



ACE Royal Tech Inc.
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❖ Sales Division : William Ma

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Company Profile

Chairman	Bosco Foo (傅佩文)
Capital	USD 90 million (Sep. 2017)
Employees	# 700 (Taiwan) # 200 (China)
Locations	# SBIP, Taiwan : Headquarters/R&D Center # Chunan Taiwan factory: LED and Silicon line # Wuhan China factory : chip process & inspection
Capacity	4,000 million chips per month # Compound Chips: 2,000 million pcs # Silicon Device: 2,000 million pcs



About The Company

Milestones

- 1987/Apr **Founded in SBIP, Hsinchu, Taiwan.**
- 1989/Jun **Technology transferred from Industrial Technology Research Institute .**
- 1998/Nov **ISO 9001 Certificated.**
- 1999/Apr **Chunan factory operation .**
- 2000/Sep **Became GTSM Listed Companies Taiwan.**
- 2003/Nov **QS 9000 Certificated.**
- 2005/Jan **ISO 14001 & OHSAS18001 Certificated.**
- 2006/Nov **TS16949 Certificated.**
- 2007/Jun **Wuhan factory operation .**
- 2007/Dec **SONY Green Partner & QC 080000 IECQ HSPM Certified.**
- 2009/Apr **ISO 14064-1:2006 Certified**
- 2014/Jan **Integrate Silicon Line in SBIP to Chunan Factory**



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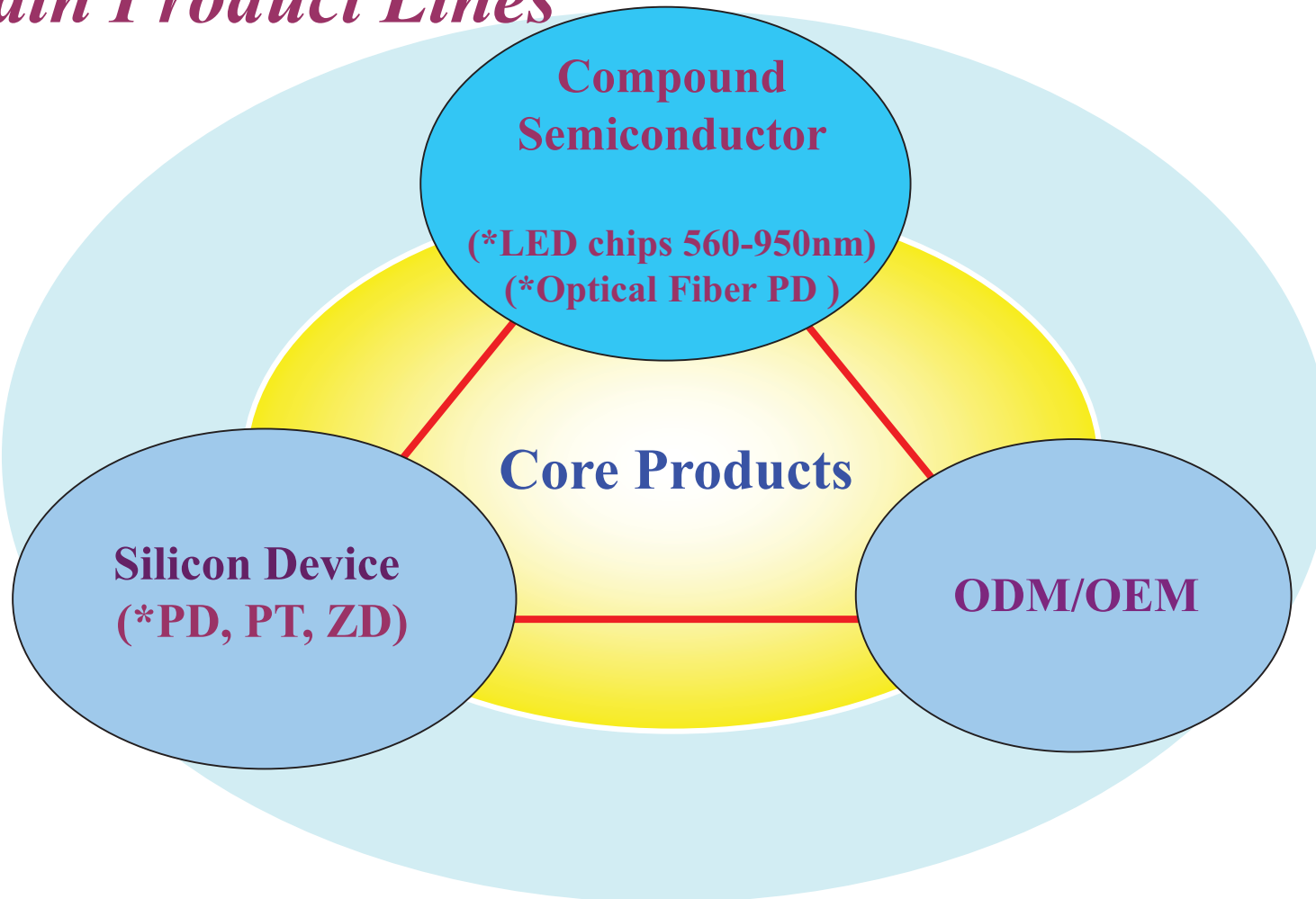


