

晶焱科技股份有限公司

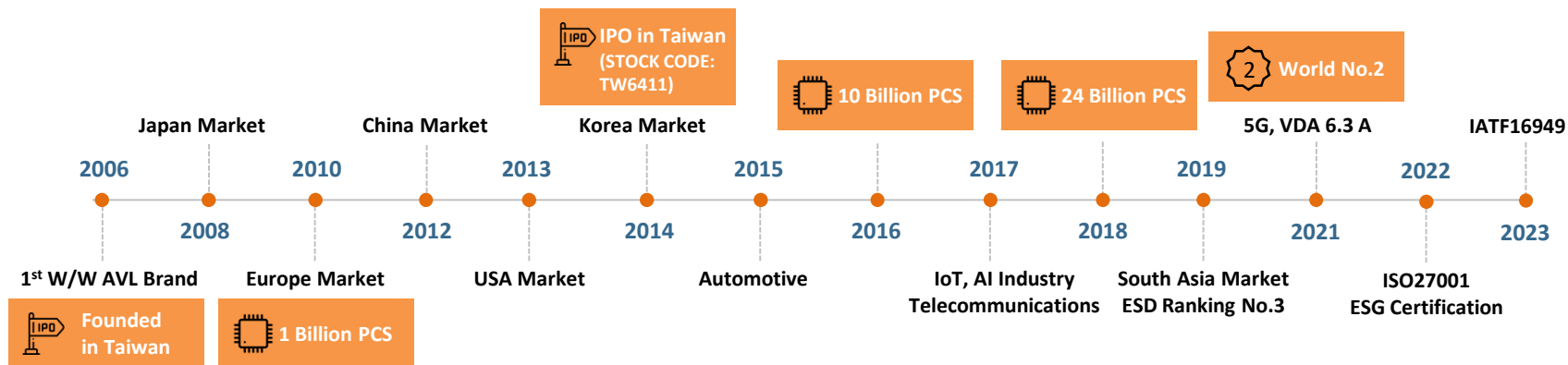
AMAZING Microelectronic Corp.

2024櫃買市場業績發表會 (2024.8.27)

