

1983

IDM

2019

57.4 Foundry

4.0

62% MOSFET

6% IGBT

43% IC

57% MOSFET

14% MOSFET

8.7%

IHS Markit

2019

404

144

320

1 8

3 6

70

12

53%

2019

10.7

2.45

18

12

50% MOSFET

BJT

IC IGBT

4

1  
2019  
2020-2022  
35.02 40.27 44.30  
10.00% 15.00% 10.00%  
2020-2022 18.00%  
18.50% 18.50%

2  
2020 5G  
2020-2022  
31.45 39.31 47.17  
25.00% 25.00% 20.00%  
2020-2022 30.00%  
31.00% 31.00%

1

2

-

1

2

SiC GaN

3

4

12

2020-2022 5.20 6.48 8.07  
PE 102x 82x 65x  
PB  
2020Q1 PB 6.1x 2020Q1 PB 5.4x

---

1	IDM	.....	6
1.1		.....	

1		.....	6
2		.....	6
3		.....	7
4		.....	7
5		2019 12 31 .....	7
6	2019	.....	8
7	2020 2	.....	8
8	2020 2 Ã h	.....	9
9		.....	10
10		.....	10
11		.....	10
12		.....	11
13	MOSFET	.....	12
14		.....	13
15		.....	14
16	2014-2021	.....	15
17	2014-2021	.....	15
18	Ã 2018	.....	16
19			

37		2018	.....	29
38	2017		.....	29
39	2018		.....	30
40			.....	31
41			.....	32
42			.....	33
43	8	2020 2	.....	33
44			.....	34
45			.....	34
46	8		.....	35
47			.....	37
48			.....	38
49	-PB		.....	38
50	-PE		.....	39

# 1

# IDM

## 1.1

### IDM

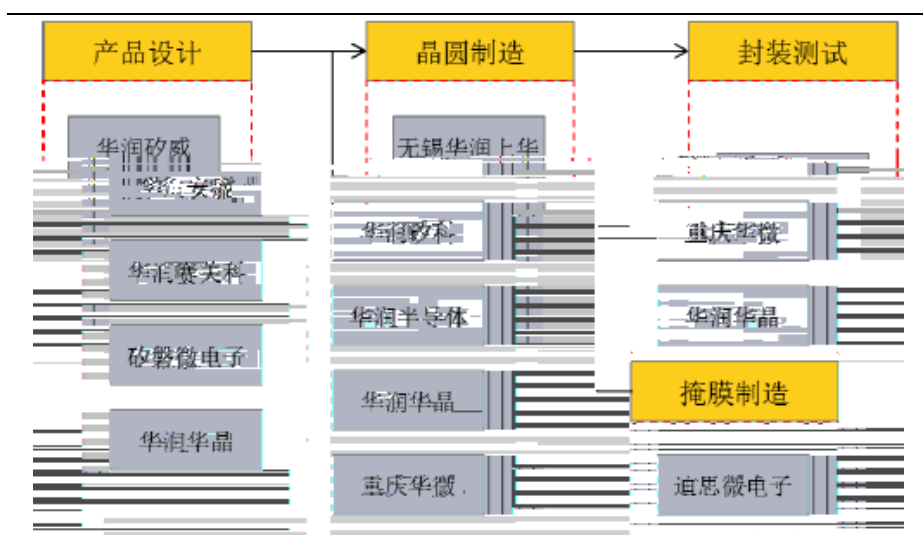
#### 1

	2019			2018			2017			2016		
	25.16	44.10%	29.48%	26.83	42.90%	34.02%	23.39	39.92%	19.59%	13.32	30.52%	25.19%
	31.84	55.90%	17.76%	35.72								

3

	2019		2018		2017		2016	
	1-6		1-6		1-6		1-6	
	10.60	71.29%	26.74	74.87%	25.63	72.83%	21.88	72.17%
	3.69	24.84%	7.86	22.00%	8.20	23.30%	7.29	24.06%
	0.58	3.87%	1.12	3.13%	1.36	3.87%	1.14	3.77%
	14.87	100.00%	35.72	100.00%	35.20	100.00%	30.32	100.00%

4



5

2019 12 31

子公司全称	主要经营地	业务	注册资本	持股比例 (%)
无锡华润上华科技有限公司	江苏无锡	晶圆制造	66801.147 万美元	100
无锡华润矽科微电子有 限公司	江苏无锡	IC 设计	12499.3178 万人民币	100
无锡华润安盛科技有限 公司	江苏无锡	封装测试	4 亿人民币	100
华润赛美科微电子(深 圳)有限公司	广东深圳	封装测试	1380 万美元	100
无锡华润华晶微电子有 限公司	江苏无锡	分立器件	3.35 亿人民币	99.662
华润上华重庆微电子有 限公司	重庆	分立器件	19,892 万人民币	52.69

6 2019

子公司全称	总资产	净资产	营业收入	净利润
无锡华润上华科技有 限公司	389,648.46	289,472.02	297,727.94	31,673.27
无锡华润微电子有 限公司	37,776.09	2,003.85	38,689.99	-1.26
无锡华润艾盛科技有 限公司	31,376.13	70,259.15	44,888.62	73,728.18
华润微电子(深圳)有 限公司	444.08	28,541.20	11,117.88	17,508.81
无锡华润微晶电子有 限公司	1,075.68	83,021.18	50,908.28	88,501.62

