

# PANJIT

## International Inc



**Feb. 2020**

- 關於強茂
- 產品應用和市場趨勢
- 新技術發展

# 關於強茂

# PANJIT Overview

PANJIT International Inc. is a leading global manufacturer dedicating in supplying high quality semiconductors, serving the consumer, green power, industrial, automotive, communication and computing segments.

- Capital: \$111 Million USD
- TWSE: 2481 (2001 IPO)
- Approximately 2,500 employees worldwide
- 2 front-end fabrication sites
- 2 back-end manufacturing sites





**PANJIT**  
SEMI  
CONDUCTOR

**PANJIT International Inc.**  
Est. 1986.05  
Product: Discrete Packaging & Testing



**PYNMAX Technology Inc.**  
Est. 2000.03  
Product: Wafer Foundry



**Sumnergy Co., Ltd.**  
Est. 2017.06  
Product: BMS, Battery Pack  
Application: EV, 3C

# PANJIT Global Foot Print



- Headquarters
- Sales Office
- R&D Sites
- Frond-End
- Back-End





## 環茂科技

- 4"/5"/6" EPI Wafer: 70,000 pcs/month
- 5"/6" Schottky Wafer: 50,000 pcs/month
- 6" ESD/TVS Wafer: 3,000 pcs/month
- 6" ZENER Wafer: 3,000 pcs/month
- 8" wafer: In construction