About The Company

Factory Site Map



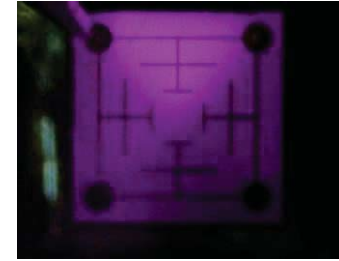
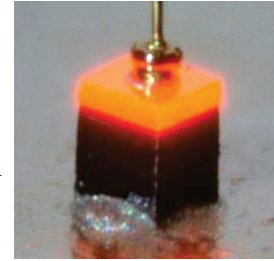
Main Product Lines



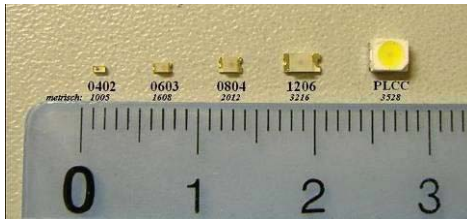
LED Compound Semiconductor

□ LED VISIBLE chips

- ❖ Chip size from 7mil² to 42mil²
- ❖ Driving Current from 1mA to 1000mA
- ❖ 560-670nm solutions



- ❖ Package Type by SMD, DIP, ND(Numetric Display), Dot Matrix



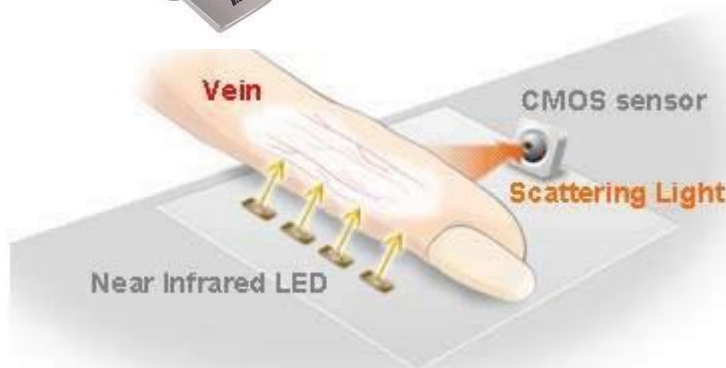
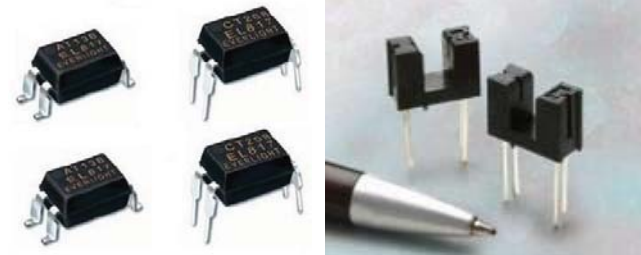
- ❖ Application in Indicator, Display, Lighting



LED Compound Semiconductor

□ NEAR INFRARED LED(<1000nm)

- ❖ Chip Size from 8mil² to 60mil²
- ❖ Driving Current from 1mA to 1000mA
- ❖ WLP(λ_{peak}) from 700nm to 950nm
- ❖ Package Type by SMD, DIP
- ❖ Application in Photo Coupler, Remote Control, Proximity Sensor, IrDA, Night Vision Agriculture, Medical





