global Mobile Phone Shipment, 2007-2014

Global 3G/4G Mobile Phone Shipment by Region, 2011-2014

Worldwide Smartphone Sales to End Users by Vendor in 2013 (Thousands of Units)

Worldwide Smartphone Sales to End Users by Operating System in 2013 (Thousands of Units)

Worldwide Mobile Phone Sales to End Users by Vendor in 2013 (Thousands of Units)

Shipment and Market Share of Smartphone Operating System, Q2 2013

Shipment and Market Share of Major Android Phone Vendors, Q2 2013

Shipment and Market Share of Major Windows Smartphone Vendors, Q2 2013

Smartphone Shipment of Major Vendors in China, 2011-2013

Monthly Mobile Phone Output in China, Feb-Dec, 2013

Monthly Mobile Phone Export value in China, 2013

Monthly Revenue and Profit of China's Mobile Phone Industry, Feb-Dec, 2013

Global Tablet PC Shipment, 2011-2016E

Market Share of Major Tablet PC Brands, 2013

Output of Global Tablet PC Manufacturing Enterprises, 2012-2013

Laptop computer Shipment, 2008-2015E

Shipment of Major Global Laptop ODM Vendors, 2010-2013

Handset and Tablets –RF Architecture

SAMSUNG GALAXY S4 RF System

GOOGLE NEXUS 4 RF System

IPHONE 5 RF System

Mobile Phone Filter and Duplexer Market Size, 2010-2016E

Market Share of Major BAW and SAW Enterprises, 2011

Premium Filter Market Size, 2013-2016E  
Band Distribution of BAW and SAW  
Contrast between BAW and SAW  
TDK-EPC's Revenue and EBIT, 2008-2011  
TDK-EPC's Revenue by Product, 2008-2011  
Mobile Phone Antenna Switch Shipment by Technology, 2010-2016E  
Market Share of Major Global Mobile Phone Antenna Switch Enterprises, 2012  
Revenue of Major Global Mobile Phone PA Enterprises, 2010-2012  
Market Share of Major 3G and 4G Mobile Phone PA Enterprises, 2011  
Market Share of Major 3G and 4G Mobile Phone PA Enterprises, 2012  
Market Share of Major 2G Mobile Phone PA Enterprises, 2011  
Major Mobile Phone PA Supplier Structure of Nokia, 2010-2012  
Major Mobile Phone PA Supplier Structure of Samsung, 2010-2012  
Major Mobile Phone PA Supplier Structure of LG, 2010-2012  
Share of Major Enterprises in Chinese Grey Brand Mobile Phone PA Market, 2011-2012  
Major Mobile Phone PA Supplier Structure of APPLE, 2011-2012  
RF360 Architecture  
Murata's Sales and Operation Margin, FY2009-FY2014  
Murata's Sales by region, FY2009-FY2013  
Murata's Revenue, New Orders and Backlog, Q3 FY2010- Q3 FY2013  
Murata's Operating Profit and Net Income, Q3 2010- Q3 2013  
Murata's Order by Product, FY12Q1-FY13Q3  
Murata's Sales by Product, FY12Q1-FY13Q3  
Murata's Sales by Application, FY12Q1-FY13Q3  
Market Share of Global GaAs Epilayer Enterprises, 2010-2011  
Kopin's Global Distribution  
KOPIN's Revenue and Operating Margin, 2006-2011  
KOPIN's Revenue by Business, 2008-2011  
KOPIN's Revenue by Client, 2008-2011  
AXT's Revenue and Operating Margin, 2004-2013  
AXT's Revenue by Product, 2006-2013  
AXT's Revenue by Region, 2006-2013  
IQE's Revenue and Operating Margin, 2005-2013  
IQE's Revenue by Business, 2008-2013  
IQE's Revenue by Region, 2008-2013  
Organizational Structure of WIN Semiconductor  
Divisions of WIN Semiconductor  
Revenue and Operating Margin of WIN Semiconductor, 2006-2013  
Monthly Revenue of WIN Semiconductor, Mar 2012- Mar 2014

Capacity of WIN Semiconductor, 2005-2013  
Output of WIN Semiconductor Production Yield, 2009-2013  
Core Competitiveness of WIN Semiconductor  
AWSC's Organizational Structure  
AWSC's Revenue and Gross Margin, 2006-2014  
AWSC's Monthly Revenue, Mar 2012- Mar 2014  
VPEC's Revenue and Operating Margin, 2005-2013  
VPEC's Monthly Revenue, Mar 2012- Mar 2014  
VPEC's Revenue by Product, Q1 2012-Q4 2013  
TRIUNIT's Revenue and Gross Margin, 2001-2013  
TRIUNIT's Revenue and Operating Margin, 2008-2013  
TRIUNIT's Revenue by Business, 2005-2013  
TRIUNIT's Mobile Phone Revenue by System, 2005-2013  
Revenue of TRIUNIT's Network Division by Product, 2011-2013  
Trends of Smartphone RF Architecture  
AVAGO's Revenue and Operation Margin, FY2004-FY2014  
AVAGO's Revenue by Segment, FY2007-FY2013  
AVAGO's Revenue by Region, FY2011-2013  
Revenue and Gross Margin of ANADIGICS, 2003-2013  
Revenue of ANADIGICS by Client, 2007-2013  
Revenue of ANADIGICS by Business, 2005-2012  
Revenue of ANADIGICS by Region, 2008-2013  
RFMD's Revenue and Operating Margin, FY2002-2014  
RFMD's Revenue by Division, FY2009-2014  
RFMD's Revenue by Region, FY2010-2013  
RDA's Revenue and Operating Margin, 2007-2013  
RDA's Revenue, Q1 2009-Q1 2012  
RDA's Baseband Product Roadmap  
RDA's Product Roadmap  
RDA's Main Customer  
RDA's Gross Margin, Q1 2011-Q1 2013  
RDA's Market Share in China  
RDA's Product Schedule  
RDA's Revenue by Product  
Revenue and Gross Margin of SKYWORKS, FY2007-FY2014  
Revenue and Operating Margin of SKYWORKS, FY2007-FY2014  
Expenses of SKYWORKS, FY2007-FY2013  
Revenue of SKYWORKS by Region, FY2005-FY2013  
Revenue of SKYWORKS by Client, FY2007-FY2013

Revenue and Operating Profit of Hittite Microwave, 2007-2013

M / A-COM Revenue and Operating Profit, 2007-2013

M / A-COM Revenue by Product, 2010-2012



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