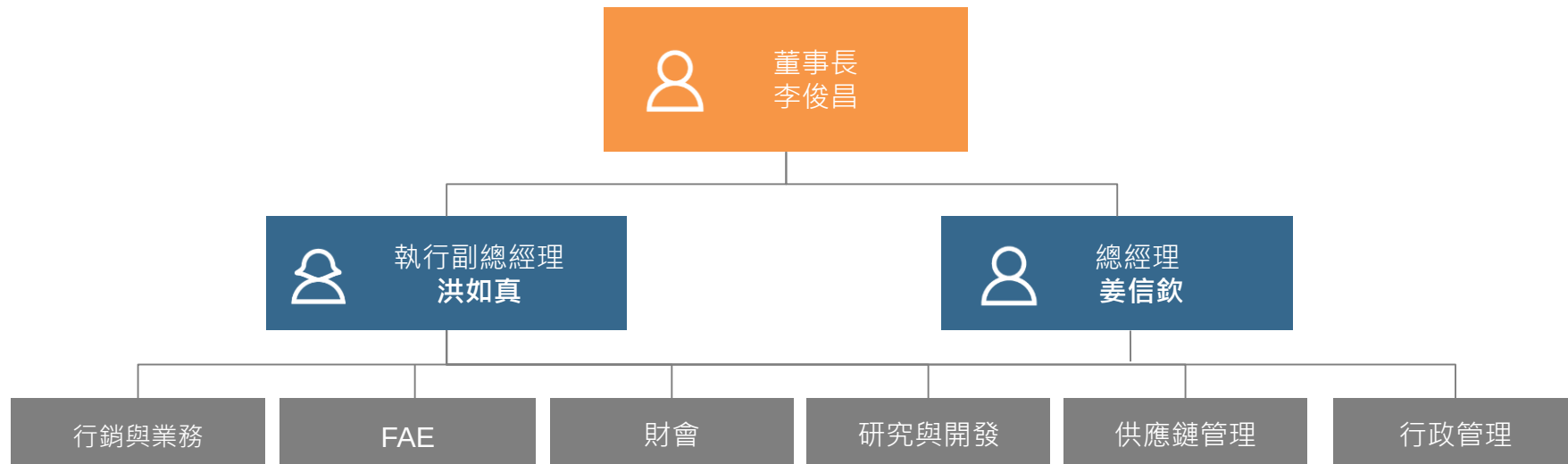


公司簡介

公司沿革



公司組織圖



人力資源配置

全球員工總數146人/2024.8



54%
研究與開發



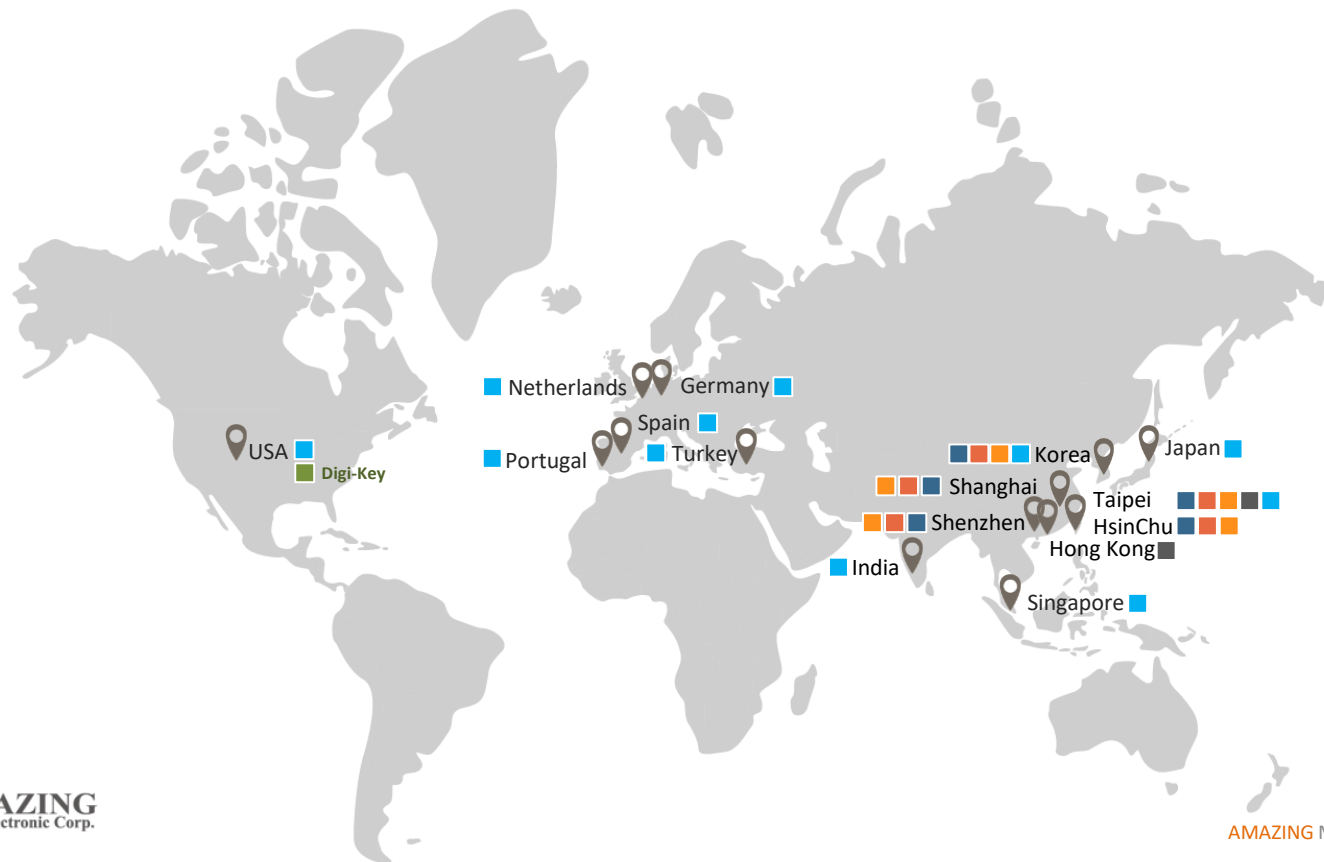
32%
供應鏈管理/行銷與業務



14%
財會 / 行政管理



晶焱辦公室及代理商分佈

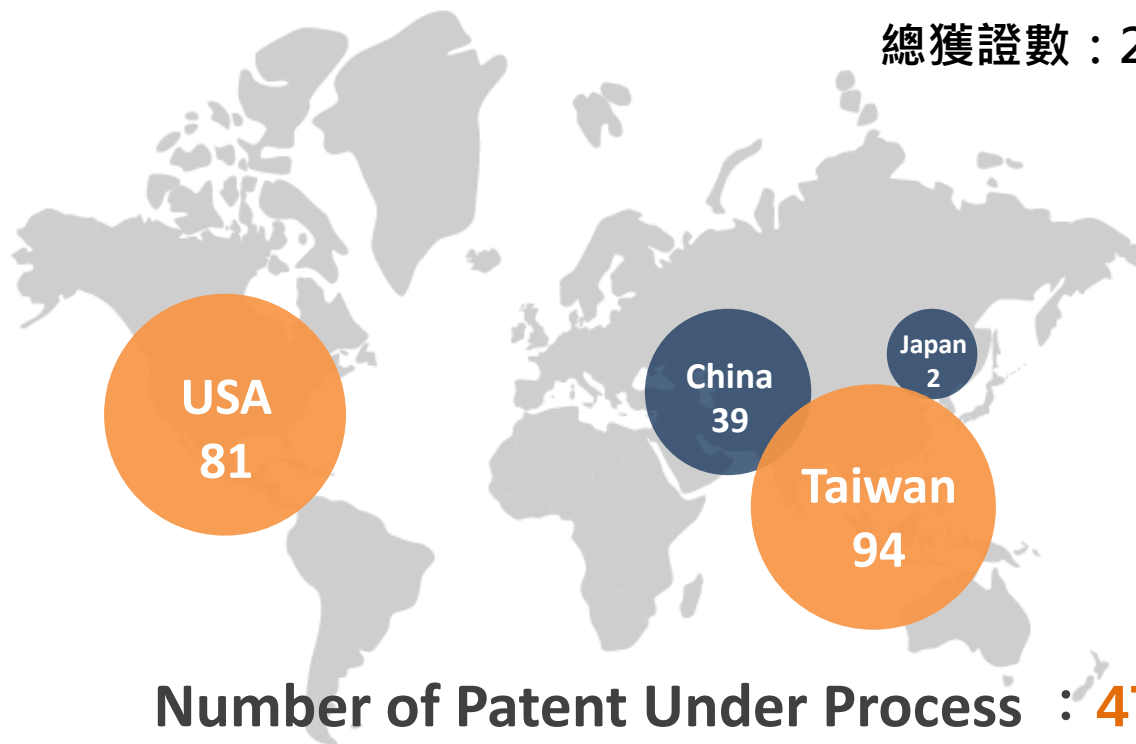


Legend

- Marketing
- FAE
- Debug Lab
- Warehouse
- Disti/Rep.
- E-Commerce

⚡ 專利數量

總獲證數：216個/2024.7.31

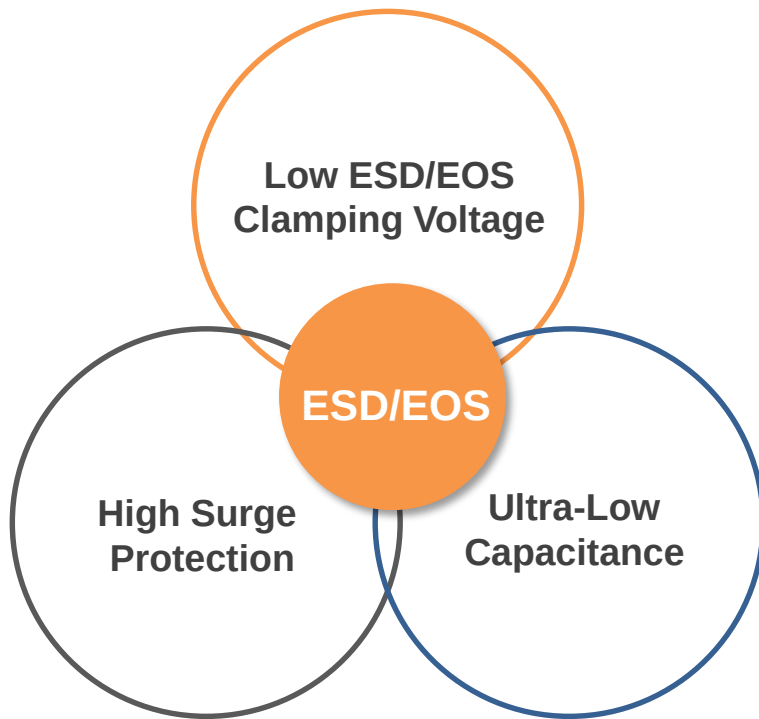


Number of Patent Under Process：47個 /2024.7.31