1.2

CRH Micro

878,982,146

99.996053%

0.003947%

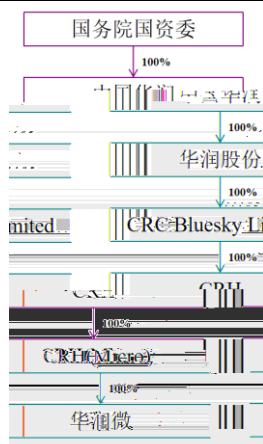
CRC Bluesky Limited

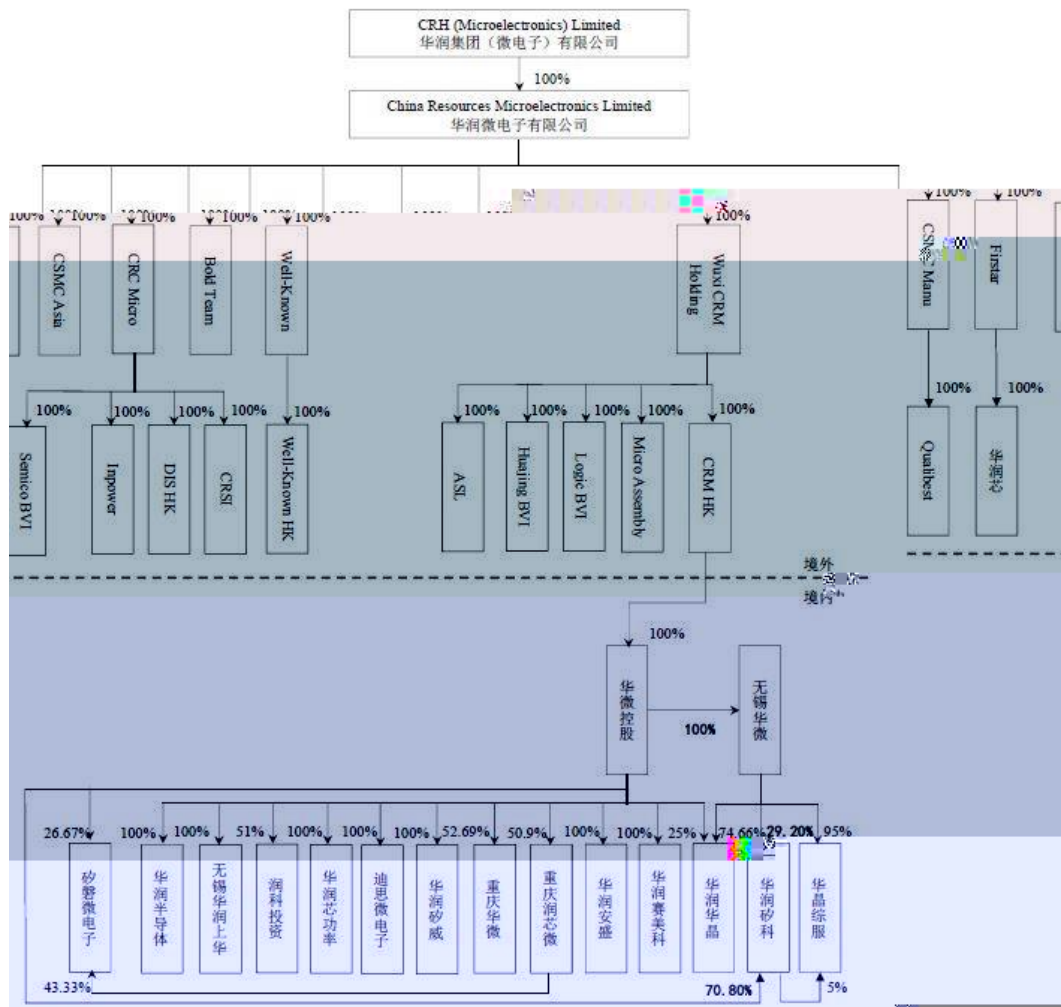
CRH 99.99%

Riverlink Limited

CRH 0.01%

7 2020 2





1.3

+

1983  
1999 Dr. Peter CHEN Cheng-yu

6 MOS

2002

2003

CSMC

Chartered

Semiconductor

2004 8 CSMC

2008

CSMC

CRM

2011 11

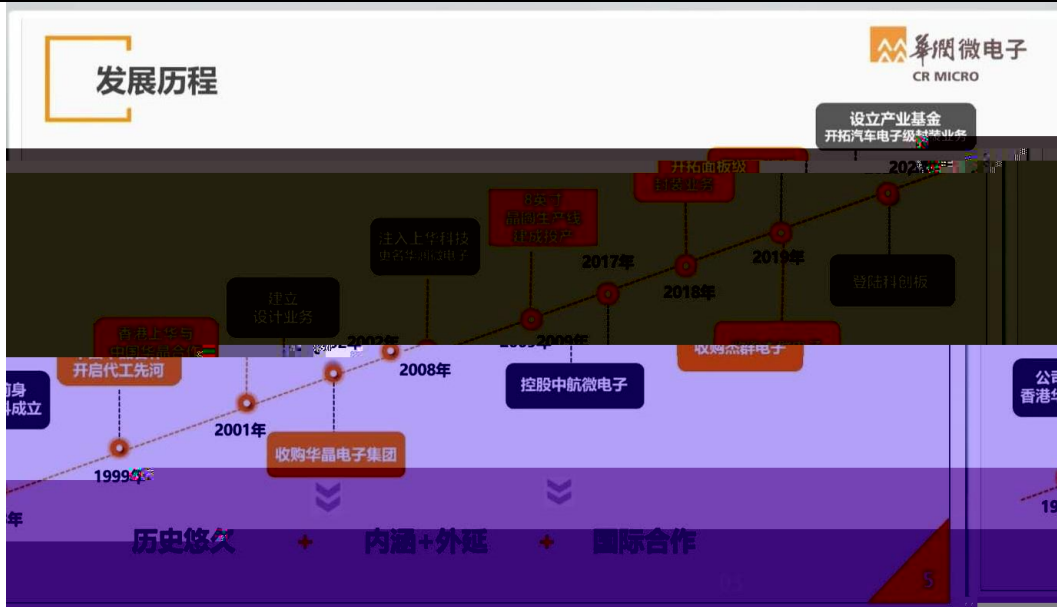
2017

52.41%

2019

2020

9



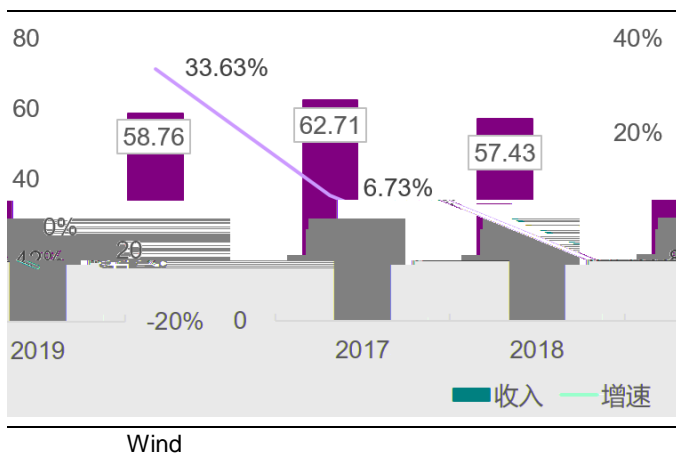
2019

1.4

			2017-2019		58.76
62.71	57.43		33.63%	6.73%	-8.42%
2017	2018				

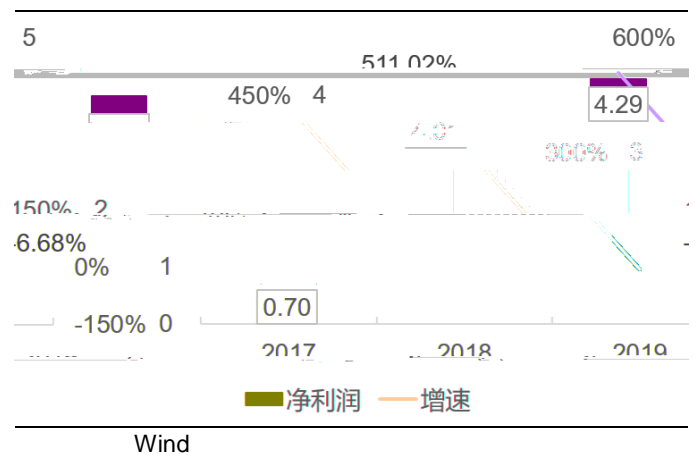
2019

10



Wind

11



Wind

2018

2017-2019

0.70

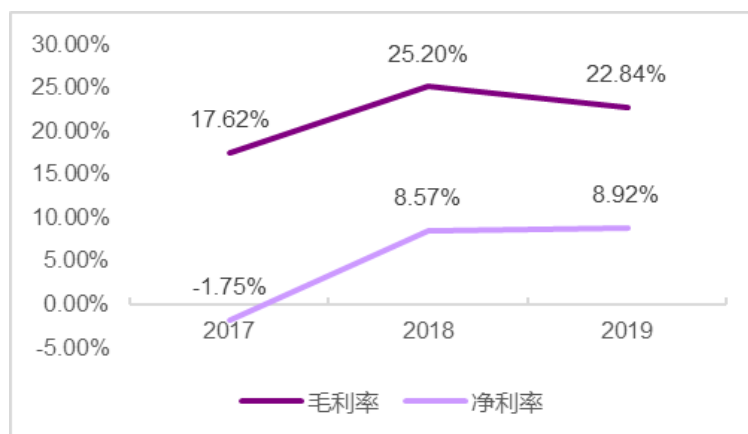
4.29

4.01

2018

8	2	8	2017
	3.71		
2017-2019		17.62%	25.20% 22.84%