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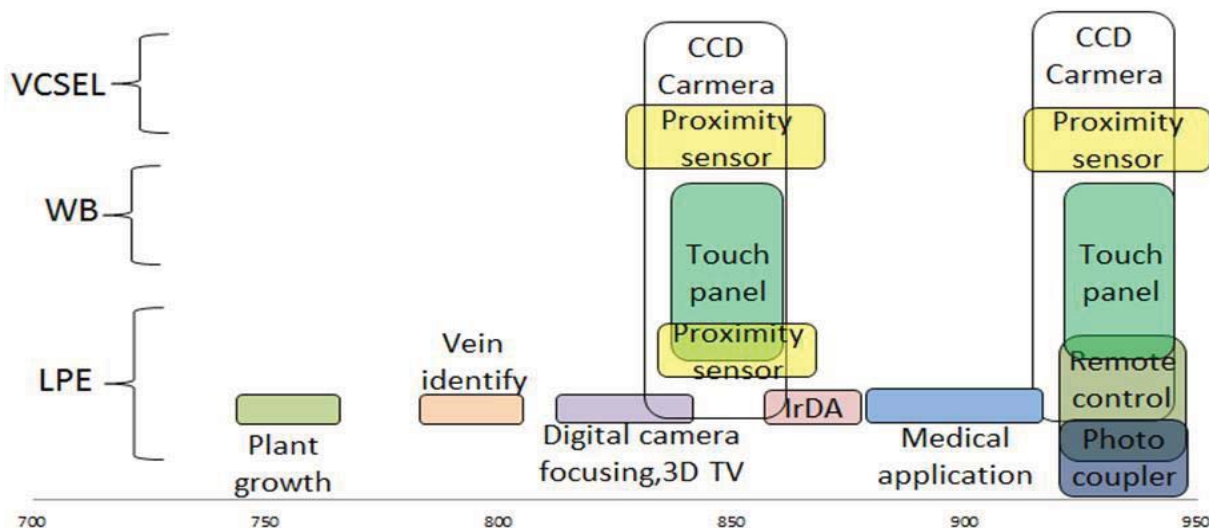


About The Company

❖ Spectrum range and application of TK's IR product

❖ **LPE & MOCVD IR products have the spectrum range from 710nm to 950nm.**

Wavelength (nm)										
Material	710	730	770	810	830	850	870	890	940	
LPE_IR	IRB	IRD	IRE	IRV	IRK	1-IRP/N-IRP	IRS	2-IRP	1-IRG/1-IRA	
AlGaAs/Si						5-IRP				5-IRA
AlGaAs/GaAs						VPN				VAN





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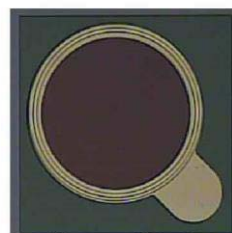
InGaAs Compound Semiconductor

❑ NEAR INFRARED LED(>1000nm)

- ❖ WLP from $1\mu\text{m}\sim 1.3\mu\text{m}$
- ❖ 155~200MHz

❑ MPD(Monitor Photo Diode)

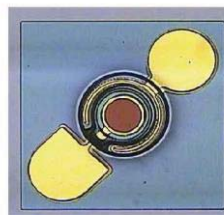
- ❖ Aperture from $200\mu\text{m}$ to $3000\mu\text{m}$
- ❖ Absorb from $1,300\text{nm}\sim 1,550\text{nm}$
- ❖ Response above 0.8A/W



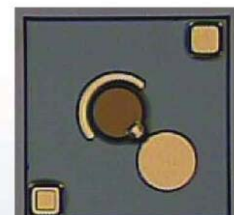
(Aperture 200um)

❑ 1,300-1,550nm PIN PD

- ❖ 1.25G 、 10G PIN PD
- ❖ 25G PIN PD (Developing products)



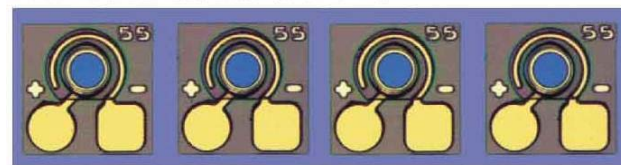
10G InGaAs PIN PD OM圖
(共面結構 Co-Planner)