技術與產品簡介

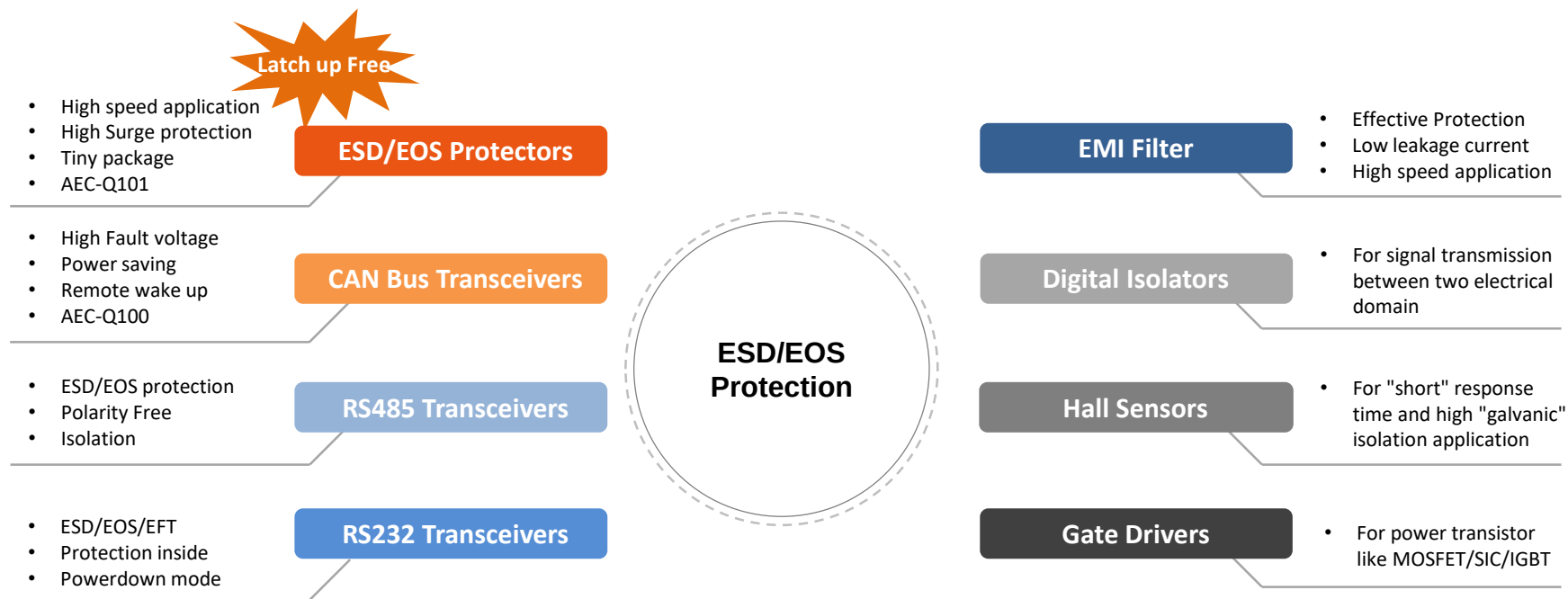
AMAZING Core Technology

ESD
Leading Provider



AMAZING Product Family

ESD
Leading Provider



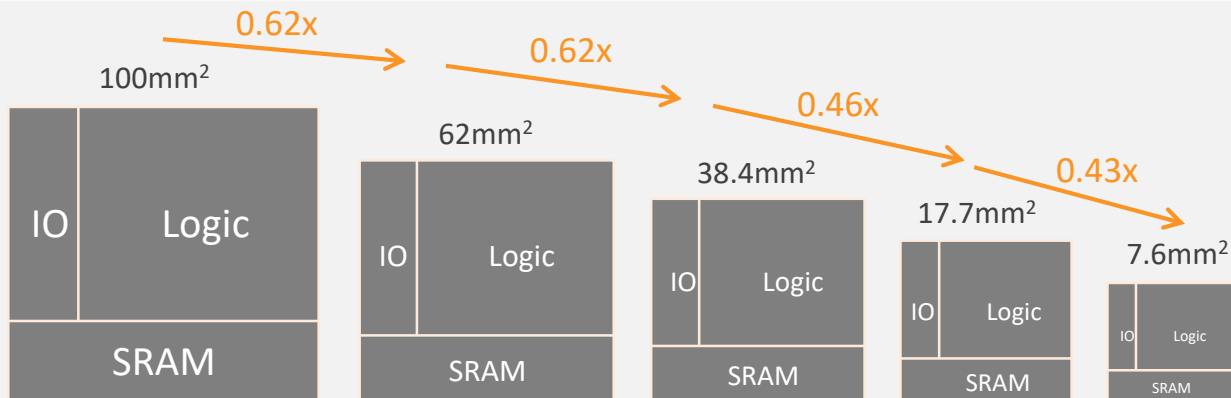


ESD Robustness of Main-Chip

Decrease Dramatically

45nm	32nm	22nm	14nm	10nm	7nm	Beyond
2007	2009	2011	2014	2017	2020	2020

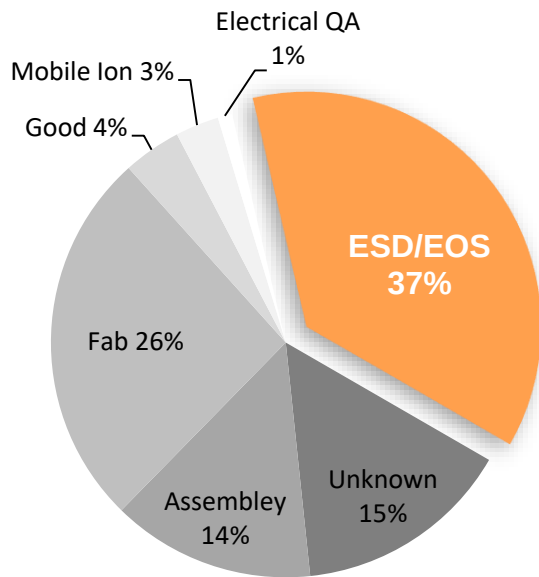
MANUFACTURING



Main-chip will be Weaker to Withstand ESD/EOS Energy Transient Events.



