

CHANG WAH TECHNOLOGY CO., LTD (6548)

2017/05/16

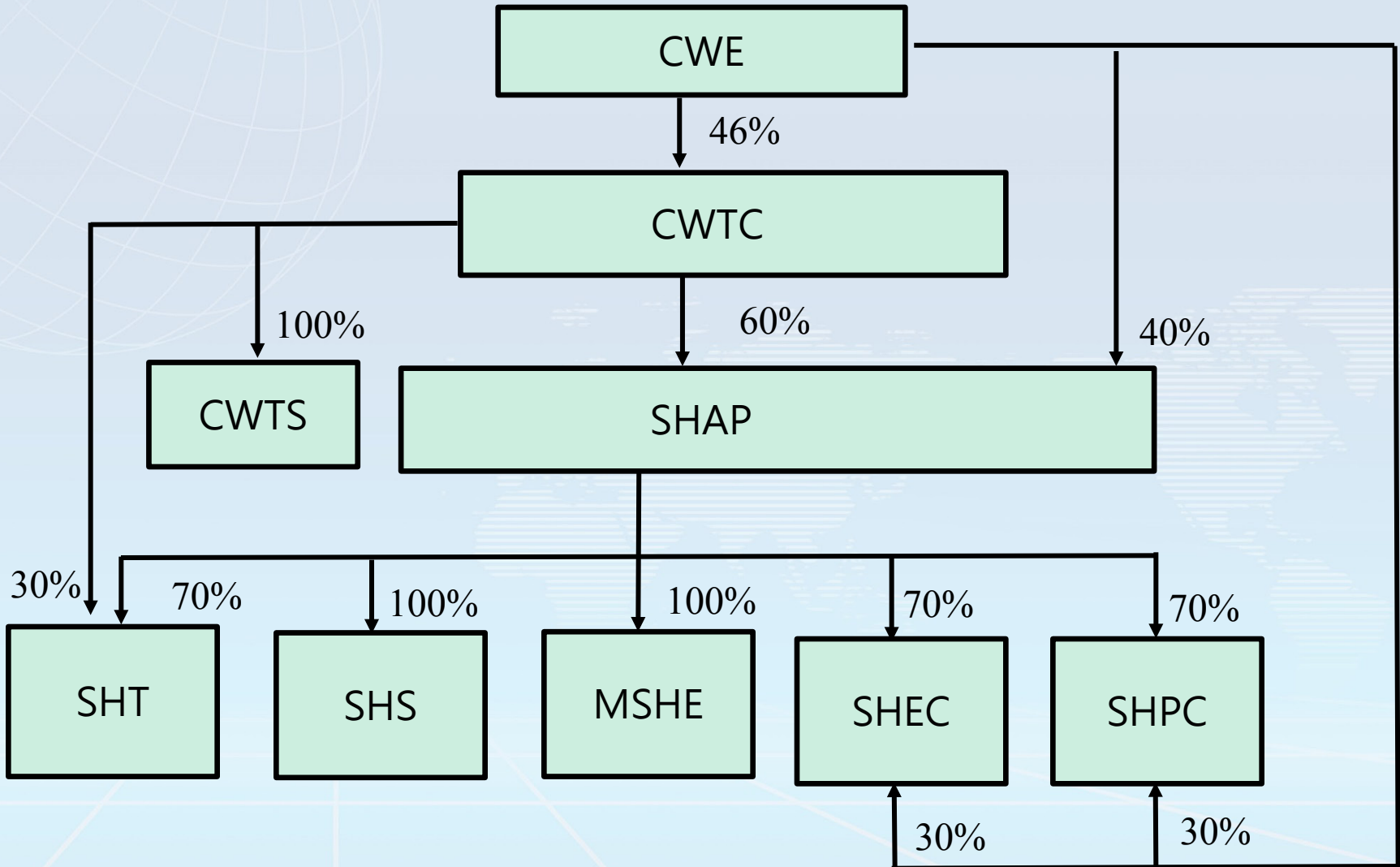
Outline

