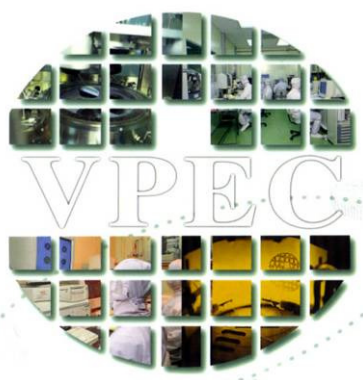




## 公司簡介

*MOCVD* 創造世界級之競爭力

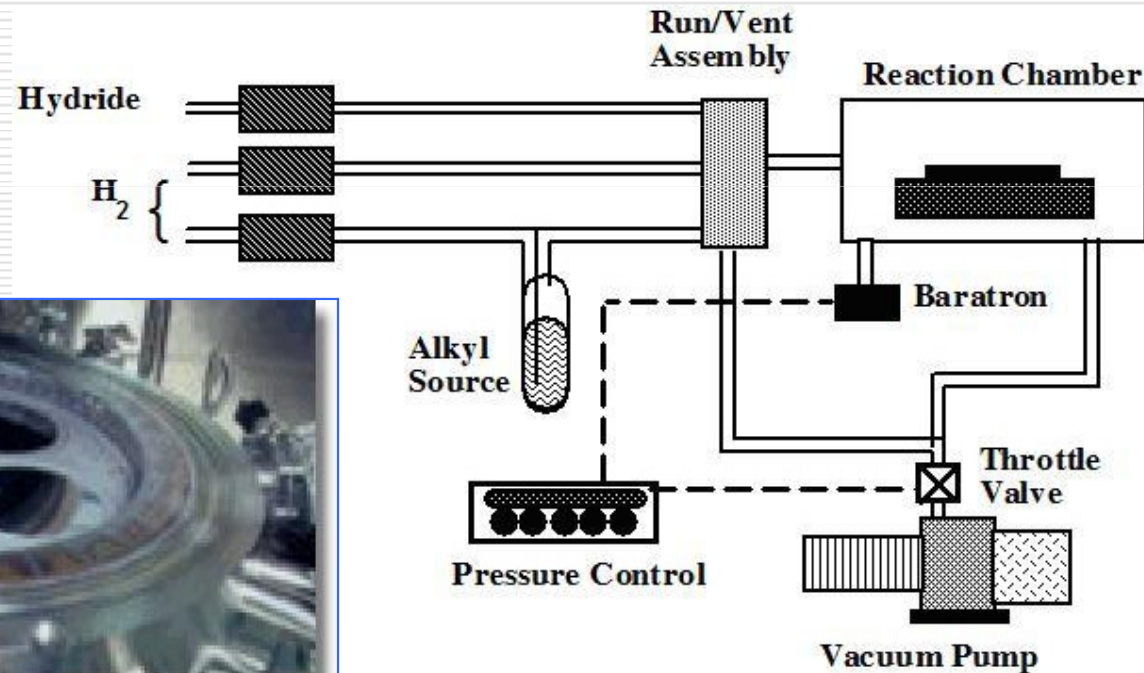




# 核心技術

## MOCVD(有機金屬氣相沉積法)

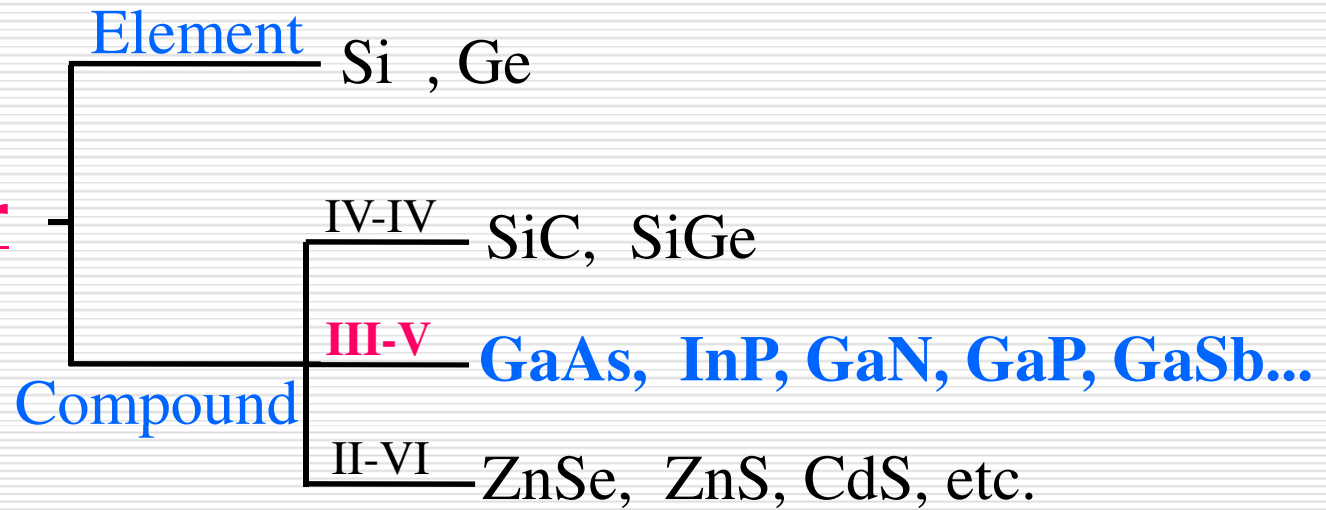
- Metal Organic Chemical Vapor Deposition





# 半導體分類(依使用材料)

## 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.

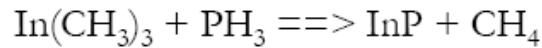
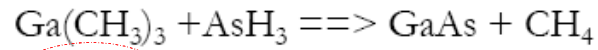
四元化合物 Quaternary : AlGaInP, InGaAsP, etc.