All Electronics Have High Risk of ESD/EOS



**IC Failure rate due to ESD/EOS is
Up To 37%**

- Extra Cost for Mass Production
- High Expense to Re-work
- EOS RMA Damages Reputation

Source: National Semiconductor & American EOS/ESD Association

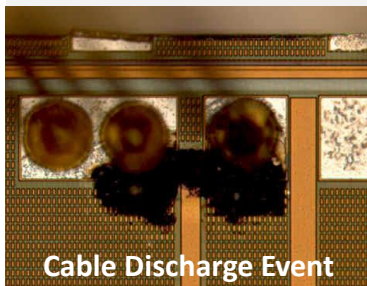
ESD/EOS Protection Suggestion

How to Test the ESD Completely



Hot Plugging often causes

- Serious Damage to the System
- High Risk Field Return



Cable Discharge Event



To Improve the Product ESD/EOS Robustness- Direct Pin Injection Test



- Guarantee the Robustness of product if pass
- Reduce the Damage Risk from Hot Plug Energy
- Improve product Quality and Robustness



How to Select the TVS Solution

The Factors of TVS Selection

Various Low Voltage TVS

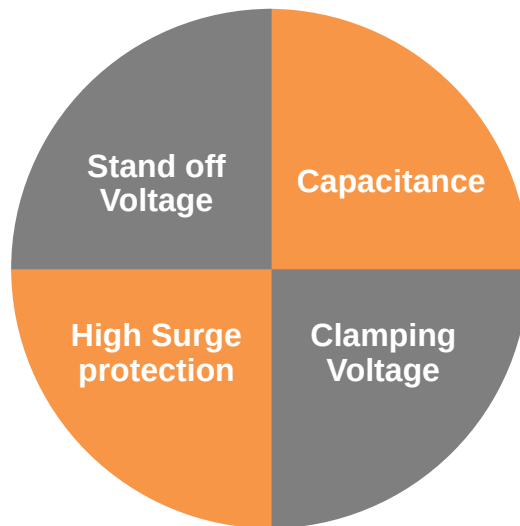
1.2V
1.8V
2.5V
3.3V



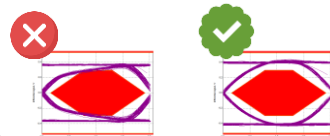
High Surge Level for Reducing EOS



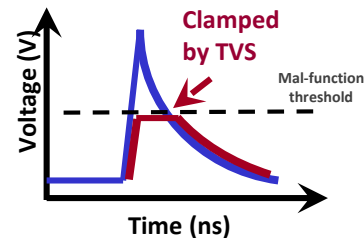
Surge robustness



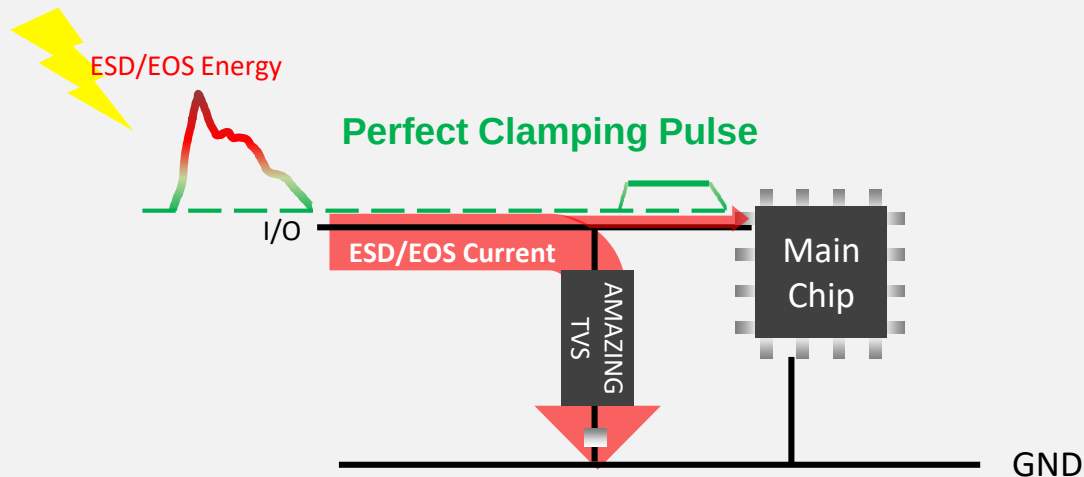
Ultra Low Capacitance



Low Clamping Voltage



⚡ The Most Important Parameter: Clamping Voltage

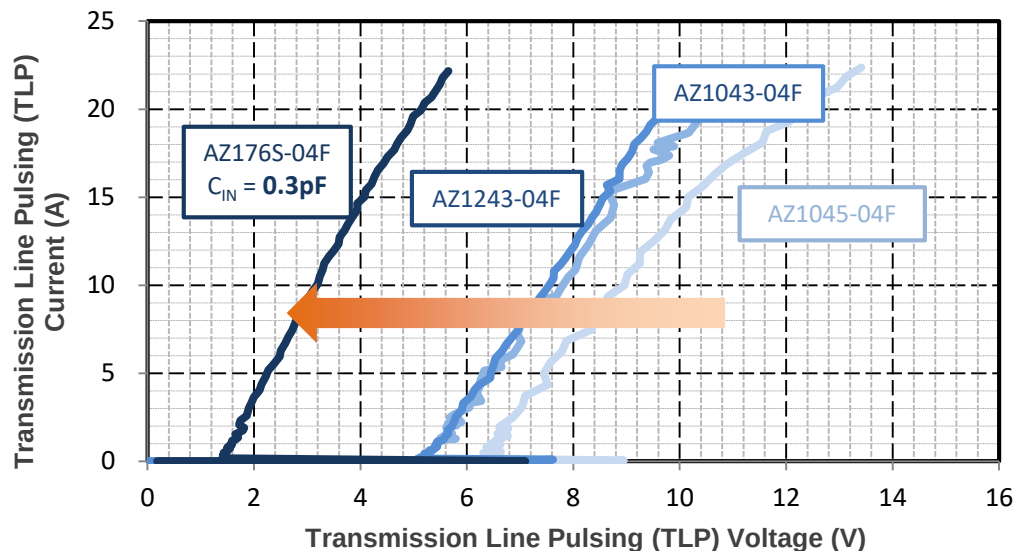


- Bypass the ESD/EOS Current
- Clamp the Voltage at Low Value
- Improve System Robustness



Outstanding Spec.

Transmission Line Pulsing (TLP) Measurements



AMAZING Keeps Offering

- Low clamping voltage
- Ultra-low Capacitance
- High Surge Performance

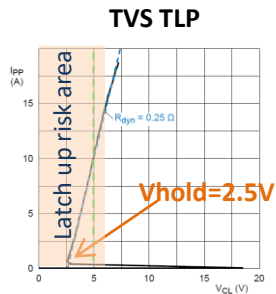
to Enhance System ESD/EOS Robustness.