## PANJIT Shandong

- 4" ESD/TVS Wafer: 25,000 pcs/month

# Assembly Capability



## Kangshan, Taiwan

**Package:**  
Small Signal Devices/SMD Bridge

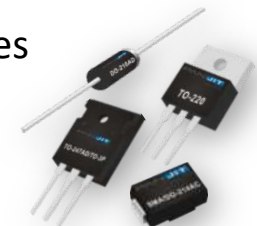
**Capacity:**  
1,700 KK /month



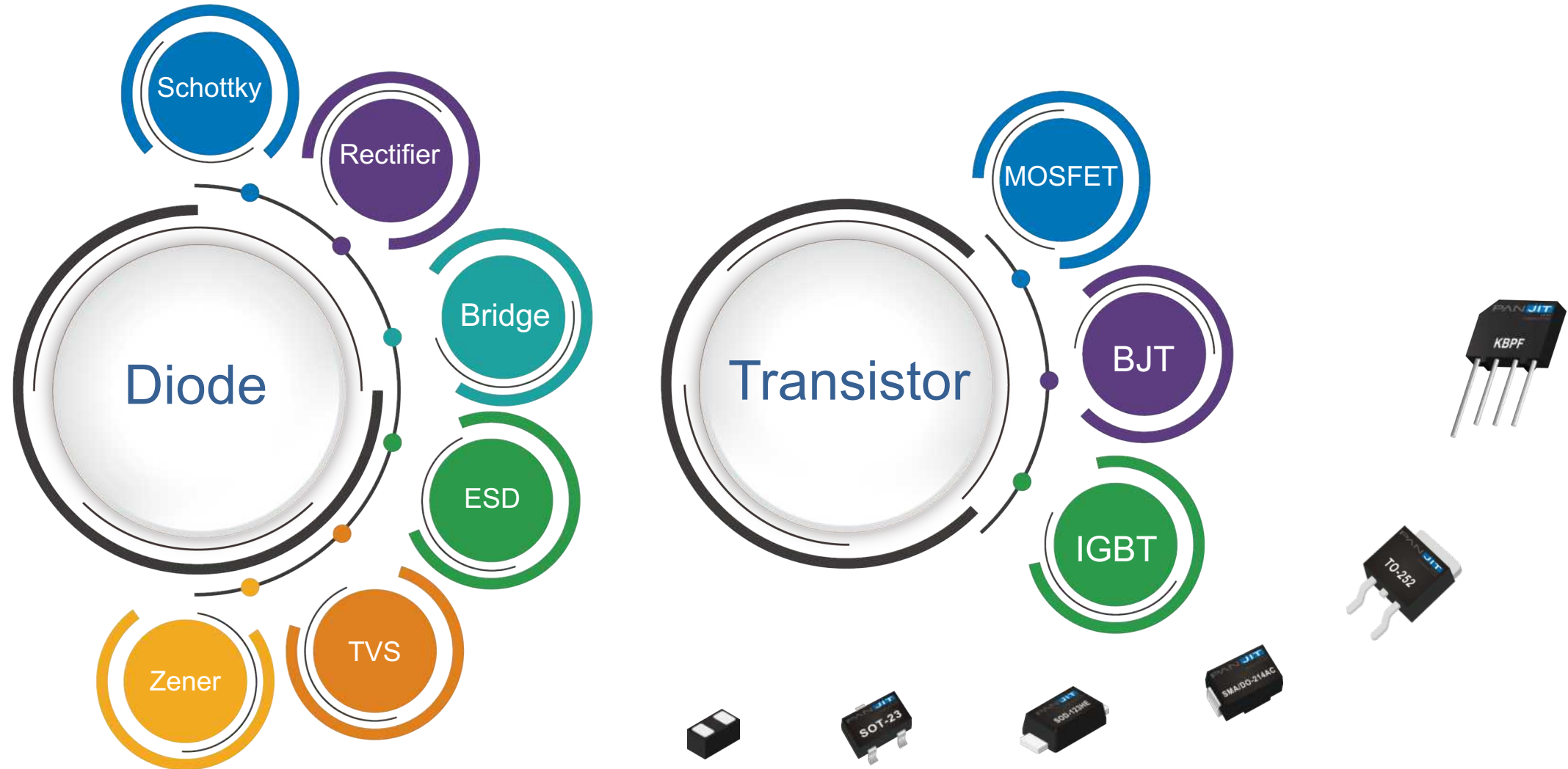