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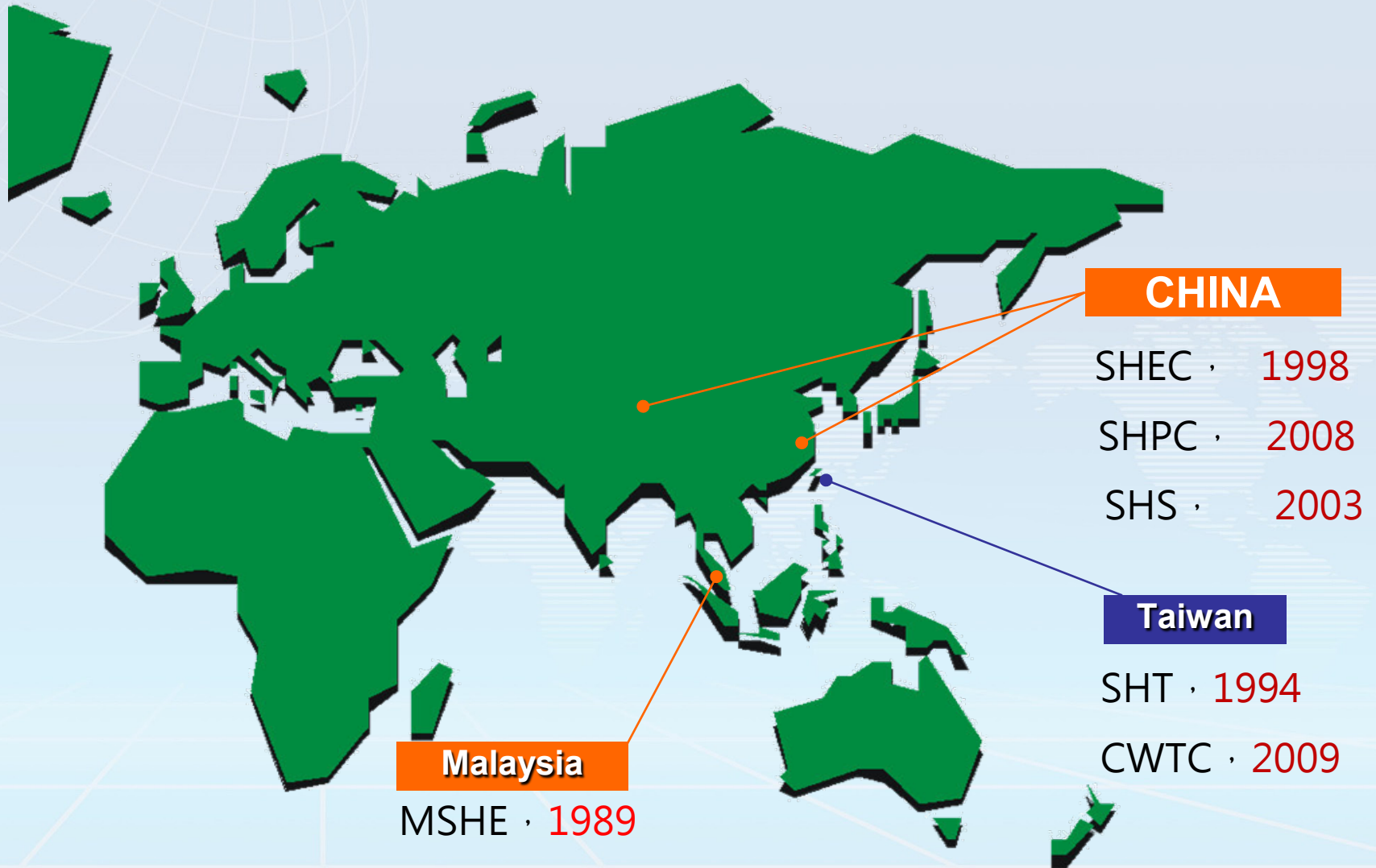
1. Company Introduction