But...

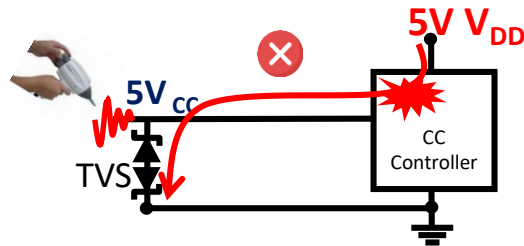


TVS Selection Issue - Latch Up

The Holding Voltage (V_{hold}) must be Bigger than Working Voltage (V_{RWM}) to Avoid the Latch Up Risk.



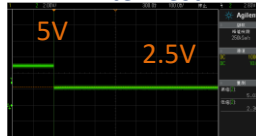
5V TVS with $V_{hold} = 2.5V$



Before Test



After Test



Serious Issues Caused by Latch Up

System Signal Abnormal



Latch up issue effect the system signal.

Serious Burn Out Risk



High Current through the IC will has the risk to burn out.

Business Reputation Loss



Pay huge indemnity and loss for the company credibility

⚡ TVS Benefit for Customer



Eco-Friendly

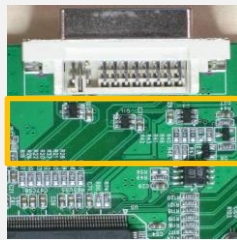


NO Latch UP Risk!

TVS Array

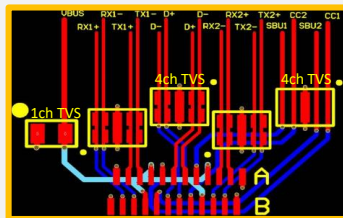
Traditional Diodes

AMAZING TVS Array



Save PCB Area
Save Cost

Feed Through Design



Easy to Design

Pin Compatible for Same Package

DFN2510



AZ1045-04F

AZ1043-04F

AZ1143-04F

AZ1243-04F

AZ176S-04F

Higher ESD/
Surge Specs &
Higher Criterion

Lower Price

Multiple ESD and EOS
Protection Solution

IC Benefit for Customer

EMI Filter, RS232, RS485, CAN bus Series

Robust Design

Provides ESD, EFT
and Surge protection



Patents

Over 21 worldwide patents



Customized

Enhance specific parameters

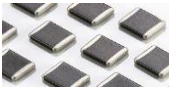
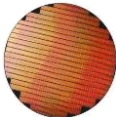


⚡ Traditional One Channel vs TVS Array

ESD
Leading Provider

	Single Channel TVS	TVS Array
		
Cost	Normal	Save Money 
PCB Occupied Area	Large Area	Save Area 
Function	Normal	Better 
Environment Effect	Normal	Eco-Friendly  
Application	Power Line, Control Signal	Differential Pair 

IC Integration Comparison

	Traditional  +  Interface IC ESD Protector	AMAZING  Interface IC + ESD In a Single Device
Device No.	Many	Only One 
Integrated Efficiency	Low	High 
Cost	Cost High	Low 
PCB Space	More	Less 
ESD Protection	Weak	Good 
Environment Effect	Normal	Eco-Friendly  

AMAZING Product Family

ESD Protection Device Product Families

Cover the widest range of ESD protection device spec in the market with more than **400 items** !

Family	Functions
AZ1	High Speed , ESD/EFT/Lightning/EOS Protector
AZ2	Low Speed , ESD/EFT/Lightning Protector
AZ3	Lightning Protector
AZ4	High Voltage (> 5V) , ESD/EFT/Lightning/EOS Protector
AZ5	Tiny Package , ESD Protector
AZ6	Low Voltage (<3.3V) , ESD Protector
AZ9	Automotive Application, ESD Protector, AEC-Q101
AZC	Customization , High Speed, ESD Protector
AZM	EMC component , EMI Filters with ESD Protectors

Transceiver IC Product Families

RS232 Transceiver Series for Industry Application

Features	Functions
Enhanced	Multi Tx/Rx & 3V ~ 5.5V working voltage
	Shutdown & auto-powerdown intended to save power (battery application)
	TxOUT $\pm 8V$, Data speed 2Mbps & T_A 125°C

RS485 Transceiver Series for Industry Application

Family	Functions
Surge RS485	30A Surge Protection for bus signals
ESD RS485	System 15kV ESD Protection RS485
Polarity Free RS485	Auto detection Bus Polarity Free Function
Low Power RS485	3.3V RS485 with H/L Speed
Ultra High Speed RS485	60Mbps Ultra High Speed RS485
Isolated RS485	Galvanic isolation 2.5KVrms

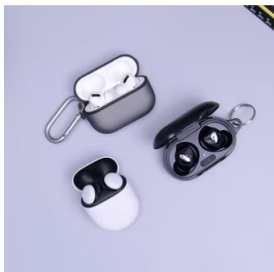
CAN bus Transceiver Series for Automotive Application (AEC-Q100)

Family	Functions
Automotive	CAN FD 5Mbps and CAN SIC 8Mbps with Standby and silent mode. Sleep mode type helps saving more ECU's power consumption. Interoperation with 1.8V I/Os. Conformance & EMC certification by authoritative organizations
Industrial	CAN FD 5Mbps & CAN SIC 8Mbps support complex and hybrid-topology. With high-fault voltage up to 70V . Interoperation with 3.3V I/Os.



Reference Design

with Worldwide Leading IC Supplier in the Following Field



3C Peripheral



NB, TV, Monitor



Industrial



Medical Electronic



Networking



Automotive



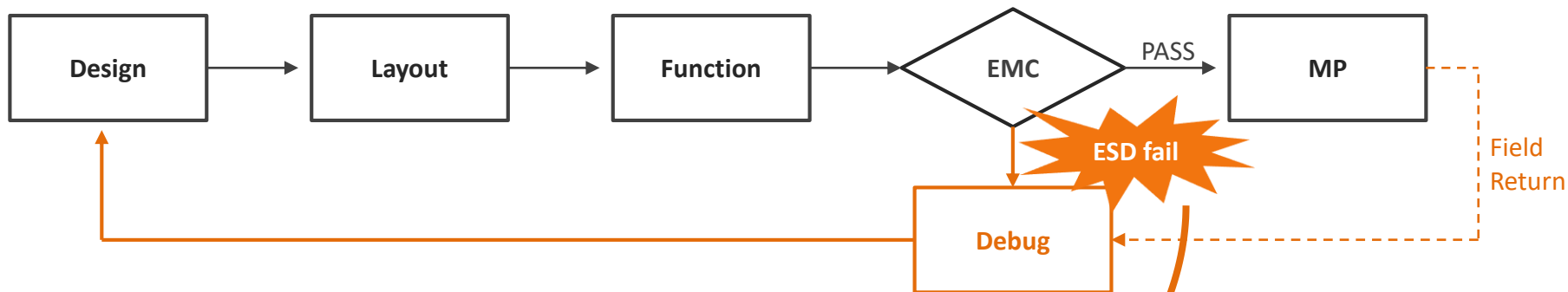
Aerospace



LCM(Panel)

⚡ AMAZING Can Help!!!

