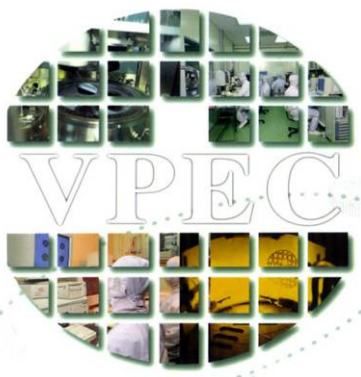




Company Profile

World-class leading edge with MOCVD

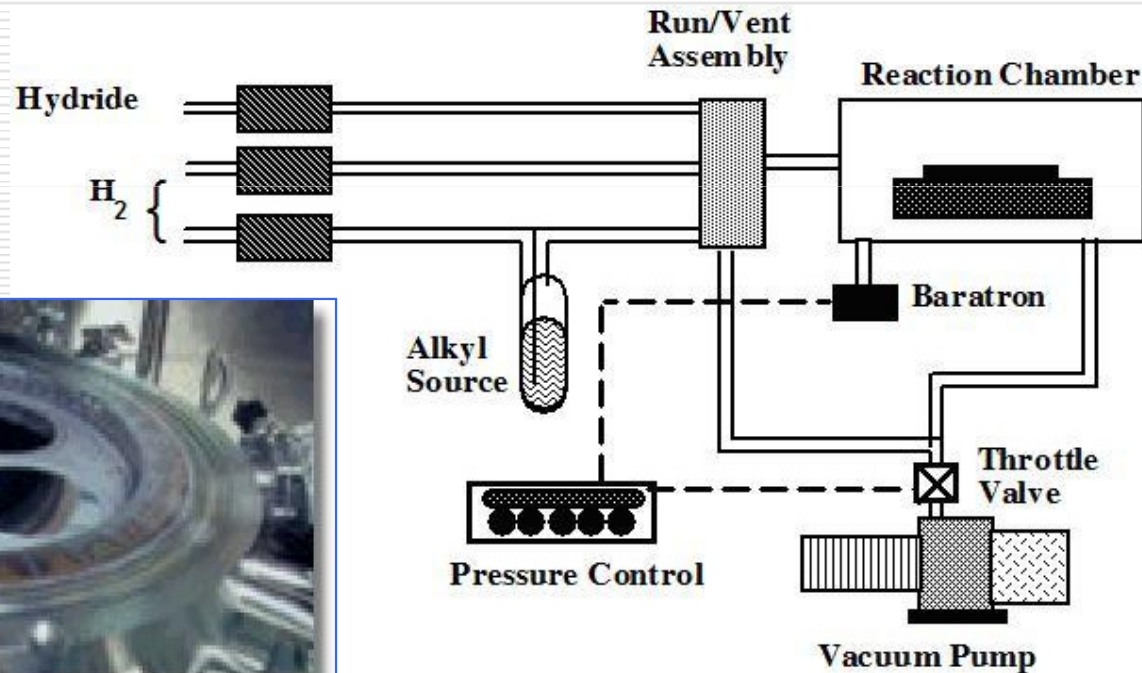




Core Technology

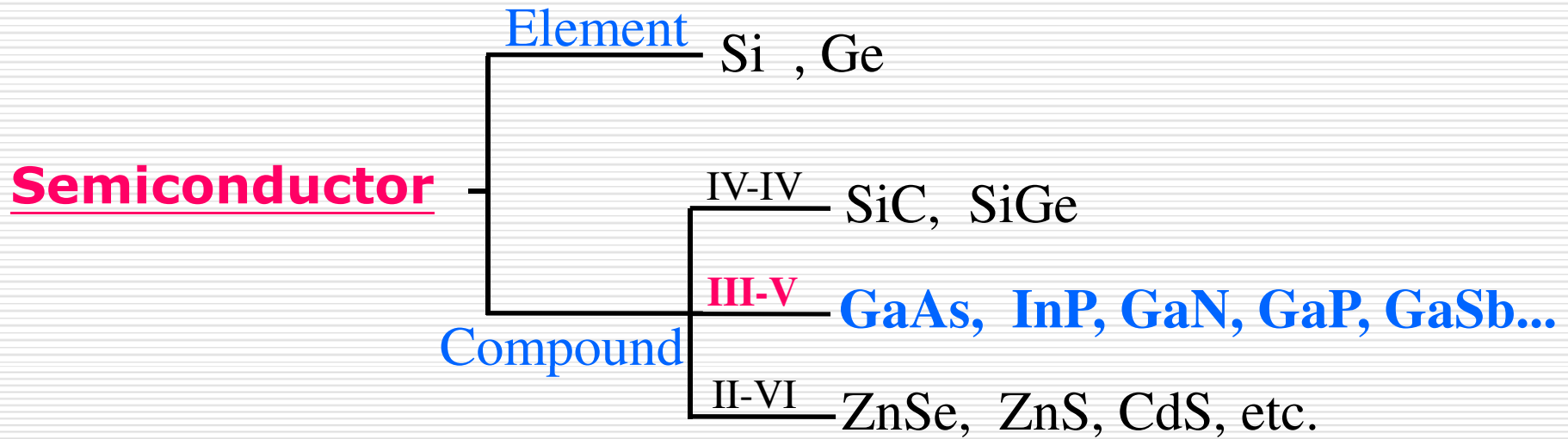
MOCVD (有機金屬氣相沉積法)