10G InGaAs PIN PD OM圖
(異面結構 Vertical)

❑ 850nm PIN PD

- ❖ 5G 、 10G 、 25G PIN PD
- ❖ 40G 、 100G PD array



Silicon Device

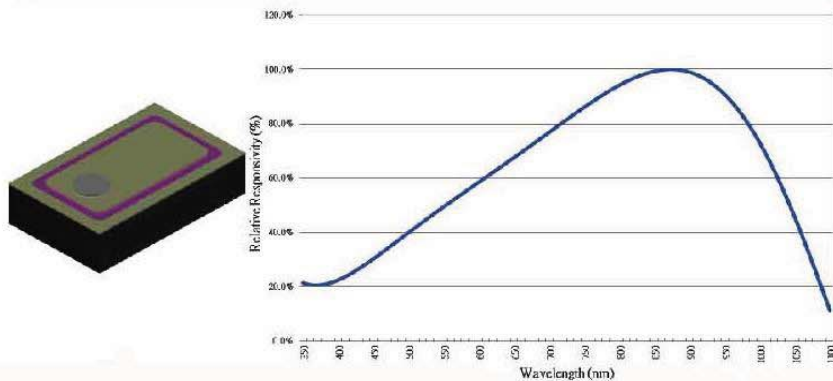
➤ Photo-Diode (PD)

PIN 、 NIP silicon device

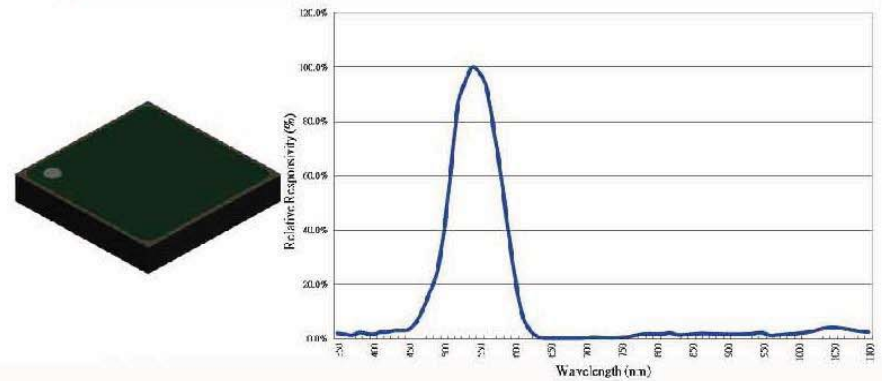
Standard Type for Receiver (from 14mil² to 130mil²)

High Speed / Sensitivity Type

Broad spectral range photodiode



Green pass filter photodiode



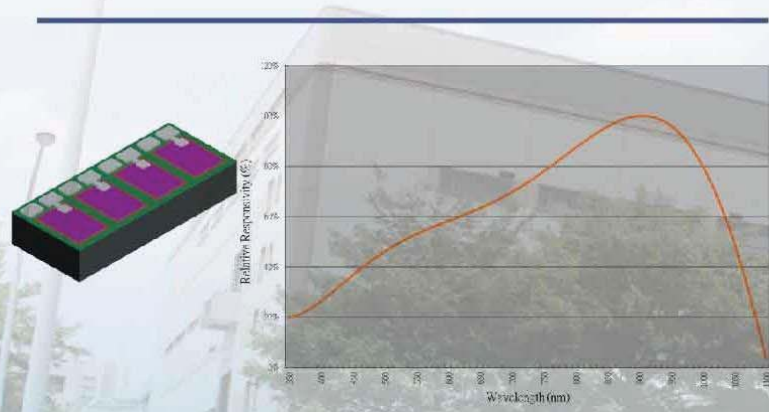
Silicon Device

➤ Photo-Diode (PD)