> Product design flow



AMAZING Can Help!!!

1. Provide proper **TVS Solution**
2. Robustness **ESD/EOS Protection**
3. Reduce **Field Return Rate**
4. Save **Product Design Cost and Time**



What can Amazing offer?

The Best Specification

- Lower Clamping Voltage
- Ultra Low Capacitance for Signal Quality
- Array Solution Saving PCB Area and Part Counts

Debug Service

- Provide Pre-Test Support by Own ESD Lab
- Provide Debug Service



AMAZING
Microelectronic Corp.

Develop New Solution

- Amazing is Willing to Cooperate with Customer to Develop New Product if the Advance Solution is Preferred by Customer

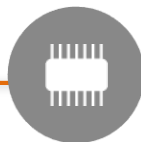
Design Consult

- Provide ESD/EOS Prevention Consult
- System Design and Technique Support

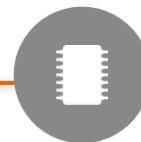
Summary



Over **400** TVS Products
for
Various Applications



Complete TVS Solutions for
High Speed and **Power Line**
Applications
with **ESD** and **Surge Protection**



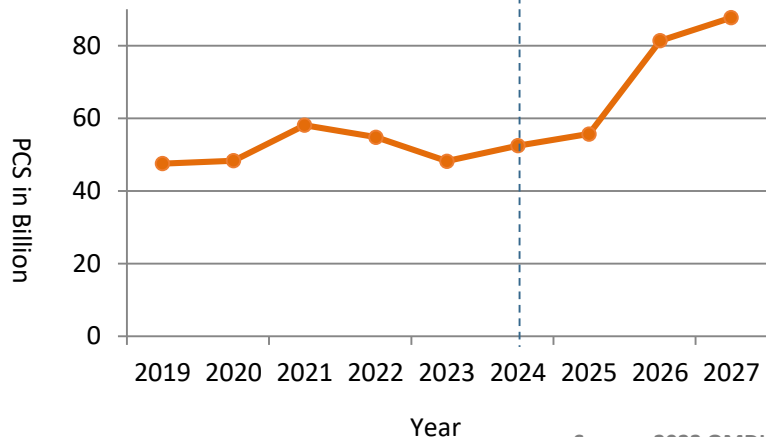
Integrate
ESD and **EMI** Solution
Save PCB Area
and
Supply Complete Protection

業績與財務

Global ESD/EOS Protection Market

ESD
Leading Provider

ESD Protection Devices Market Forecasts Predict Growth for 2024-2027



Source: 2023 OMDIA

AMAZING in World No.3!

No.2 @2021

Table 3.3

World Market Shares - Pure ESD Protection Devices

Revenues (\$M)

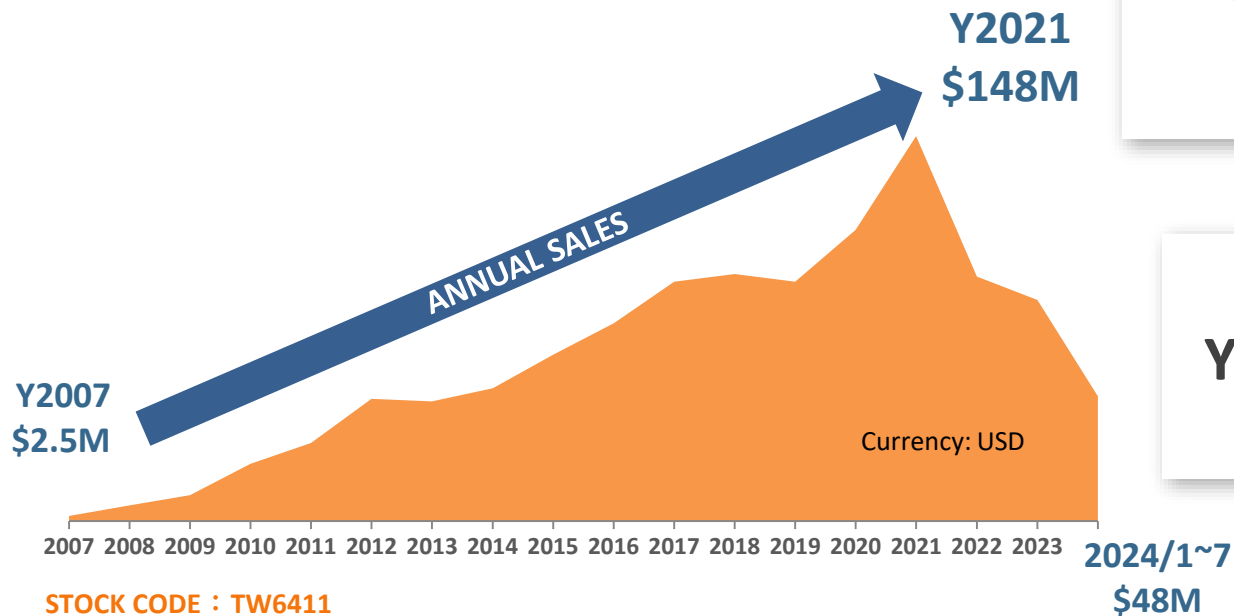
	Company Name	2021 Sales	2021 Share	2022 Sales	2022 Share
		(\$M)	%	(\$M)	%
1	Nexperia	264.8	26.4%	223.6	22.7%
2	onsemi	122.9	12.2%	134.0	13.6%
3	Amazing	139.6	13.9%	88.8	9.0%
4	STMicro	79.4	7.9%	78.5	8.0%
5	Semtech	72.9	7.3%	73.8	7.5%
6	Littelfuse	60.7	6.0%	57.5	5.8%
7	Infineon	52.8	5.3%	56.2	5.7%
8	Rohm	50.7	5.1%	53.0	5.4%
	Others	159.9	15.9%	218.0	22.2%
Total		1003.7		983.4	