- Metal Organic Chemical Vapor Deposition





Semiconductor (by Material)



| 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.

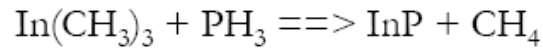
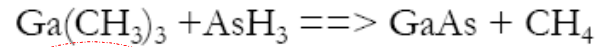
四元化合物 Quaternary : AlGaInP, InGaAsP, etc.

五元化合物 Pentanary : AlGaInAsN, etc.



Chemical Reaction During Epitaxy

化學反應式：



主要原物料：

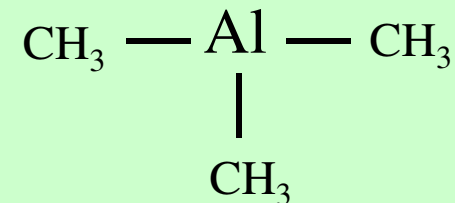
MO Source + **Hydride** + Carrier Gas : **H₂**

- TEAl : Tri-ethyl-Aluminum (C₂H₅)₃Al
- TMGa : Tri-Methyl-Gallium (CH₃)₃ Ga
- TMIn : Tri-Methyl-Indium (CH₃)₃In
- DETe : Di-ethyl-Tellurium (C₂H₅)₂Te
- DEZn : Di-ethyl-Zinc (C₂H₅)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 (CH₃)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

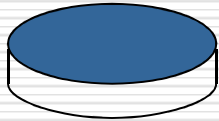
適用於無線通訊、光纖通訊、光顯示(LED)& 太陽能產業



GaAs in Wireless Communication Supply Chain

Sumitomo, Freiberg, AXT

4~6 " GaAs Substrate



GaAs Epi- Wafer
磊晶片

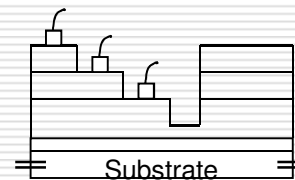
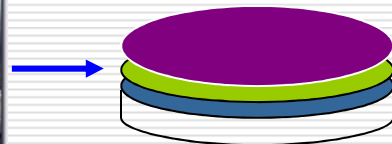


IDM: Skyworks, RFMD, TriQuint, Avago, Anadigics

Microelectronics
IC Process



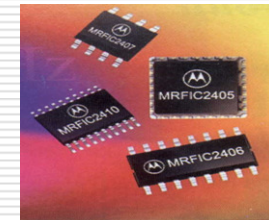
MOCVD Reactor



Foundry:

WIN, AWSC, GCS

Wireless
Communication



IC Package & Testing



2016-2019 Q3 Financial Result

| | 2019 Q1 ~ Q3 | % | 2018 | % | 2017 | % | 2016 | % |
|------------------|-----------------|---------|-----------|---------|-----------|---------|-----------|---------|
| Revenue | 1,787,611 | 100.00% | 2,062,120 | 100.00% | 2,137,109 | 100.00% | 2,182,825 | 100.00% |
| Gross margin | 746,369 | 41.75% | 774,359 | 37.55% | 743,467 | 34.79% | 809,059 | 37.06% |
| Operating Profit | 462,985 | 25.90% | 463,906 | 22.50% | 515,093 | 24.10% | 588,072 | 26.94% |
| Financial Income | 7,320 | 0.41% | 25,273 | 1.23% | -35,375 | -1.66% | -29,431 | -1.35% |
| Tax | -82,318 | -4.60% | -92,009 | -4.46% | -85,366 | -3.99% | -91,534 | -4.19% |
| Net income | 387,987 | 21.70% | 397,170 | 19.26% | 394,352 | 18.45% | 467,107 | 21.40% |
| EPS | 2.11 | | 2.16 | | 2.15 | | 2.12 | |