Date of Incorporated	12/24/2009
Chairman	Canon Huang
Managing director	CS Hung
Capital Paid	NTD 301 Million
Number of Employees	1,927 (03/31/2017)
Major Produce	Pre-Mold Metal Substrate
Head Office	Nan Tze Export Processing Zone, Kaohsiung

Investment Structure



Plants and Factories



2. Lead Frame Market

World Lead Frame Market Trend

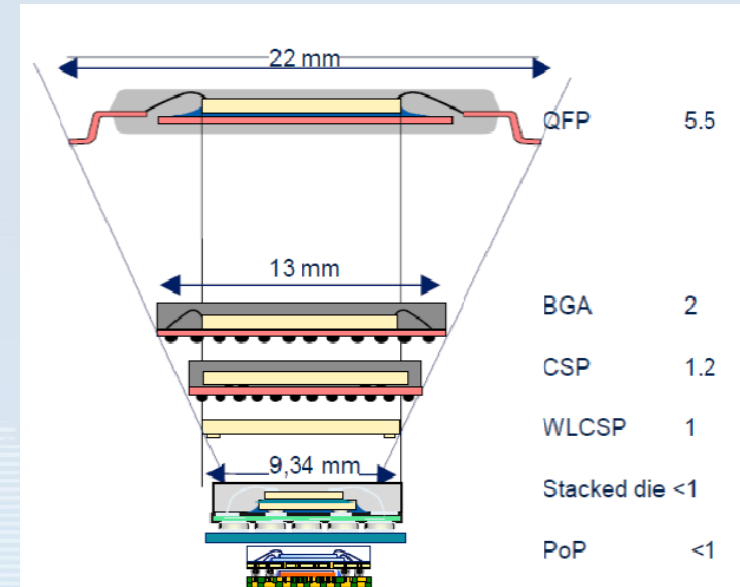
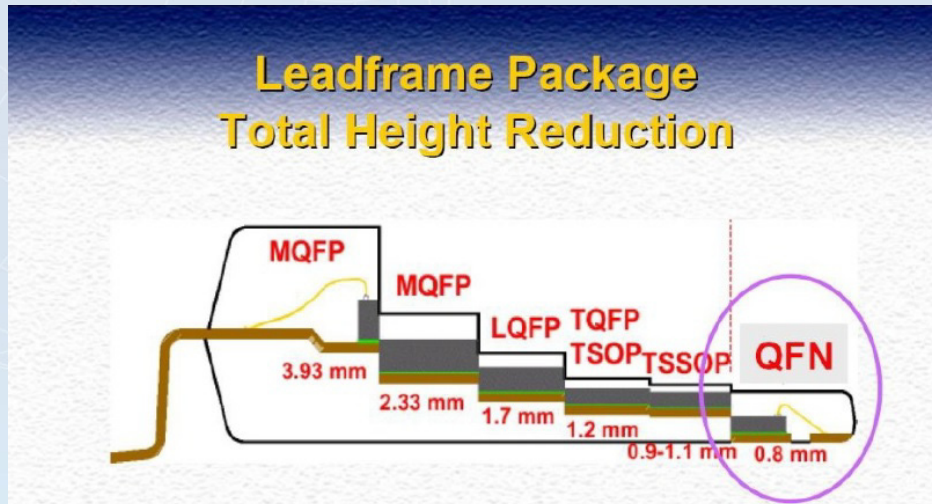
	Actual				Forecast		
	2013	2014	2015	2016	2017	2018	2019
Millions of Units							
SOIC / SOJ	66,302	70,569	69,860	70,270	71,660	72,310	72,140
TSOP	25,904	27,609	23,940	24,390	24,990	25,120	24,980
PQFP / TQFP	15,897	17,349	16,430	16,500	16,210	15,240	13,920
LF CSP (QFN / DFN / SON / LGA)	66,797	80,742	89,400	100,120	113,350	126,130	139,630
Other	6,402	6,617	5,820	5,660	5,450	5,290	5,040
IC LF Total	181,302	202,886	205,450	216,940	231,660	244,090	255,710

Source: SEMI Industry Research and Statistics, December 2015

1. The CAGR of IC lead frame output is around 6%. CSP lead frame increases significantly among all which the CAGR is 13% , higher than the IC lead frame and total lead frame market.
2. QFN lead frame expects to displace QFP package and turns out to be the major trend , the percentage of CSP lead frame in IC lead frame is 37% in 2013 expects to increase to 55% in 2019.

