



Company Profile

World-class leading edge with MOCVD

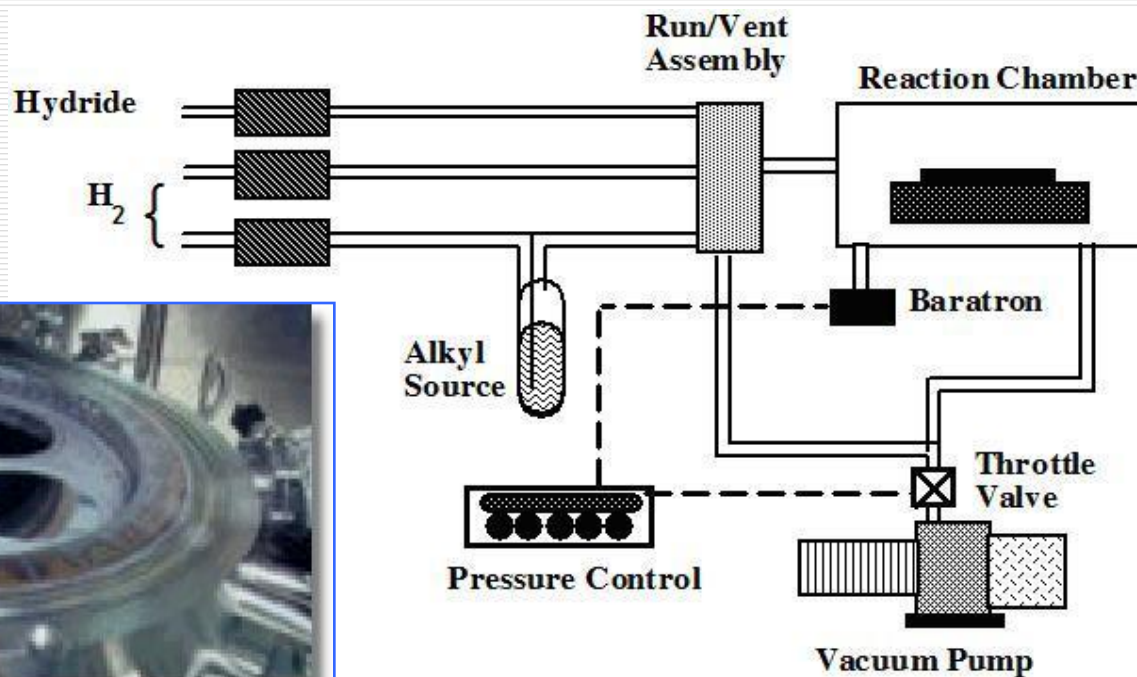




Core Technology

MOCVD (有機金屬氣相沉積法)

- Metal Organic Chemical Vapor Deposition





Core Technology

Production
Reactor

MOCVD Metal Organic Chemical Vapor Deposition

Way to
Produce

Through the organic metal chemical vapor deposition method, the semiconductor film is grown on the substrate, and the epitaxial layer is accurately controlled through the real-time monitoring of the machine to complete the production of epitaxial wafers for different products such as GaAs 、 InP and GaN.

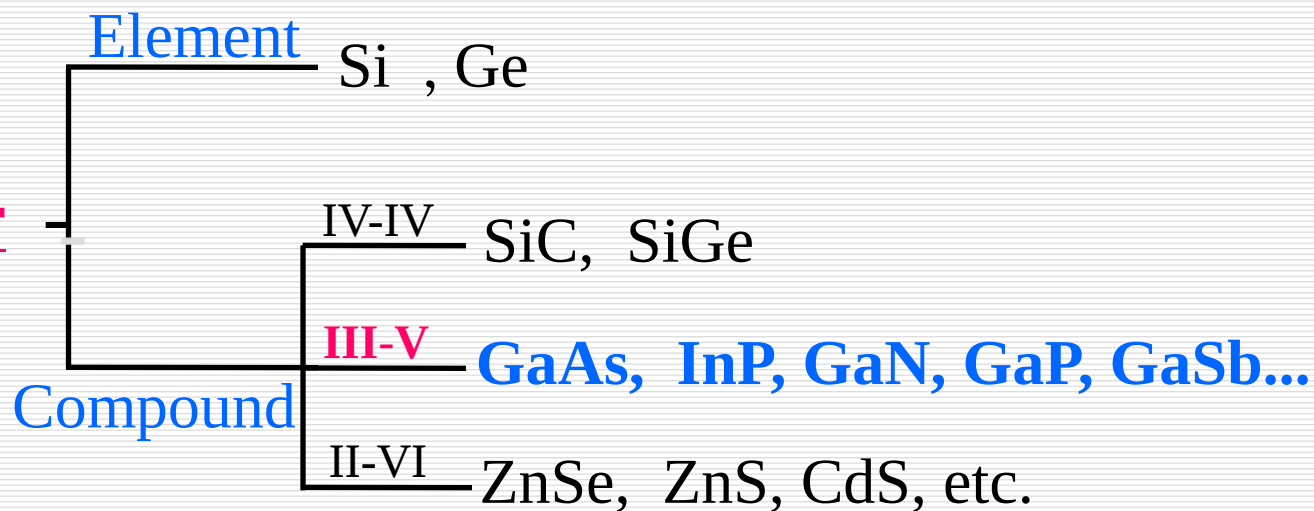
Production
Principle

The epitaxial layer is heated by MOCVD in the cavity of the substrate, and an atomic layer is stacked layer by layer to form an epitaxial layer.