五元化合物 Pentanary : AlGaInAsN, etc.



# 磊晶過程中之化學反應

化學反應式：

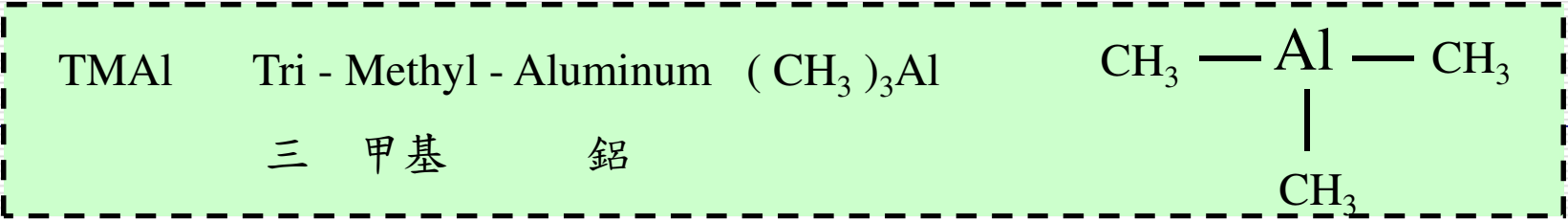


主要原物料：

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

- TEAl : Tri-ethyl-Aluminum (  $\text{C}_2\text{H}_5$  )<sub>3</sub>Al
- TMGa : Tri-Methyl-Gallium (  $\text{CH}_3$  )<sub>3</sub> Ga
- TMIn : Tri-Methyl-Indium (  $\text{CH}_3$  )<sub>3</sub>In
- DETe : Di-ethyl-Tellurium (  $\text{C}_2\text{H}_5$  )<sub>2</sub>Te
- DEZn : Di-ethyl-Zinc (  $\text{C}_2\text{H}_5$  )<sub>2</sub>Zn
- CP<sub>2</sub>Mg : Bis (cyclo-penta-dienyl) Magnesium 環戊二烯鎂

- AsH<sub>3</sub> : Arsine
- PH<sub>3</sub> : Phosphine
- SiH<sub>4</sub> : Silane
- Si<sub>2</sub>H<sub>6</sub> : Disilane
- H<sub>2</sub>Se : Hydrogen Selenide
- CBr<sub>4</sub> : Carbon Tetrabromide





## 化合物半導體材料特性

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1. High Electron Mobility 高電子移動速率
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

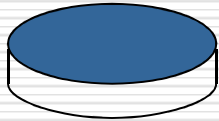
適用於無線通訊、光纖通訊、光顯示(LED)& 太陽能產業



# 產業供應鏈

Freiberg · AXT

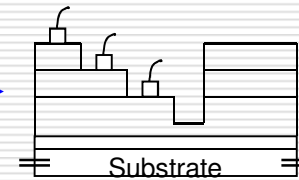
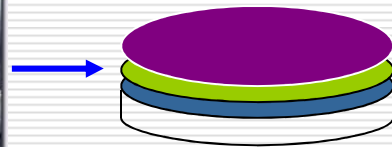
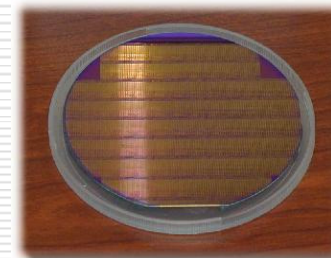
4~6 " GaAs Substrate



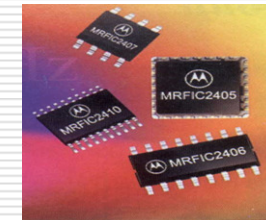
GaAs Epi- Wafer  
磊晶片



Microelectronics  
IC Process



Wireless  
Communication



MOCVD Reactor

IC Package & Testing



# 2015-2019 Q1 Financial Result

	2019 Q1	%	2018	%	2017	%	2016	%	2015	%
Revenue	471,306	100.00%	2,062,120	100.00%	2,137,109	100.00%	2,182,825	100.00%	2,391,899	100.00%
Gross margin	204,704	43.43%	774,359	37.55%	743,467	34.79%	809,059	37.06%	896,369	37.48%
Operating Profit	110,083	23.36%	463,906	22.50%	515,093	24.10%	588,072	26.94%	670,700	28.04%
Financial Income	3,859	0.82%	25,273	1.23%	-35,375	-1.66%	-29,431	-1.35%	20,258	0.85%
Tax	-22,882	-4.86%	-92,009	-4.46%	-85,366	-3.99%	-91,534	-4.19%	-98,301	-4.11%
Net income	91,060	19.32%	397,170	19.26%	394,352	18.45%	467,107	21.40%	592,657	24.78%
EPS	0.5		2.16		2.15		2.12		2.4	