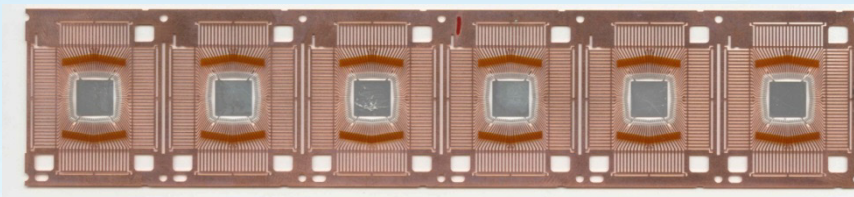
Advantage of QFN

1. Space Saving °

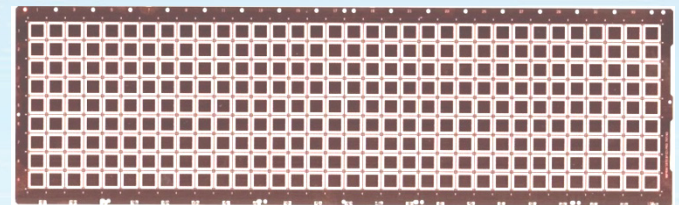


2. Reduce material cost °

QFP



QFN



3. QFN has the advantage of cost down and space saving and will be the major package in the future. The application of QFN includes mobile devices 、 wireless and automotive °

S.H.M is the world wide leader

World Wide LF Market Share

Rank	Rank Suppliers	2014 Revenue \$M	Rank Suppliers	2015 Forecasted Revenue \$M
1	SH Materials	\$357	SH Materials	\$347
2	Mitsui Hi-Tec	\$331	Mitsui Hi-Tec	\$331
3	Shinko Electric Industries	\$282	SDI	\$290
4	SDI	\$271	Shinko Electric Industries	\$242
5	ASM Pacific	\$245	ASM Pacific	\$227
6	HaesungDS	\$180	HaesungDS	\$175
	Others	\$1,540	Others	\$1,379
		<u>\$3,206</u>		<u>\$2,991</u>

Source: SEMI Industry Research and Statistics, December 2015

1. SHM did not focus on QFN back then. However CWTC will integrate the group resource and Pre-Mold know how, focus on the QFN products.
2. SHM + CWTC is few manufacturer which combines stamping, etching, plating and cutting. Collaborated with CWE's sales team and production know how, SHM + CWTC is more competitive than other manufacturers.