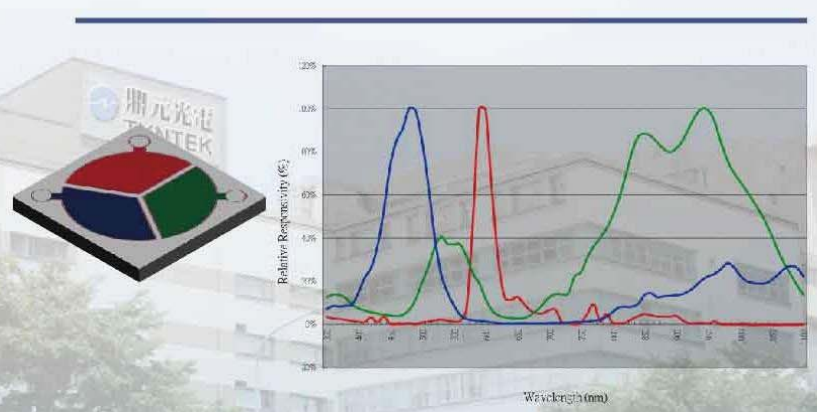
PIN 、NIP silicon device

Specific Optical Filter (restrict in UV/B/G/R/IR, Ambient, Sunlight)
OEM/ODM for customer's request (PD Array, Position Detector, Optical Encoder)

PhotoDiode Array



RGB 3 in 1 filter PhotoDiode



Silicon Device

➤ Photo-Transistor (PT)

NPN silicon device

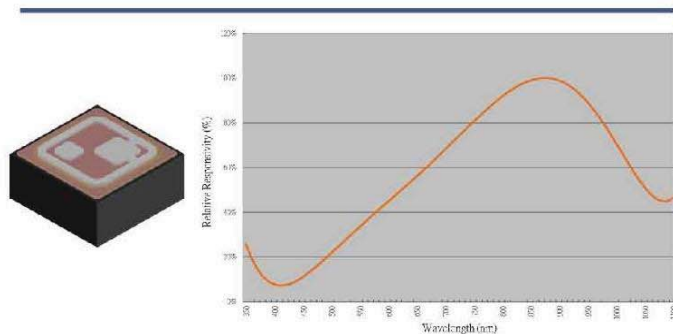
Small die with high sensitivity (slight to 14mil²)

Good linearity at input vs output (Photo-Interrupter, Photo-Coupler)

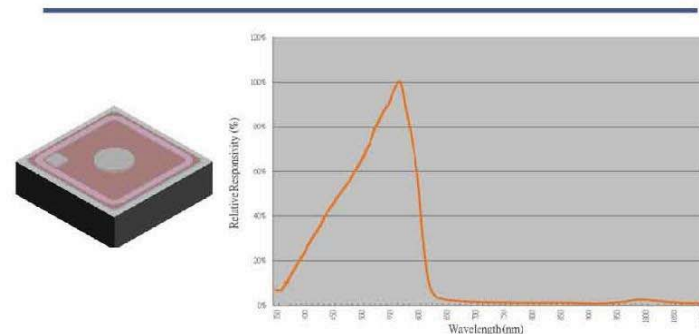
Specific optical filter (restrict in B/G/R/IR, Ambient)

Darlington PT for extreme high current output

PhotoTransistor



Ambient PhotoTransistor





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About The Company

Silicon Device

➤ Zener-Diode (ZD)

ESD Protection (BLU and Lighting)

Extreme low leakage current at stand-by mode (<1nA)

Slight die size but high protect ability (MM>2KV@6mil²)

Wide V_{BR} function by customer's design (from 4V to 200V)

Surge protection (up to 2A)

Heat Sink Submount with protection function for customized

Available to Wire-Bonding or FLIP-CHIP Bonding

Top View			
Polar	Vertical one directional (垂直式單向齊納二極體)	Vertical two directional (垂直式雙向齊納二極體)	Lateral two directional (水平式雙向齊納二極體)



Strength of Tyntek

□ Wide Range Opto-Electronic Products

- ❖ Emitter & Receiver Devices
- ❖ Total solution in optic-electric filed

□ High Volume Production Capability

- ❖ Total 4,000 million pcs chips/month
- ❖ Flexibility in manufacturing

□ Multi Application Filed

- ❖ 3C / Automobile / Industry / Agriculture / Medical

Strength of Tyntek

❑ **Good Quality & Responsibility**

- ❖ ISO & QS & and TS-16949 Approved system
- ❖ GP & QC and OHSAS Approved system

❑ **Resources Integration**

- ❖ Good experience in Own Brand product
- ❖ Comfortable OEM/ODM project



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