	1	2017	
2	8	2	8
2017	3.71	3	
39.92%	42.90%	43.81%	
	19.59%	34.02%	29.48%
	16.33%	18.57%	17.76%
			2019
	2019		

12



Wind

1.5

IDM

IDM

IDM

Fabless

IDM

1,100

500

IC

IPM BCD MEMS

8 133 / 6 247 /

4.47 4.50 4.83 7.61%

7.17% 8.40% 2019 12 31 7878

3032 38.5%

5 2

2019 12 31

1401 2578 291 173

1228

MOSFET

VDMOS MOS IGBT

Trench-FS 600V-6500V IGBT

8 Trench SBD

45V 150V BCD MEMS IPM

PQFN/PDFN

**13 MOSFET**

	30V-900V	40V-900V	-60V-150V	-100V-1500V
	MOS MOS	MOS	MOS MOS P	MOS MOS
	MOS MOS MOS	MOS	MOS	MOS P MOS MOS

IPM MOS SiC GaN

500-600V SOI BCI MOS IC BMS IC

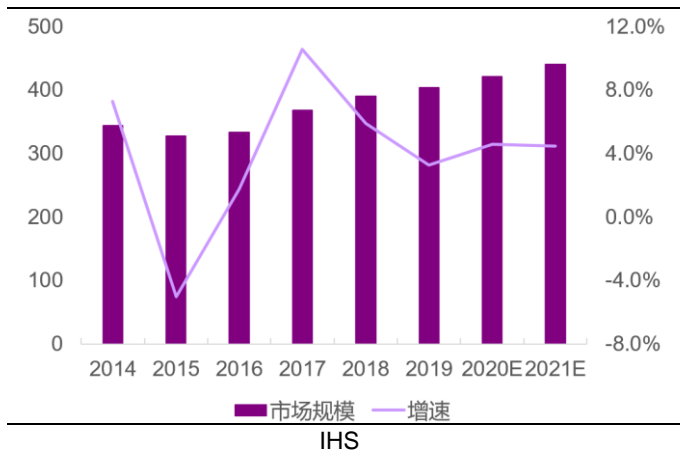
8 MEMS 0.5

14

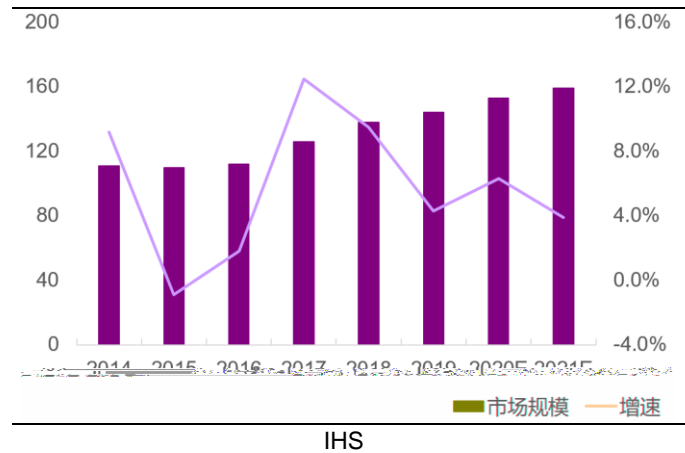
	/	
	MEMS	IPM
	IGBT	SBD/FRD
ASIC		MCU
		MOS