## Wuxi, China

**Package:**  
Power Package Devices

**Capacity:**  
400 KK /month







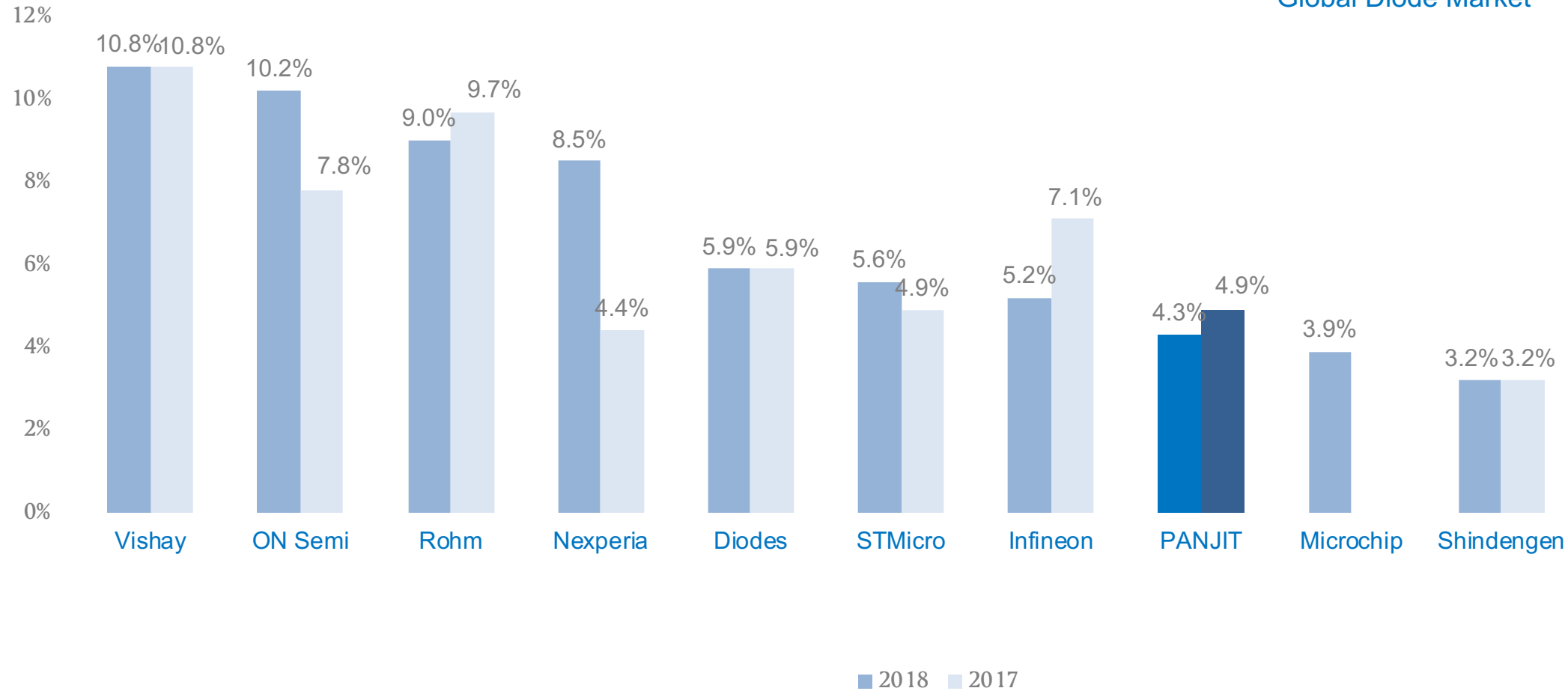
# Global Diode Ranking & Market Share

Unit : M' USD

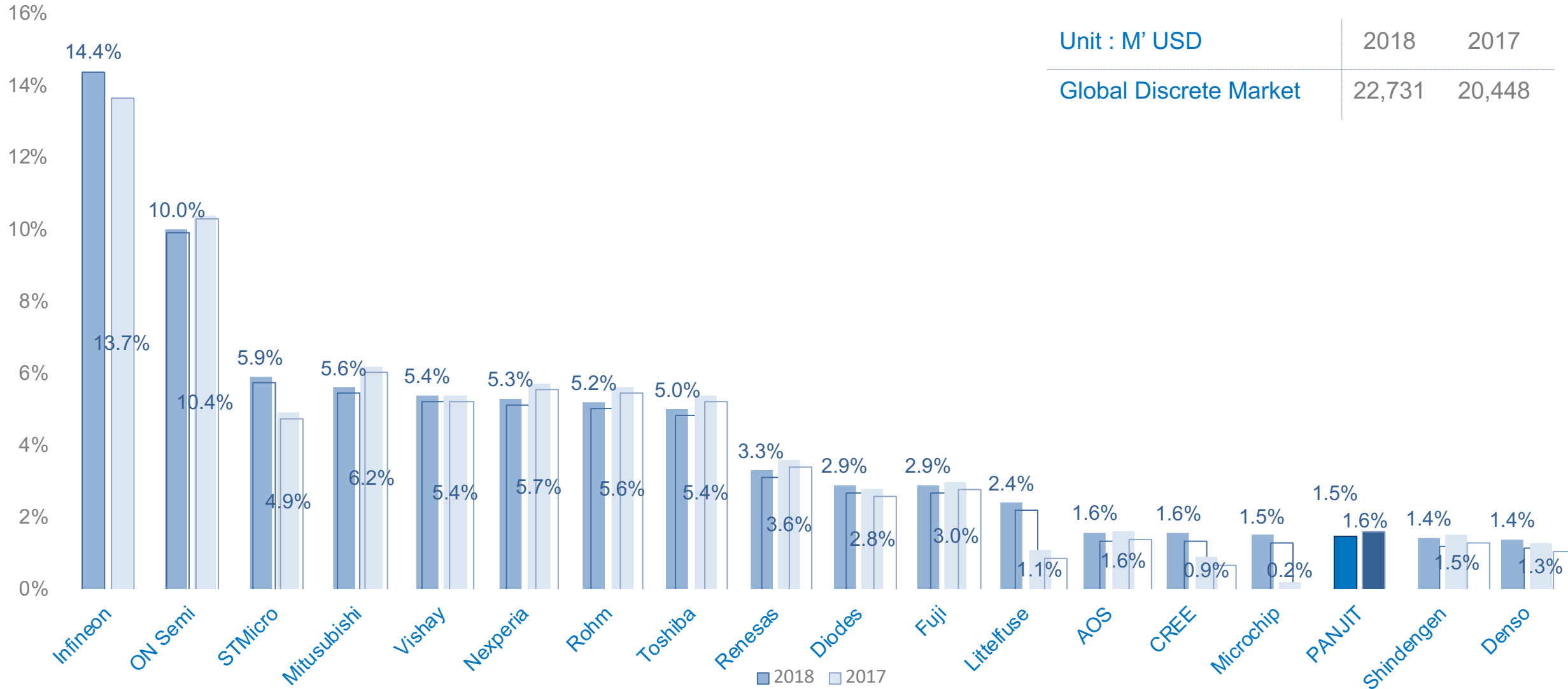
	2018	2017
Global Diode Market	6,393	5,903