Semiconductor (by Material)

Semiconductor



Period	Column II	III	IV	V	VI
2	Be 鈹 Beryllium	B 硼 Boron	C 碳 Carbon	N 氮 Nitrogen	O 氧 Oxygen
3	Mg 鎂 Magnesium	Al 鋁 Aluminum	Si 矽 Silicon	P 磷 Phosphorus	S 硫 Sulfur
4	Zn 鋅 Zinc	Ga 鎵 Gallium	Ge 鍺 Germanium	As 砷 Arsenic	Se 硒 Selenium
5	Cd 鎘 Cadmium	In 銦 Indium	Sn 錫 Tin	Sb 銻 Antimony	Te 碲 Tellurium
6	Hg 汞 Mercury	Tl 鉍 Thallium	Pb 鉛 Lead		

二元化合物 Binary : GaAs, InP, GaP, GaN, etc.

三元化合物 Ternary : InGaAs, InGaP, AlGaAs, etc.

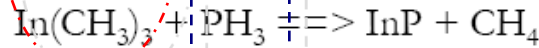
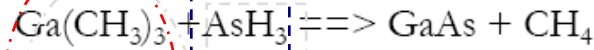
四元化合物 Quaternary : AlGaInP, InGaAsP, etc.

五元化合物 Pentanary : AlGaInAsN, etc.



Chemical Reaction During Epitaxy

化學反應式：



主要原物料：

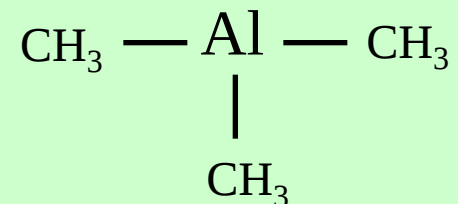
MO Source + **Hydride** + Carrier Gas : **H₂**

TEAl : Tri-ethyl-Aluminum (C_2H_5)₃Al
TMGa : Tri-Methyl-Gallium (CH_3)₃ Ga
TMIn : Tri-Methyl-Indium (CH_3)₃In
DETe : Di-ethyl-Tellurium (C_2H_5)₂Te
DEZn : Di-ethyl-Zinc (C_2H_5)₂Zn
CP₂Mg : Bis (cyclo-penta-dienyl) -Magnesium 環戊二烯鎂

AsH₃ : Arsine
PH₃ : Phosphine
SiH₄ : Silane
Si₂H₆ : Disilane
H₂Se : Hydrogen Selenide
CBr₄ : Carbon Tetrabromide

TMAI Tri - Methyl - Aluminum (CH_3)₃Al

三 甲 基 鋁





Advantages of Compound Semiconductor

1. High Electron Mobility 高電子移動速率 (5.7x higher than CMOS)
2. High Frequency Response 高頻率響應
3. Wide Band Width 寬幅之頻寬
4. High Linearity 高線性度
5. High Power 高功率
6. Alternative Choice of Material 材料選擇多元性
7. 抗輻射

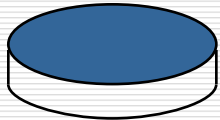
適用於微電子產品—HBT、pHEMT、BiHEMT、GaN on XX
光電子產品—PIN (PD、APD)、VCSEL、LD、SC



GaAs in Wireless Communication Supply Chain

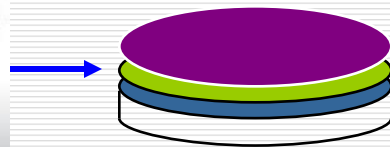
Sumitomo, Freiberg, AXT

2~6 "GaAs Substrate



MOCVD Reactor

GaAs Epi- Wafer
磊晶片

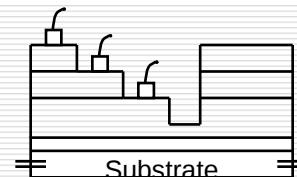
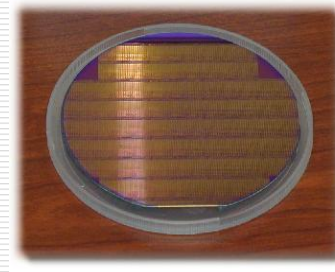