16 2014-2021



17 2014-2021

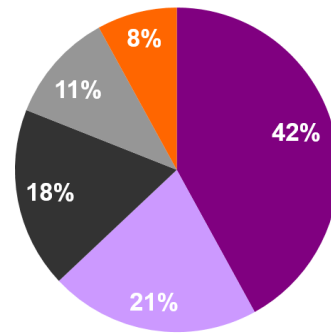


IHS Markit  
IC MOSFET IGBT 2018  
60.98% 20.21% 13.92%

IC  
IHS Markit 2018 IC 84.3  
2016-2018 2.88% IC  
GaN SiC

## 2.2

	2017	2018
EEPW	42%	42%
其他	21%	18%
其他	8%	11%



■ 汽车电子 ■ 通信 ■ 工业 ■ 计算机 ■ 消费电子

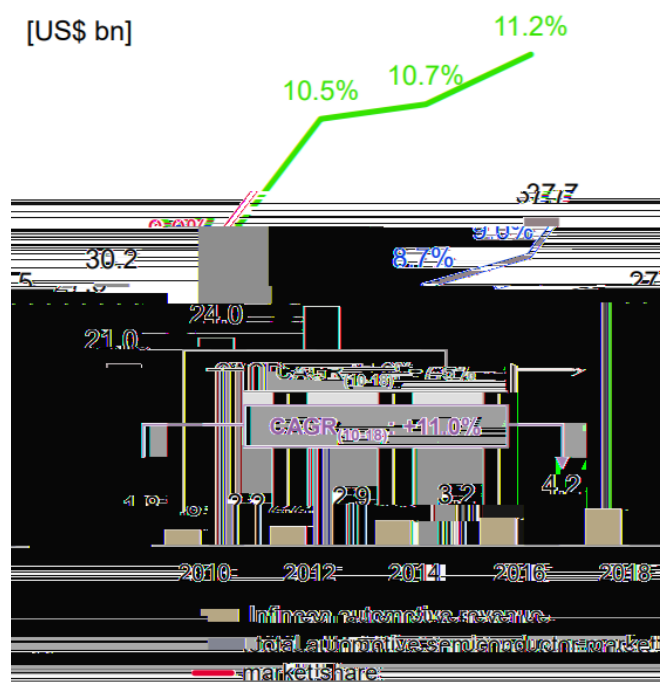
EEPW

	2010	2018
EEPW	210	377
其他	7.6%	

## 19

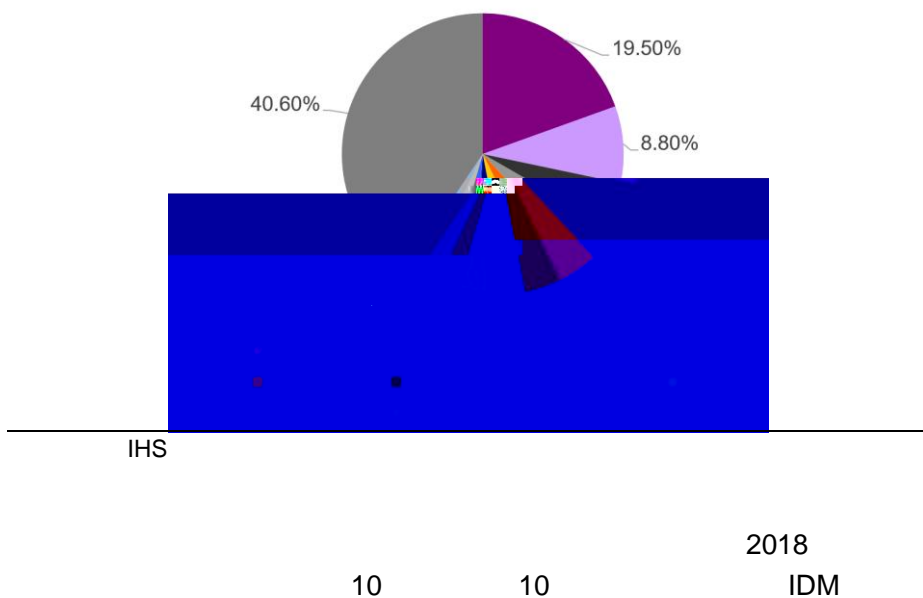
### Automotive semi market development

[US\$ bn]





22 2018



23 2018

		2018	
1		509	
2		248	
3		239	
4		225	
5		111	
6	( )	107	
7		92	
8		66	
9		65	
10		63	IDM

2018

24

2018

		2018
1		21.7
2		18.5
3		17.1
4		8.1
5		7.7
6		7.2
7		6.9
8		6
9		5.4
10		4.9

25	MOSFET	2018	MOSFET	2018
1			52	28.40%
2			31	16.90%
3			16	8.70%
4			12	6.60%
5			12	6.60%
6			9	4.90%
7			51	27.90%
			183	100%

IHS

MOSFET  
MOSFET -100V 1500V  
MOSFET  
MOS VDMOS MOS  
IHS Markit 2018 MOSFET  
MOSFET

26

		1999			1999
IFX.DE	2000				
		2018	75.99	10.75	
ON.O		1999		LED	
		2018	58.78	6.30	
TXN.O		1930			
		2018	157.84	55.8	
STM.PA		1987			
		2018		96.64	12.87
600460.SH		1997	MCU	LED	LED /
		2018	30.26	1.70	14.75 48.74%
600360.SH		1999		IC	IC
			PC		
		MOS	IGBT	2018	17.09
		1.07			

		2006							IDM
	300373.SH								
		2018		18.52		1.88			

Wind

## 27

### 2017-2020Q1

		2020Q1		2019		2018		2017	
688396.SH		13.82	1.14	57.43	4.01	62.71	4.29	58.76	0.70
603290.SH		1.38	0.27	7.79	1.35	6.75	0.97	4.38	0.53
600745.SH		113.40	6.35	415.78	12.54	173.35	0.61	169.16	3.29
	-			103.71	12.58	104.30	13.40	94.43	8.18
600703.SH		16.82	3.92	74.60	12.98	83.64	28.30	83.94	31.64
300373.SZ		4.87	0.56	20.07	2.25	18.52	1.87	14.70	2.67
300623.SZ		1.54	0.42	6.74	1.90	5.37	1.66	4.31	1.44
600460.SH		6.91	0.02	31.11	0.15	30.26	1.70	27.42	1.69
600360.SH		3.92	0.09	16.56	0.65	17.09	1.06	16.35	0.95
300046.SZ		0.35	0.00	2.65	-2.20	4.18	0.86	2.79	0.53
002079.SZ		3.26	0.13	19.81	0.96	18.85	0.95	18.55	1.05