Global Diode Market

6,393 5,903



# Global Discrete Ranking & Market Share



Unit : M' USD	2018	2017
Global Discrete Market	22,731	20,448

## 產品應用和市場趨勢

# Application Segment

## Automotive



- Body
- xEV
- ADAS
- Infotainment
- Motor

## Industrial



- Solar Junction Box
- LED Lighting
- Robotic
- Medical Equipment
- Motor

## Power



- Quick charger
- Battery module
- UPS

## Consumer



- UHD TV
- Set Top Boxes
- Camera
- Home Appliance

## Communication



- Networking
- PoE
- VOIP
- Infrastructure

## Computing



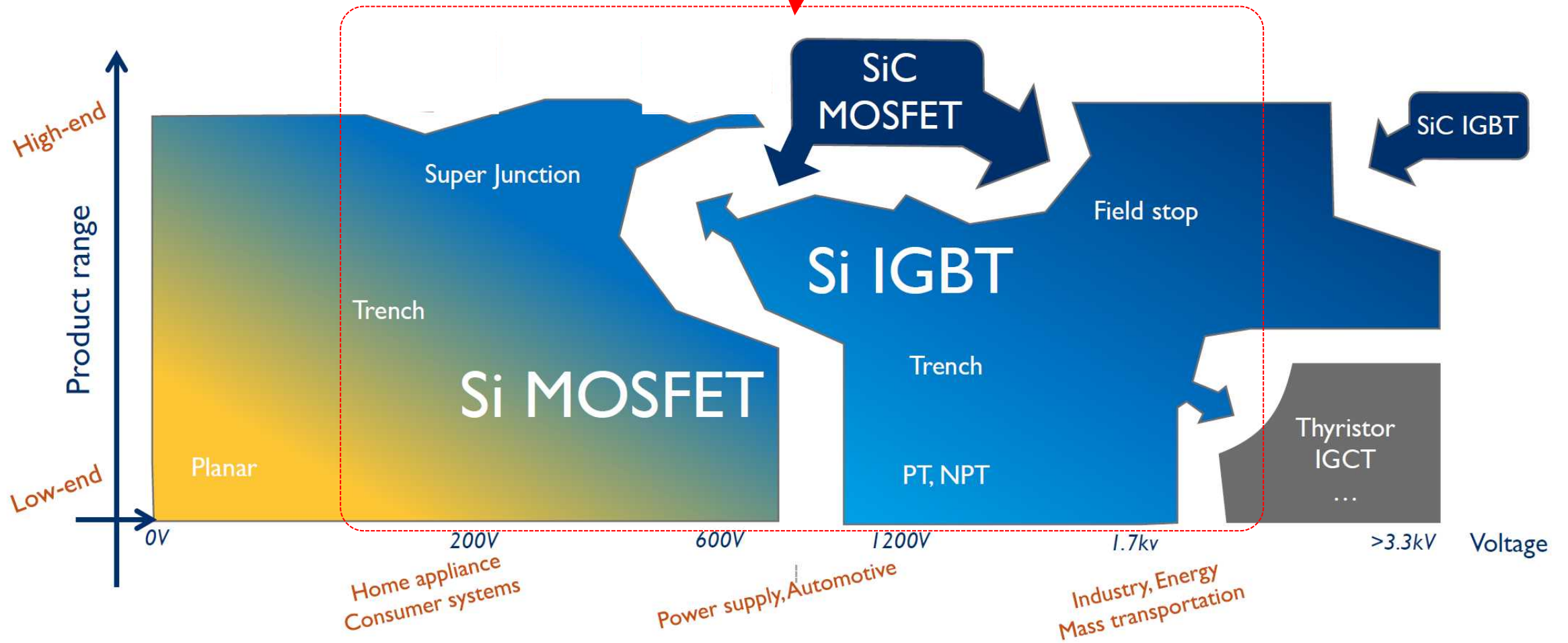
- Desktop PC
- Notebook PC
- Tablet
- Graphic Cards