4th C – Car Electronics

- Over 60M new car / per Year

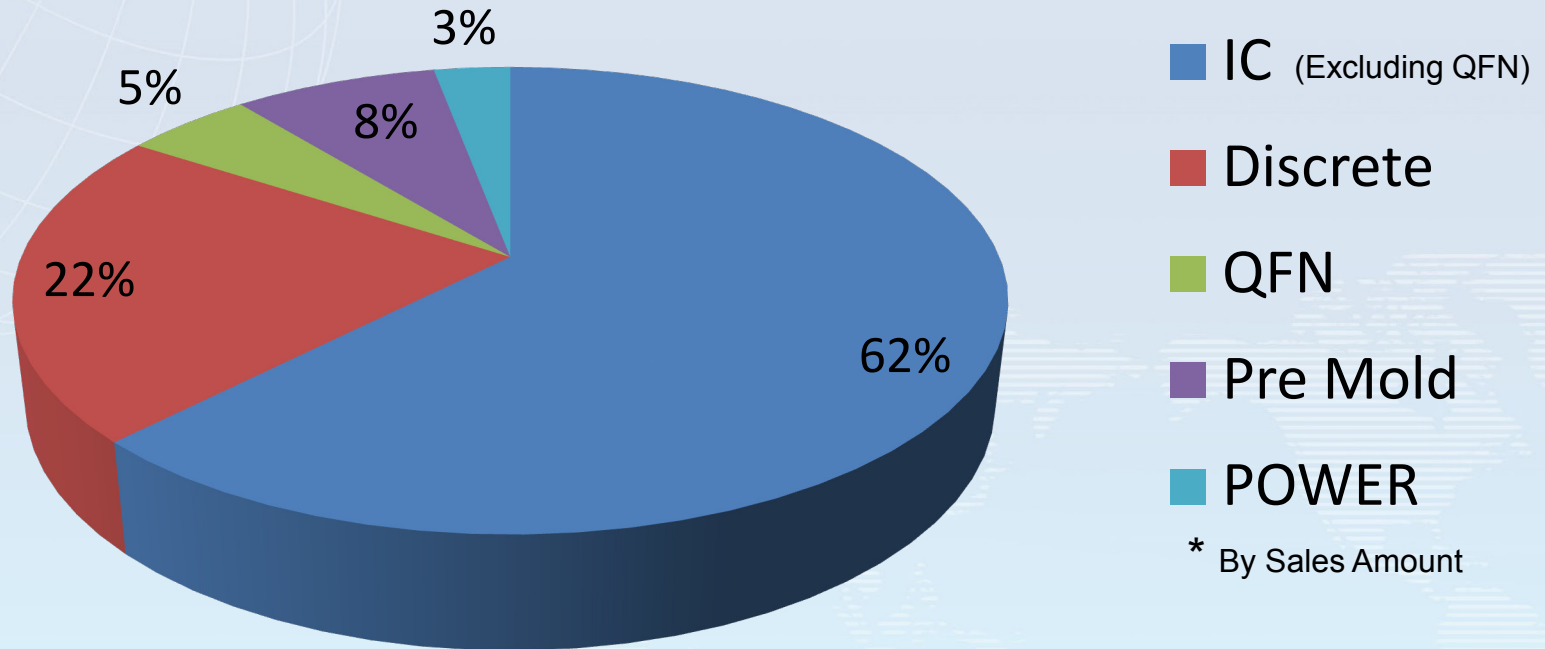
country	USA	JPN	GER	CHN	IND
GDP/USD	54900	36600	45700	7800	1800
no. car/1000人	797	591	572	145	18
Sale C No./ 2016	17KK	4.9KK	3.3KK	28KK	3.5KK

- No. of Chip per Car : 2013:550 pcs → **2016: 616 pcs**
- Car electronics cost/ per Car: 1970 -2%, 2004-28% → **2010 - 35%**
- Semiconductor cost / per Car: 2005-380 USD → **2010 - 550USD**
- Automotive business is a Long Term Business than 3C industry but more difficult to access.
- Auto IC requires highly modular which needs the package to be small and thin , QFN package expects to be applied on Auto IC widely.**

3. Products and Customers

Products Mix -1

Q1 2017



IC Lead Frame contributed 62% , mostly came from SOP 、 TSSOP 、 TSOP and QFP ;