**VPEC is a Pure
Epi Provider**

IDM : Qorvo, Skyworks

Fabless : Avago,
Qualcomm, Richwave,

**Microelectronics
IC Process**



Foundry :
WIN, AWSC



**Wireless
Communication**



IC Package & Testing

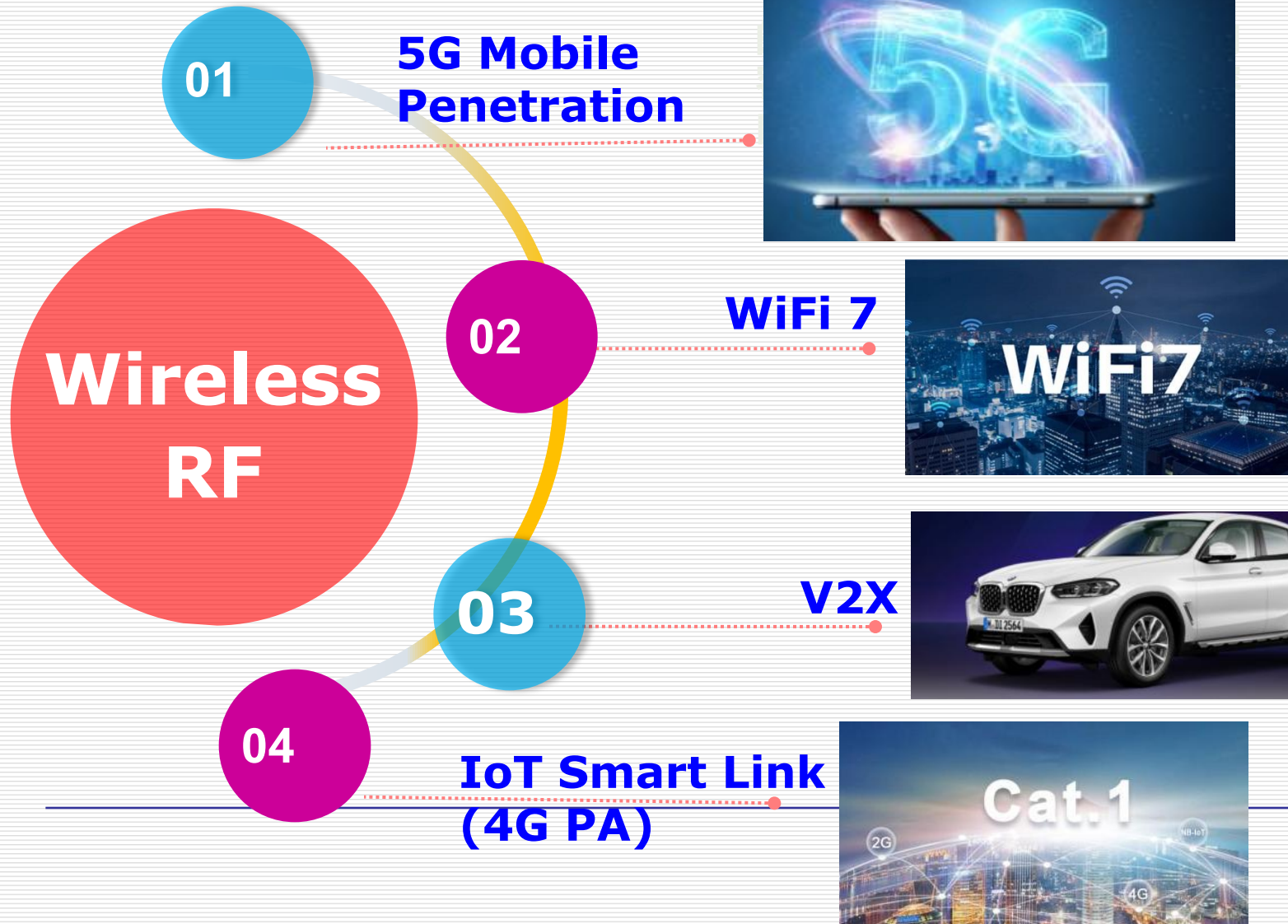


2021-2024 Q3 Financial Result

	2024Q1~Q3	%	2023	%	2022	%	2021	%
Revenue	2,518,743	100%	2,694,104	100%	2,603,629	100%	3,608,521	100%
Gross margin	1,018,815	40%	1,108,914	41%	1,089,007	42%	1,519,713	42%
Operating Profit	599,086	24%	542,069	20%	579,950	22%	1,056,519	29%
Non-operating income & expense	54,577	2%	-347	0%	87,533	3%	-3,842	0%
Tax	-115,469	-5%	-91,490	-3%	-122,755	-5%	-197,596	-5%
Net income	538,194	21%	450,232	17%	544,728	21%	855,081	24%
EPS	2.91		2.43		2.95		4.62	



2024 Outlook





2024 Outlook