# 新技術發展

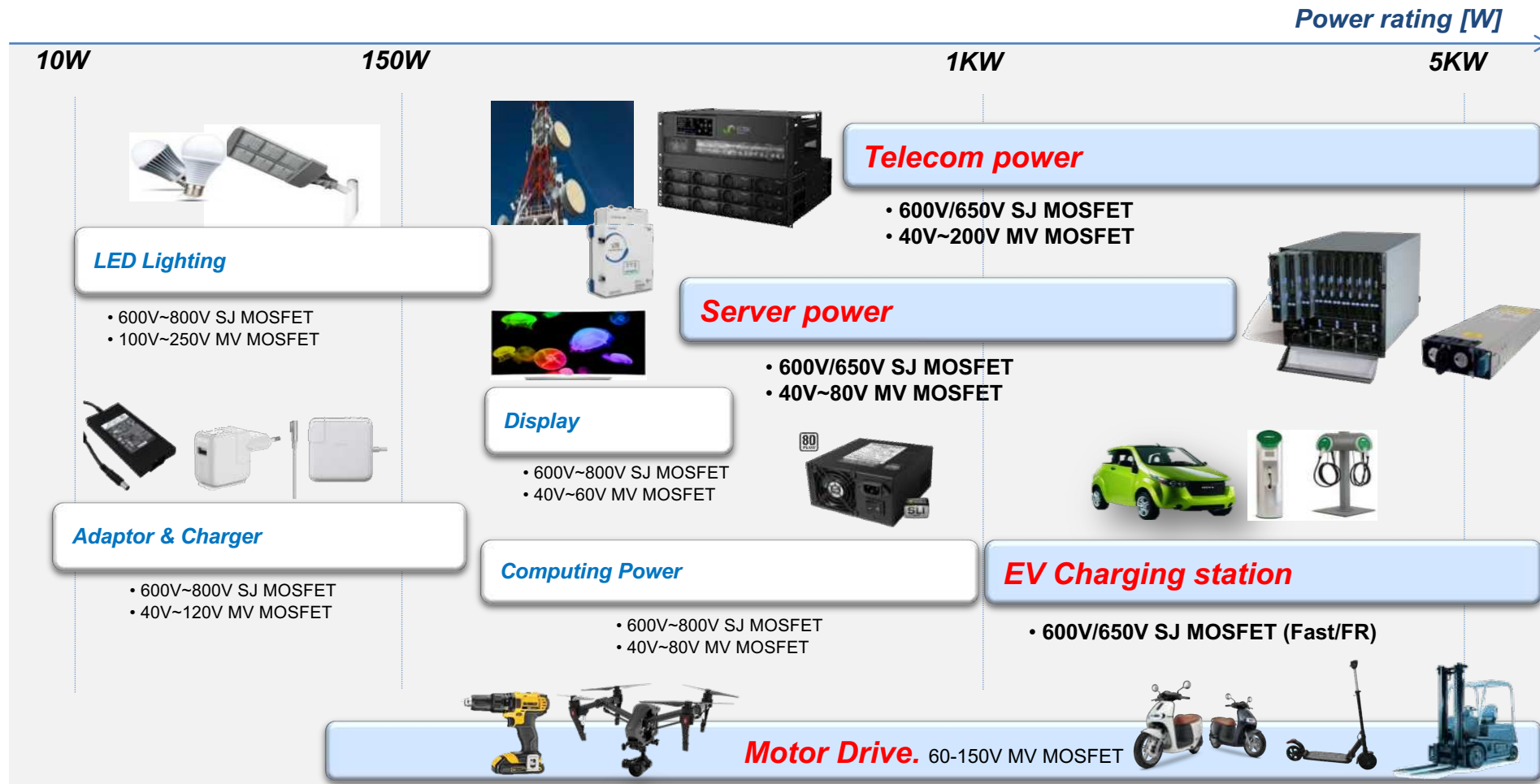
# PanJit Focus Power Discrete Technologies

40V – 1.2 kV is PanJit focus



# MOSFET

# MV/HV MOSFET application



- Telecom power (TO220/F, TO247, D2PAK7L, PQFN56/88, TOLL)
- Server power (TO220/F, TO247, PQFN56/88, TOLL)
- EV Charging station (TO247, TOLL)
- Battery Powered Motor Drive (TO-220, D2-PAK, D2-PAK 7L, PQFN56/88, TOLL)

# IGBT/FRD



# IGBT Target Technology to Applications

2012 – 2022

400 V

650 V

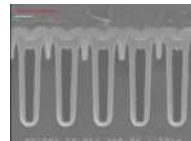
750 V

950 V

1200 V

1700 V

Ultra narrow  
mesa based  
leading edge  
performance



Gen1



Ultrathin devices, < 50um  
Rooftop Solar Inverters  
New market



Solar, UPS, Motor Control  
PIM, IPM, Discretes  
High/Med/Low Speed, RC



SCR for Automotive High Power Modules  
Dual Side Cooling  
EV/HEV, 475V batteries