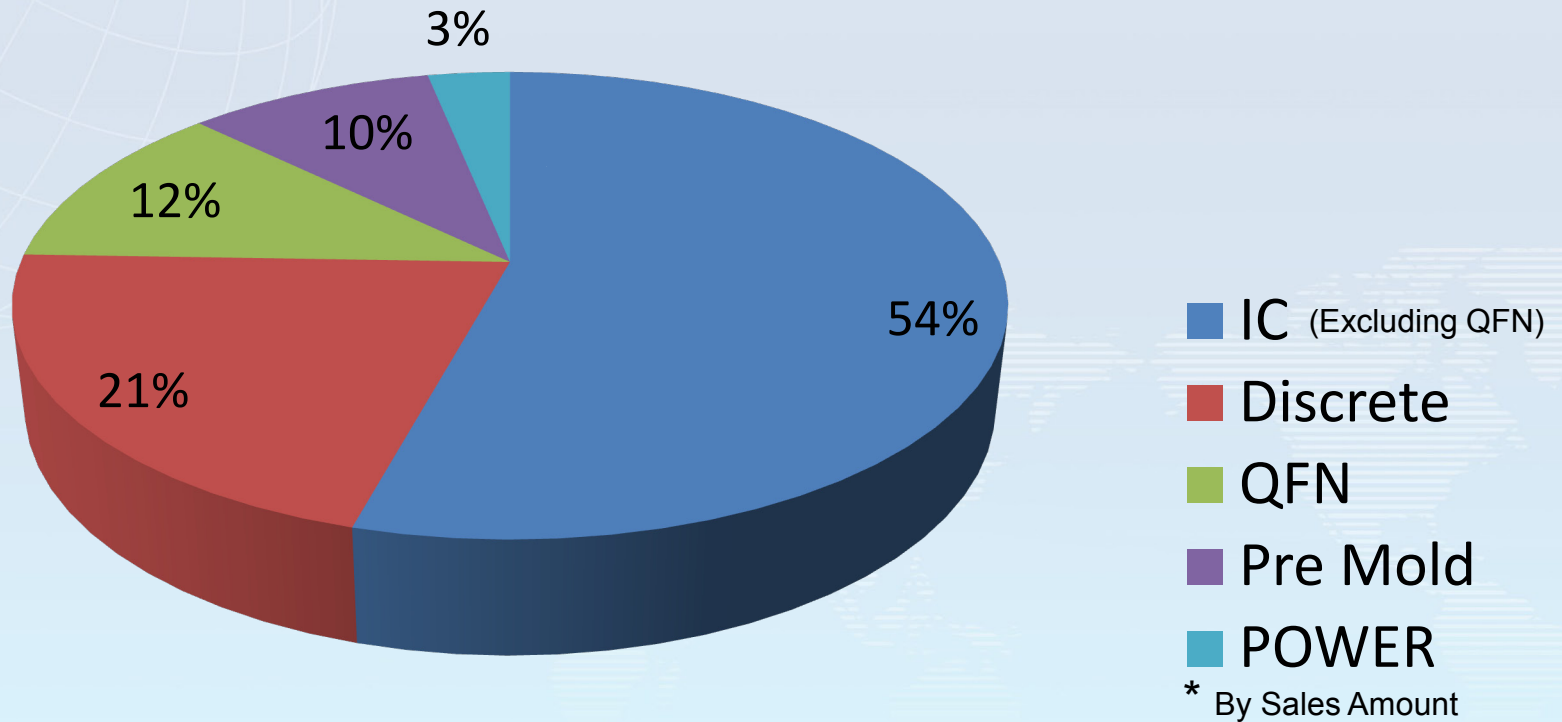
Discrete contributed 22% , SOT is majority ;

Pre Mold was nearly 8%

QFN was around 5% 。

Products Mix -2

Q4 2017



IC Lead Frame expects to drop to 54% , Discrete remains around 21% ,
QFN and Pre Mold will increase to 12% and 10% respectively.

Pre-Mold Metal Substrate Customer

- **OSATs (Current CWE Customers)**
- **IDM 、 OSATs (S.H.M Customers)**
- **China Local Customer (Developing)**

4. Business Overview

Consolidated P&L

	Units : NTD in thousand		
	2016 Q1	2017 Q1	YoY (%)
Sales Revenue	108,888	441,502	305.5%
Gross Profit	38,535	93,216	142.9%
Gross Profit Rate (%)	35.39%	21.11%	-
Operating Expense	16,251	46,695	187.3%
Operating Profit	22,284	46,521	108.8%
Other Income and Expense	1,522	(11,452)	(852.4)%
Profit Before Tax	23,806	35,069	47.3%
Profit After Tax	19,963	2,053	(89.7)%
EPS	0.91	0.08	-

Business Plan for 2017

- **100 days plans of CWTC**
- **Investment Re-Structure**
- **Capital Expenditures – Pre Mold及QFN**

Thank You