Source: OMDIA

© 2023 OMDIA



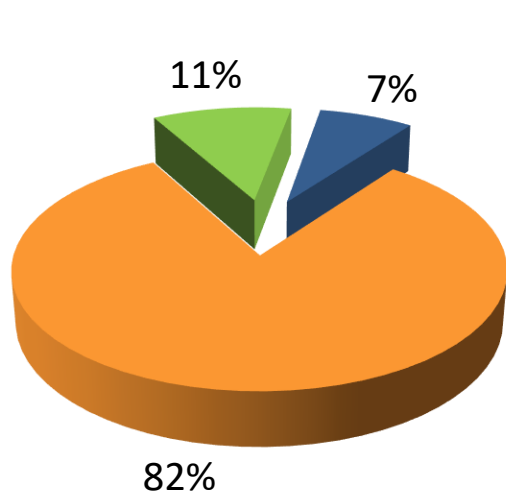
Annual Sales Revenue Growth



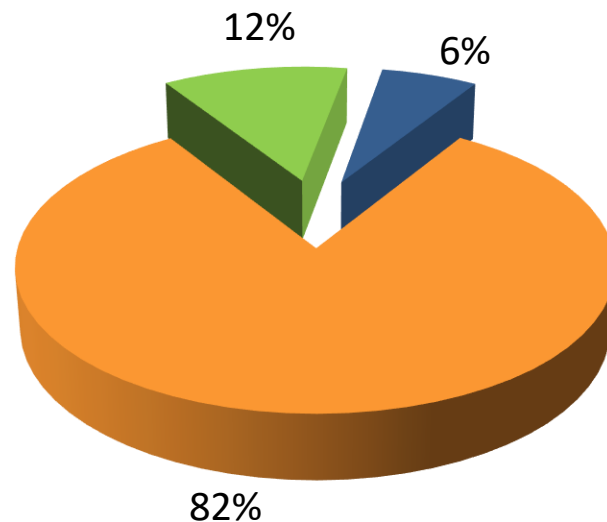
Record High of 2021
148 Millions

Y2023 85 Millions

⚡ 營收分佈



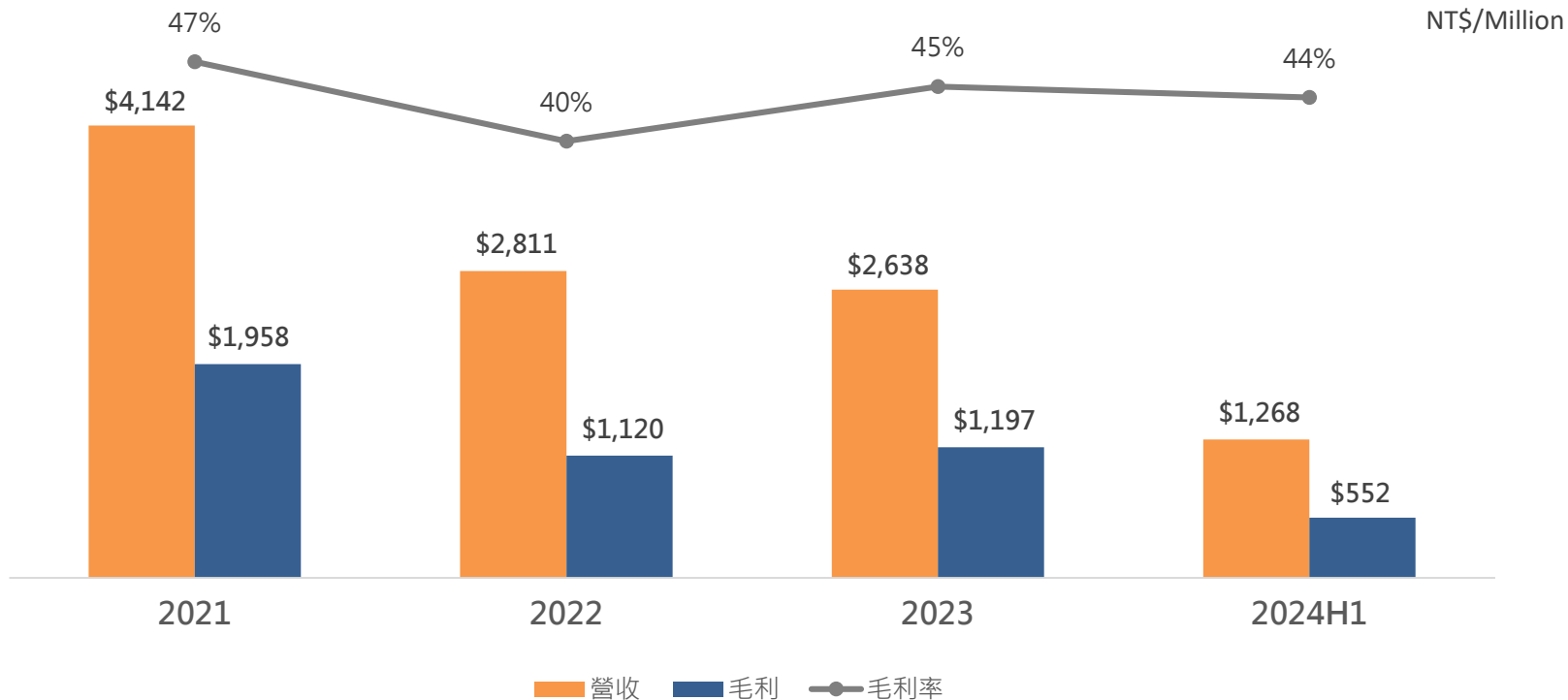
2023



2024H1

- Automotive
- Consumer
- Industrial

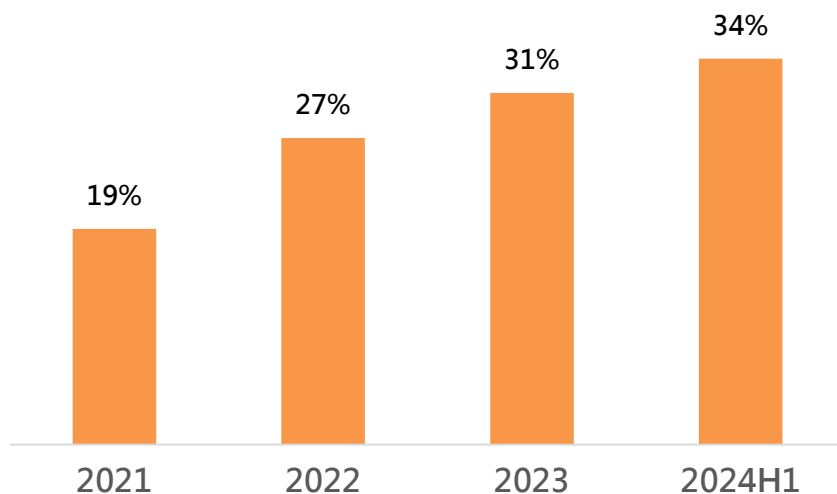
毛利



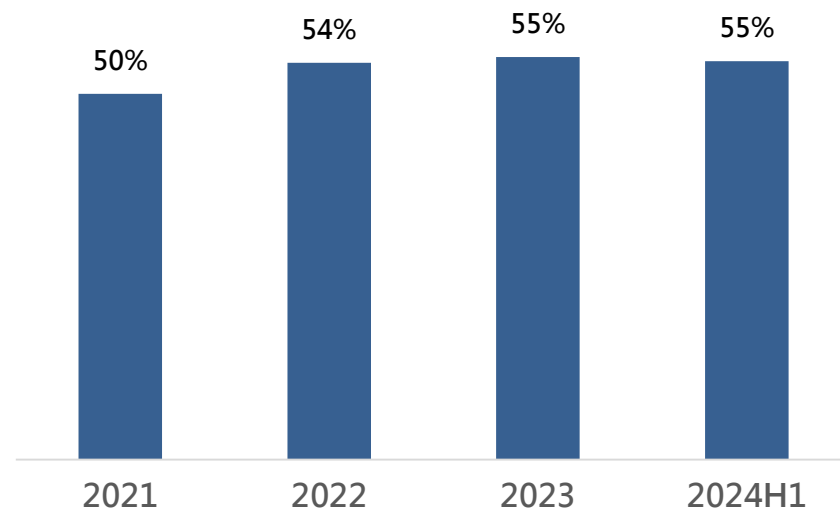


營業費用

營業費用佔營業收入比重



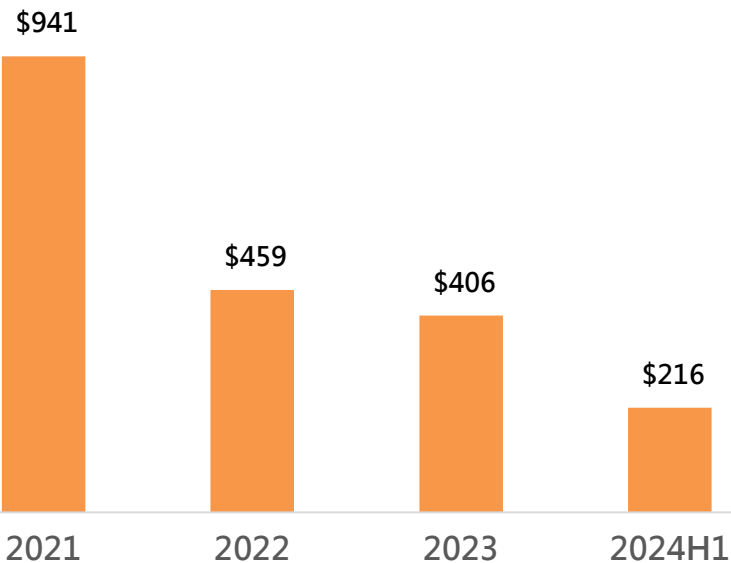
研發費用佔營業費用比重



淨利與EPS

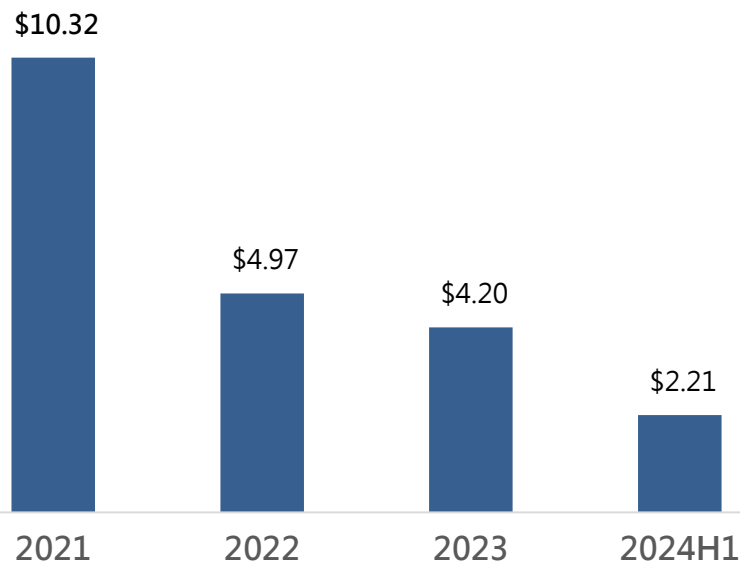
淨利

NT\$/Million



EPS

NT\$



損益表(YoY)

	2024H1	2023H1	YoY	NT\$/Million
營業收入	\$1,268	\$1,360	-7%	
營業毛利	\$552	\$664	-17%	
營業費用	\$413	\$419	-1%	
營業淨利	\$139	\$245	-43%	
營業外收(支)	\$86	\$40	115%	
稅前淨利	\$225	\$285	-21%	