Wind

## 2.4

1998      12      1999  
2000

1999-2004      2000 IT  
2001      10      2004

ADMtek

xDSL CPE      ASDL      VoIP  
IC

2004-2011

2006

2009 1

2009      2.5

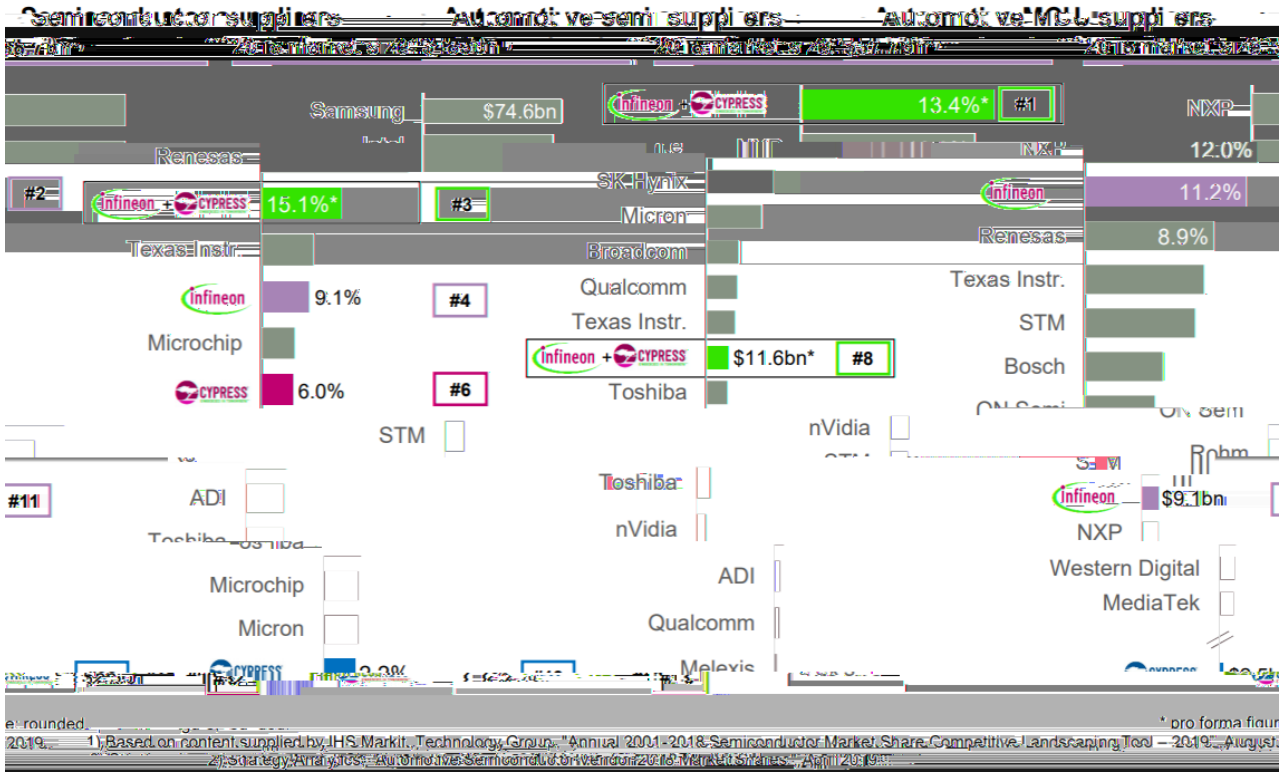
Golden Gate Capital      2015

2011

14

2019

28



2011-

2014

30

IR

2016

8.5

Cree Inc.