PIM  
Solar Inverters



SCR for EV/HEV, 600V batteries  
New market



Automotive High Power Modules  
EV/HEV, 800V batteries

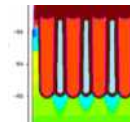


UltraFS SCR  
Bonded

Industrial, Wind power



Gen2



Novel device architecture,  
low capacitance, improved  
V<sub>ce,sat</sub> – SCWT trade-off,  
drift engineering

Next Generation  
(Application Specific)

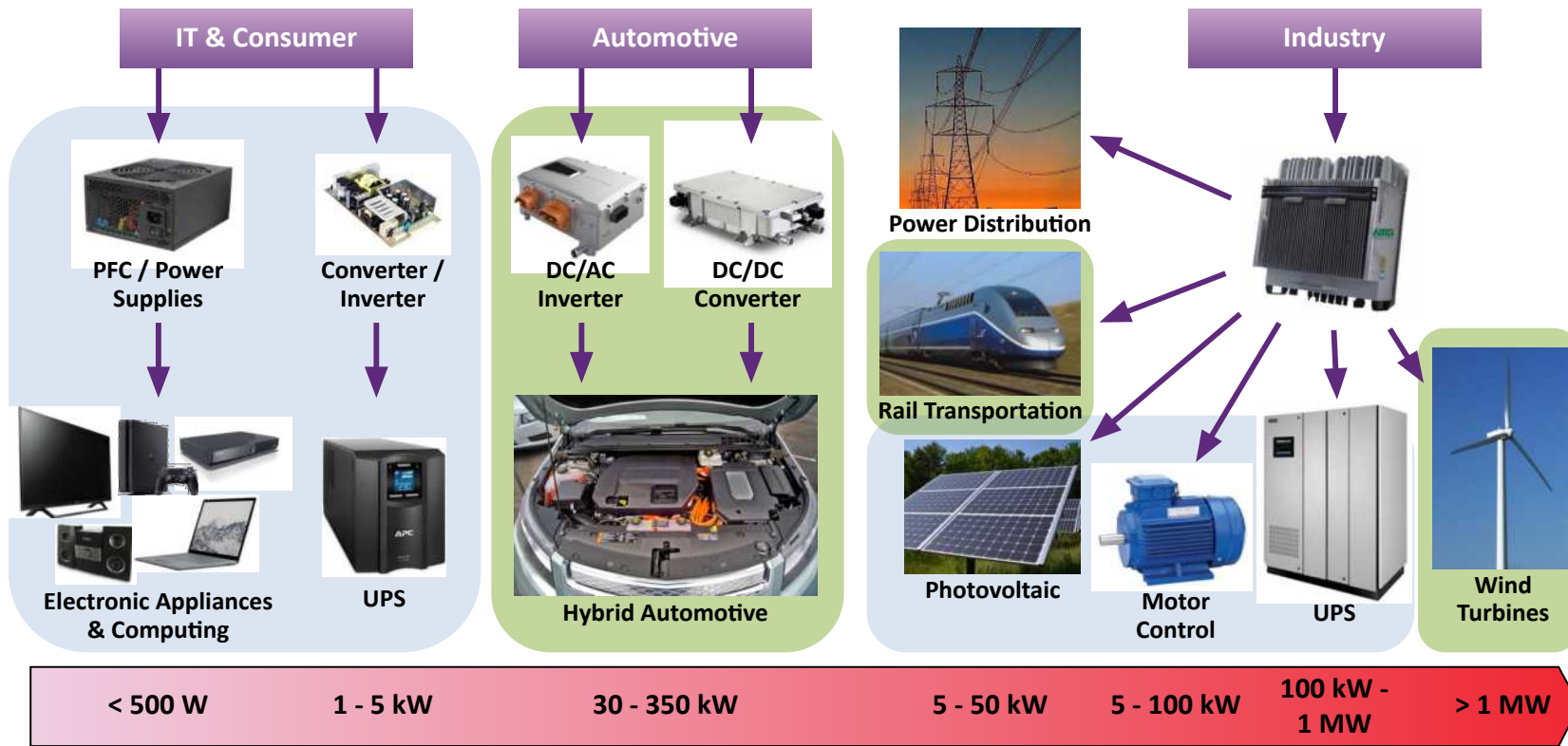
■ Current focus

■ Next Potential Development

SiC

# SiC Diode Market - Application Specific

Gen.1 Target  
Gen.2 Target



Source: TechSearch International, Inc. adapted from Global Power Technology

# Thank You