所得稅費用	\$26	\$52	-50%	
稅後淨利	\$199	\$233	-15%	
歸屬母公司稅後淨利	\$216	\$258	-16%	
基本每股盈餘	\$2.21	\$2.67	-17%	



資產負債表

NT\$/Million

	2021/12/31		2022/12/31		2023/12/31		2024/6/30	
	Amount	%	Amount	%	Amount	%	Amount	%
現金及約當現金	\$1,846	29%	\$1,926	34%	\$566	9%	\$730	12%
應收帳款	\$1,085	17%	\$277	5%	\$552	9%	\$569	9%
存貨	\$490	8%	\$474	8%	\$396	6%	\$390	6%
總資產	\$6,339	100%	\$5,701	100%	\$6,206	100%	\$6,334	100%
總負債	\$2,095	33%	\$1,503	26%	\$1,472	24%	\$1,540	24%
股東權益	\$4,244	67%	\$4,198	74%	\$4,734	76%	\$4,794	76%

總結

晶焱一貫的發展策略：

- 產品開發以滲透到每一個電子產品為目標，不停歇的產品開發步調。
- 業務拓展以滲透到所有應用領域及全球市場為目標，不停歇的同步拓展步調。
- 生產管理以跟供應商共存共榮為目標，不停歇的品質管制、成本控制、及產能開發步調。
- 提供客戶有效的解決方案、無虞的供貨服務、合理的價格、以增加客戶的產品競爭力為終極目標。
- 建設成永續發展的企業。

2024年全球市場已下行至谷底區之際，上述發展策略仍屬有效，有助於公司迎接市場復甦的成長機會，因此會繼續貫徹執行。