Wolfspeed  
IOT



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### 3

#### 3.1

#### IDM

32 IC

IC	AC-DC	AC-DC	
	LED IC	LED	
	BMS IC		
	IC	78 1117 100mA-1A	
	IC	100W	
	IC	,	
	IC	AB D 5mW-50W	

IC

IC

1. AC-DC

2. LED IC  
LED

LED

3. BMS IC

4. IC

IC

5. IC

WPC QI

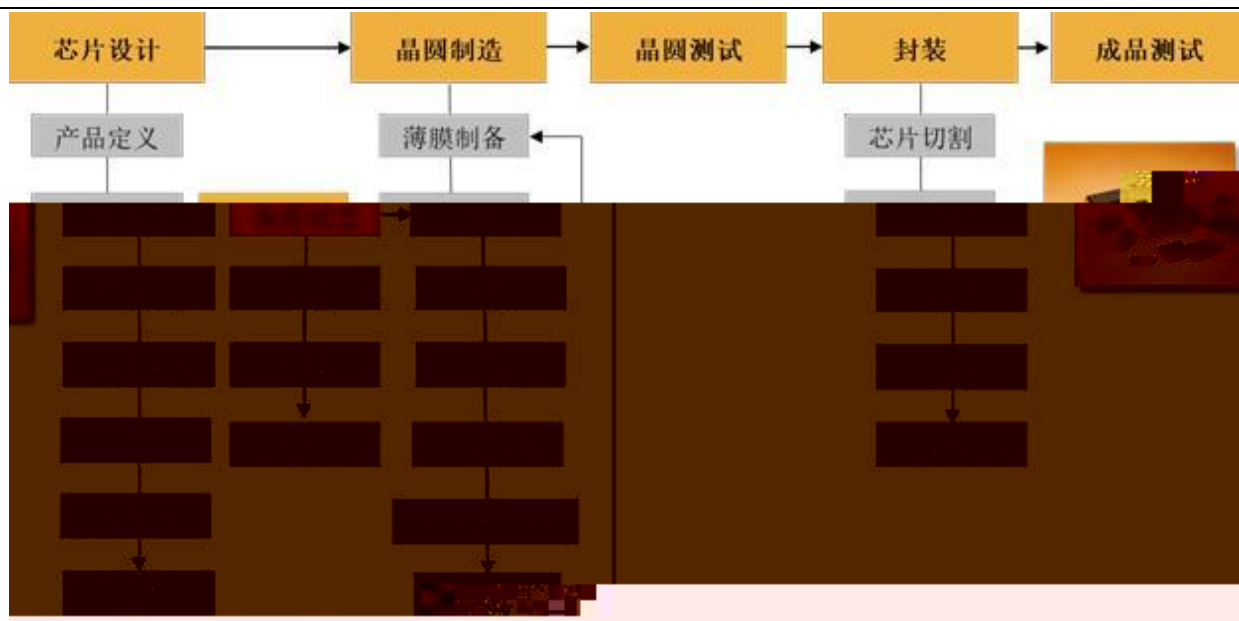
6. IC

7. IC BCD CMOS

IC

IDM

33



3 6

8

34



35

6

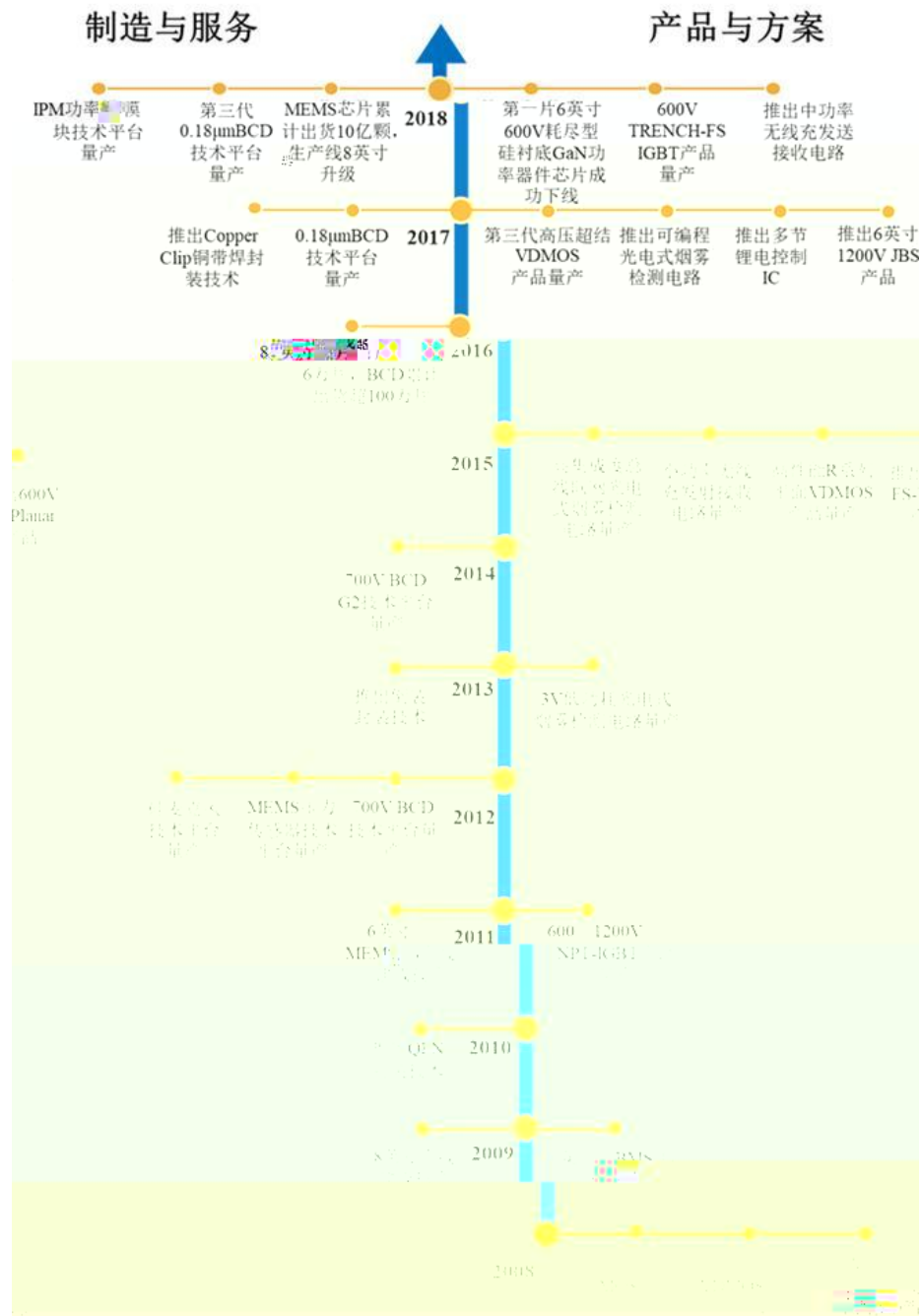
		2018	
	3 6		247
			/100%

6  
 CMOS MEMS  
 CMOS GaN SiC  
 Bipolar  
 BiCMOS  
 SOI  
 BCD  
 1.0-0.11 m  
 IGBT  
 BCD  
 MEMS

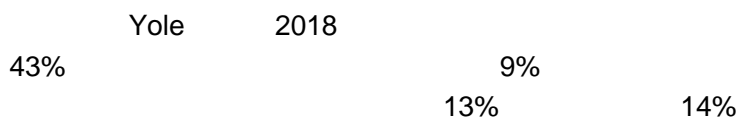
1 8  
 SBD  
 MOS  
 MOS IC  
 IGBT  
 GaN  
 60  
 MOS

62  
 50 m 12  
 \ FC

PEP INNOVATION

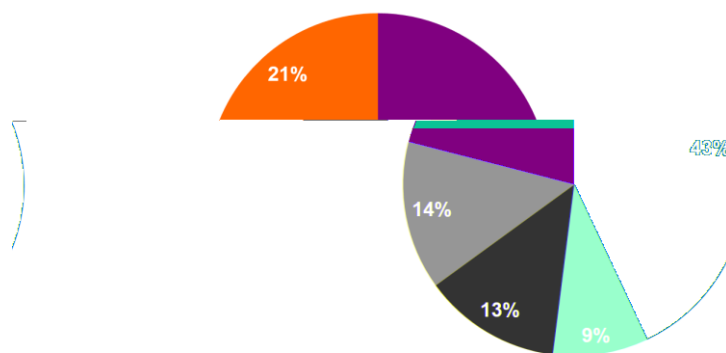


### 3.2



37

2018



大洋洲 (除去中日) 中国 日本 欧洲、中东、非洲 美洲 亚洲与

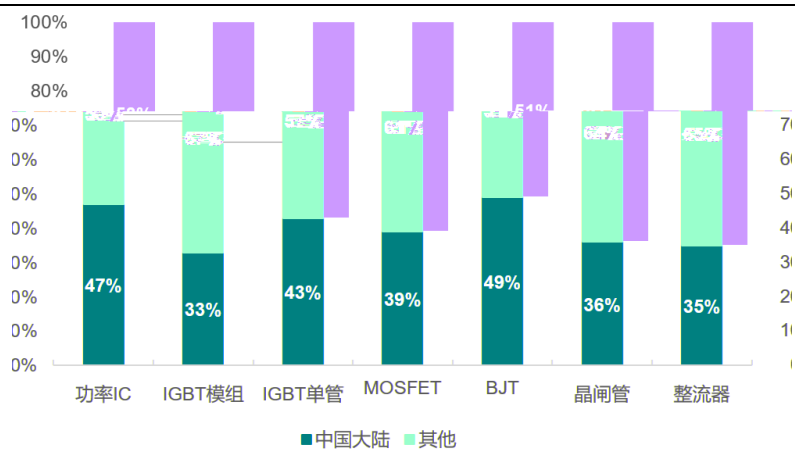
Yole

2017

124.6  
39.31

38

39 2018



Yole

3.3 IGBT SiC GaN

IGBT

IGBT

IGBT

IGBT

1.SiC

SiC6

700-1000 / 2020

SiC

2000

SiC

SiC

SiC

SiC MOSFET

2.GaN

600V

GaNHEMT

2019

6

8

2021

IDM

1.

IDM

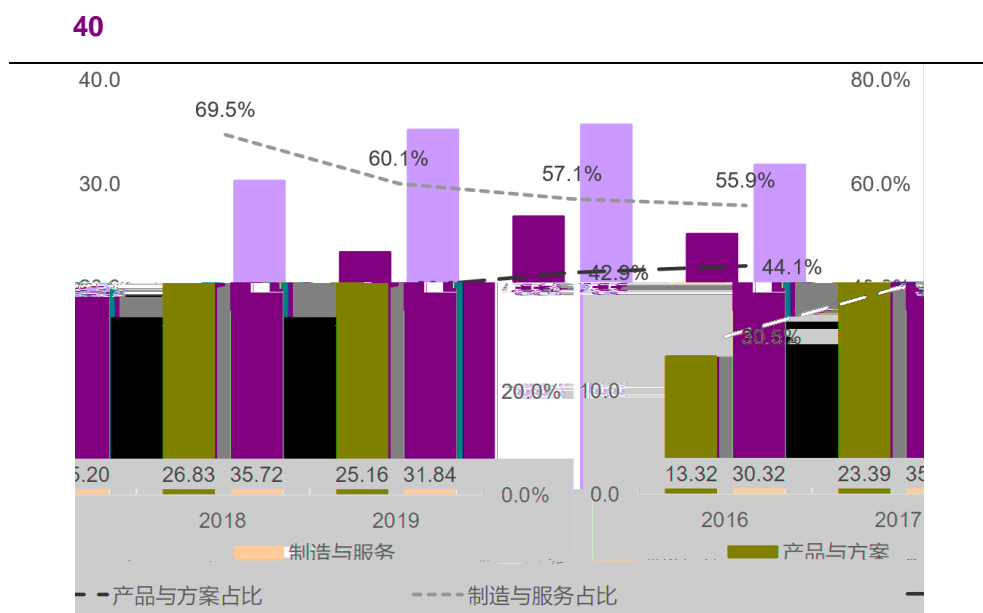
10-15

IDM

15

IDM

2. IDM 6 SiC  
SiCJBS  
JBS  
600-1200VSiCMOSFET  
MOSFET IGBT FRD  
1100 IC 500  
2016-2019 13.32  
23.39 26.83 25.16 30.5% 39.9% 42.9% 44.1%



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4

4.1

12

41

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2019

---

13

2001 2002  
6 MOS 2008  
52.41% 35% IDM 2017  
2019

42

2001	MOS	100%
2002		100%
2008		100%
2017		52.69%
2019		35%

4.2

12

8

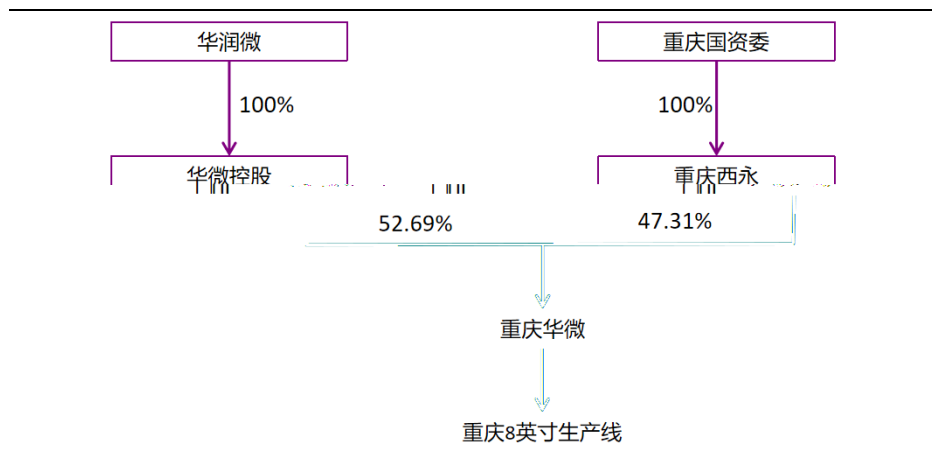
1 8  
52.69% 47.31%  
2017 8  
MOS SBD MOS MOS IGBT  
GaN  
60 2019 10.7  
2.45

43

8

2020

2



2

12

12

12 12

2018

12 12

12 2020 90nm

12 12

MOSFET IGBT

4.3

8

30

8

44

1	8	150,000	50%
2		60,000	20%
3		30,000	10%
4		60,000	20%
		300,000	100%

45

1	8			
2				
3				
4				

8

8 23.11

8 BCD 8  
MEMS  
BCD MEMS 16,000  
4,400 5,700  
2.75  
15 12 6 2018  
9  
46 8

1		46,788.00	20.24%
2		129,540.00	56.04%
3		39,694.00	17.17%
4		15,122.00	6.54%
		231,144.00	100.00%

IC MEMS  
1  
SiC GaN  
Yole Development 2020 GaN  
3 2016 2020 80%  
SiC 3 6 28%  
IDM 650V  
GaN SiC JBS SiC MOSFET

2  
IGBT 21 IGBT  
IGBT IPM

Trench-FS IGBT  
IPM

**3 IC**

IHS Markit 2018 IC 230  
5%  
IC IC

2W-100W

GaN PD

**4 MEMS**

MEMS

2018 944 12.56%

MEMS

MEMS

**6** **25%**  
3 6

24  
2019 12 31 2020 1

50% 20% 30%

3 2019 5 16

2019-2021 7.3  
6.0

## 5

### 5.1

1								2019
								2020-2022
			35.02	40.27	44.30			
	10.00%	15.00%	10.00%					
								18.00% 18.50% 18.50%
2								2019
62%	IC		14%					MOSFET
		7%	2020	5G				6% IGBT
								2020-2022
		31.45	39.31	47.17				25.00%
25.00%	20.00%							
								30.00% 31.00% 31.00%

### 5.2

								2020-2022
								66.90 80.01 91.90
			16.49%	19.60%	14.86%			2020-2022
		23.59%	24.59%	24.88%				2020-2022
		5.20	6.47	8.07				29.78% 24.52%
24.66%	EPS		0.43	0.53	0.66			

47

	2016A	2017A	2018A	2019A	2020E	2021E	2022E
1							
	3,031.56	3,519.76	3,571.91	3183.52	3501.87	4027.15	4429.87
YOY		16.10%	1.48%	-10.87%	10.00%	15.00%	10.00%
	300.48	574.77	663.17	565.43	630.34	745.02	819.53
	9.91%	16.33%	18.57%	17.76%	18.00%	18.50%	18.50%
	68.95%	59.90%	56.96%	55.44%	52.34%	50.33%	48.20%

	<b>4,396.76</b>	<b>5,875.59</b>	<b>6,270.80</b>	<b>5,742.78</b>	<b>6,690.05</b>	<b>8,001.47</b>	<b>9,190.33</b>
YOY		33.63%	6.73%	-8.42%	16.49%	19.60%	14.86%
	637.03	1,035.43	1,580.53	1,311.49	1,578.09	1,967.92	2,286.13
	14.49%	17.62%	25.20%	22.84%	23.59%	24.59%	24.88%

Wind

## 48

	2018	2019	2020E	2021E	2022E
营业收入 (百万元)	6,270.80	5,742.78	6,690.05	8,001.48	9,190.34
营业收入增长率	6.73%	-8.42%	16.49%	19.60%	14.86%
净利润 (百万元)	429.44	400.76	520.09	647.64	807.35
净利润增长率	511.02%	-6.68%	29.78%	24.52%	24.66%
EPS (元)	0.49	0.48	0.43	0.53	0.66
ROE (归属母公司) (摊薄)	10.35%	7.39%	5.16%	6.03%	6.99%
P/E	89	90	102	82	65
P/B	9.2	6.6	5.2	4.9	4.6
EV/EBITDA	27	31	32	30	27

Wind

2020 6 30

## 6

### 6.1

-PB

IDM

PB

PB 6.1x

PB 5.4x

## 49

-PB

			2020Q1
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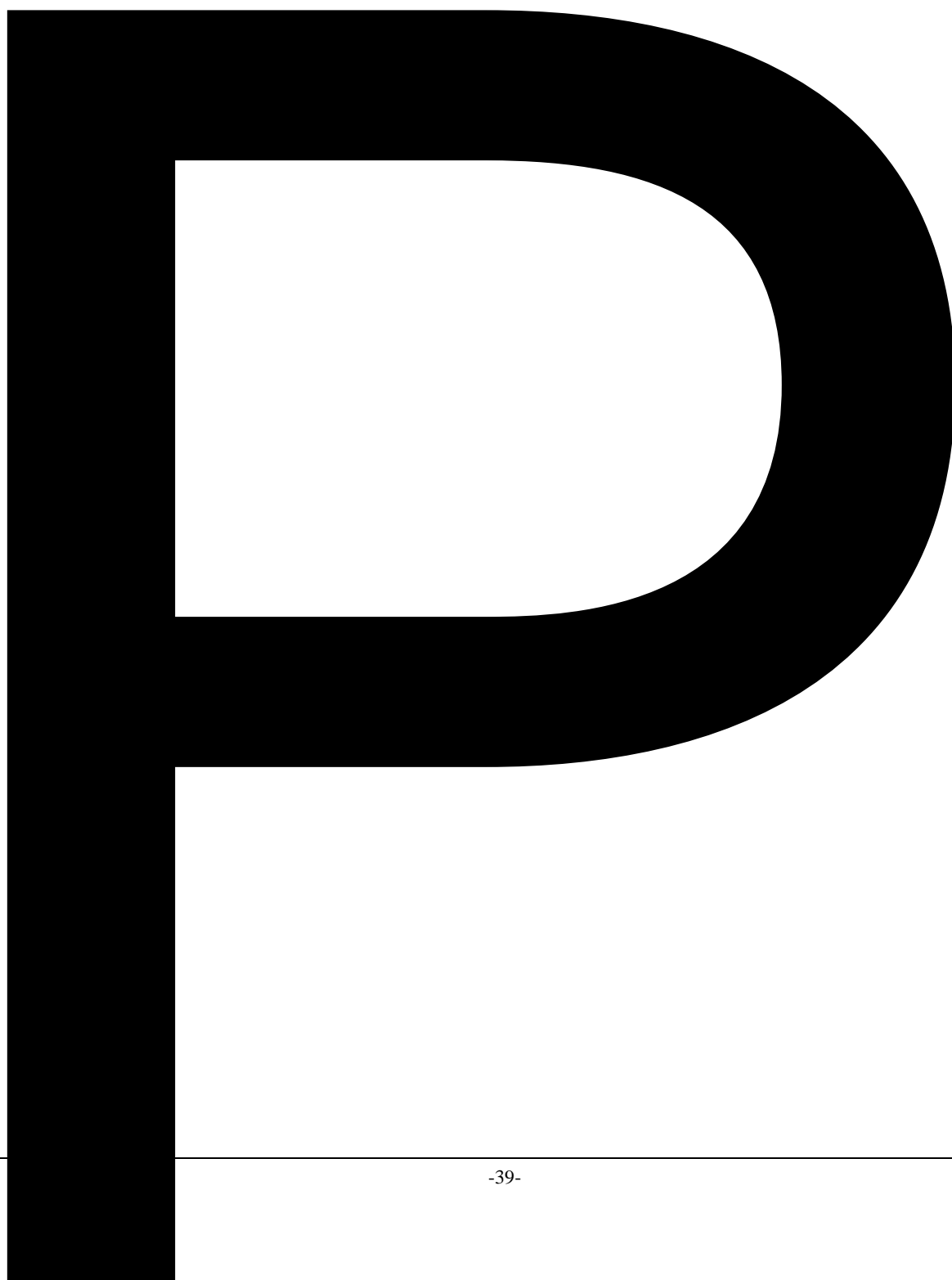
## 6.2

## -PE

	2020-2022				0.43	0.53	0.66
PE	102x	82x	65x	PE			

2020-2022	PE	127x	115x	104x
-----------	----	------	------	------

100%



	2018	2019	2020E	2021E	2022E
	<b>6,271</b>	<b>5,743</b>	<b>6,690</b>	<b>8,001</b>	<b>9,190</b>
	4,690	4,431	5,112	6,034	6,904
	940	693	978	994	1,010
	85	66	54	56	64
	126	112	126	176	184
	374	377	401	480	524
	0	31	6	-28	-31
	450	483	549	720	818
	11	0	0	0	0
	<b>586</b>	<b>478</b>	<b>609</b>	<b>743</b>	<b>911</b>
	<b>591</b>	<b>506</b>	<b>600</b>	<b>734</b>	<b>902</b>
	53	-6	30	37	45
	<b>538</b>	<b>512</b>	<b>570</b>	<b>698</b>	<b>857</b>
	108	112	50	50	50
	<b>429</b>	<b>401</b>	<b>520</b>	<b>648</b>	<b>807</b>
<b>EPS( )</b>	<b>0.49</b>	<b>0.48</b>	<b>0.43</b>	<b>0.53</b>	<b>0.66</b>

	2018	2019	2020E	2021E	2022E
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	2018	2019	2020E	2021E	2022E
	<b>1,482</b>	<b>576</b>	<b>98</b>	<b>421</b>	<b>827</b>
	429	401	520	648	807
	940	693	978	994	1,010
	224	-796	1,624	1,502	1,245
	-111	278	-3,023	-2,722	-2,235
	<b>-575</b>	<b>-41</b>	<b>158</b>	<b>-375</b>	<b>-350</b>
	-533	-611	-300	-300	-300
	0	82	0	0	0
	-42	488	458	-75	-50
	<b>-627</b>	<b>-180</b>	<b>4,428</b>	<b>290</b>	<b>269</b>
	0	0	386	0	0
	2,200	-945	100	0	0
	-2,504	-323	311	535	458
	<b>317</b>	<b>374</b>	<b>4,684</b>	<b>336</b>	<b>747</b>

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