

688396

+

68.98

+

“ + ”

12

MOSFET MOS -100V MOS 1500V
MOS MOSFET IGBT 6
12
PMIC PMIC

0755-82755859
gengchen@hcyjs.com
S0360517100004

()	121,593
()	24,904
()	838.75
()	171.79
(%)	32.0
()	8.4
12 /	74.89/31.74

(12)



“ + ”
2017-2018

12

2020-2022

9.77/12.10/14.38

“ ”

	2019A	2020E	2021E	2022E
()	5,743	7,083	8,637	9,995
(%)	-8.4%	23.3%	21.9%	15.7%
()	400	977	1,210	1,438
(%)	-6.7%	143.7%	23.9%	18.8%
()	0.33	0.80	1.00	1.18
()	143	82	66	56
()	11	13	11	9

2020 12 7

“IDM+ ”
2017-2018

“IDM+ ”
IDM
MOS

2017-2018

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	7
IDM		

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IDM+

3
 IC IC AC-DC LED MOSFET IGBT
 MEMS
 MCU

1

		/						
			MOSFET		IGBT			
			IPM		IPM			
	IC	AC-DC	LED	IC	BMS IC	IC	IC	
				IC	IC			
		MEMS						
			MCU		MCU		MCU	
			CMOS/ANALOG	BICMOS	RF/Mixed-Signal	CMOS	BCD	
			MEMS					
			IPM	Copper Clip				
			0.18μm	Stepper	0.13μm	3"x5" UT		
			1:1 Array					

72.29%

20Q3

6.43%

1%

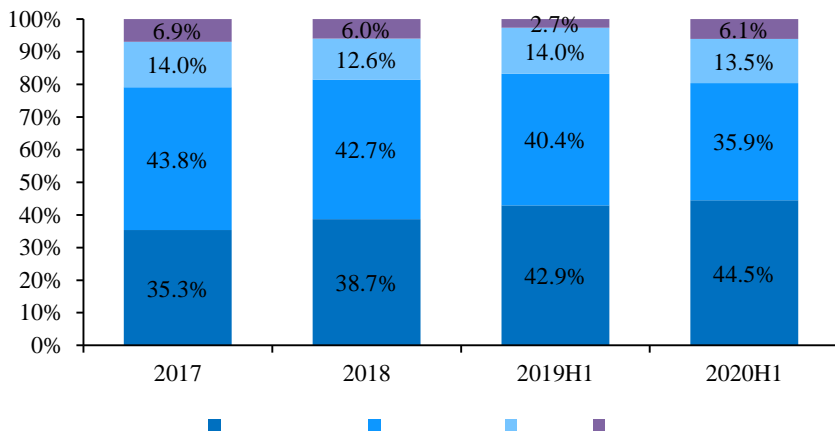
			SBD				60		
8			8	BCD	8	MEMS	19.2		
SiC 6			SiC JBS		MOSFET				
12			MOSFET		IGBT		3 /		
							199		
			QFP	QFN	PQFN	FC-QFN	TSSOP	SSOP	62
						MSOP	IPM		69
									2.4

IDM

IDM

44.94% 14pct 2016 30.52% 20H1

5 2017-2020H1



Wind

1. IDM

IDM

IDM

IDM

6 2018 Top10

	2018
1	21.7
2	18.5
3	17.1
4	8.1
5	7.7
6	7.2
7	6.9
8	6.0
9	5.4
10	4.9

MOSFET

6

MOSFET

2018
2018

MOSFET

16

8.7%

MOSFET

24.19

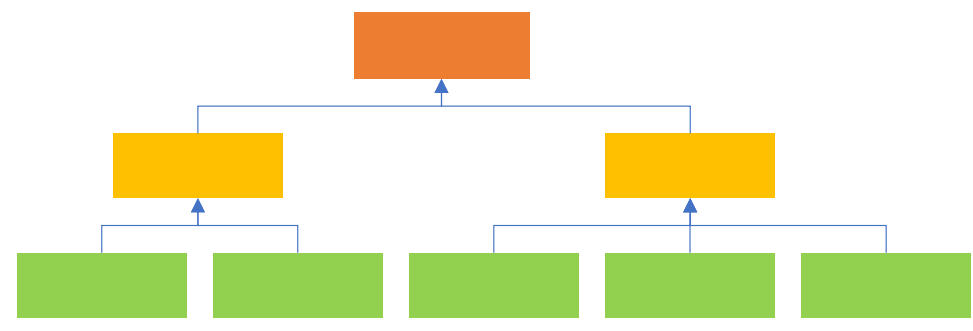
MOSFET

66%

IC

IC

7



21% IGBT
SiC
1200V

UPS
2020
SiC

20H1

50%

22%

MOSFET

2.

65.3%

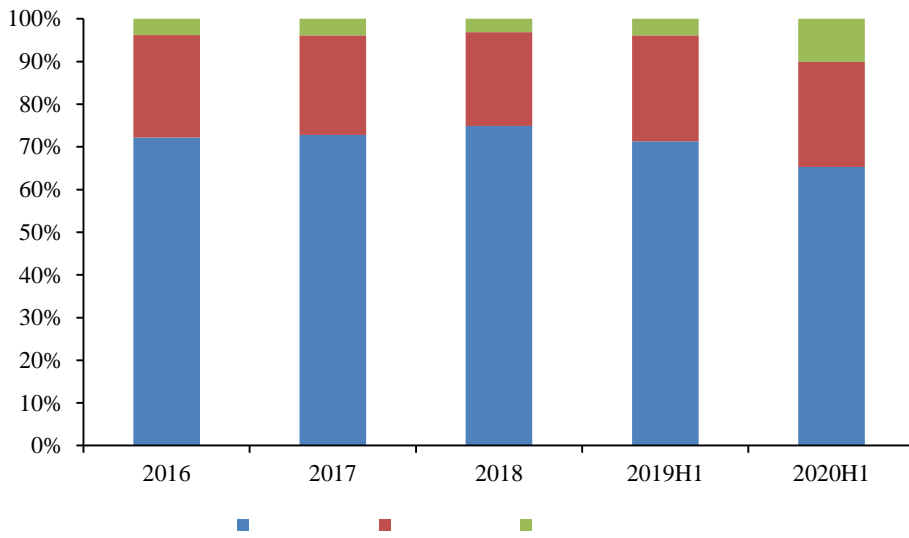
24.6%

6 2020H1

3%-4%

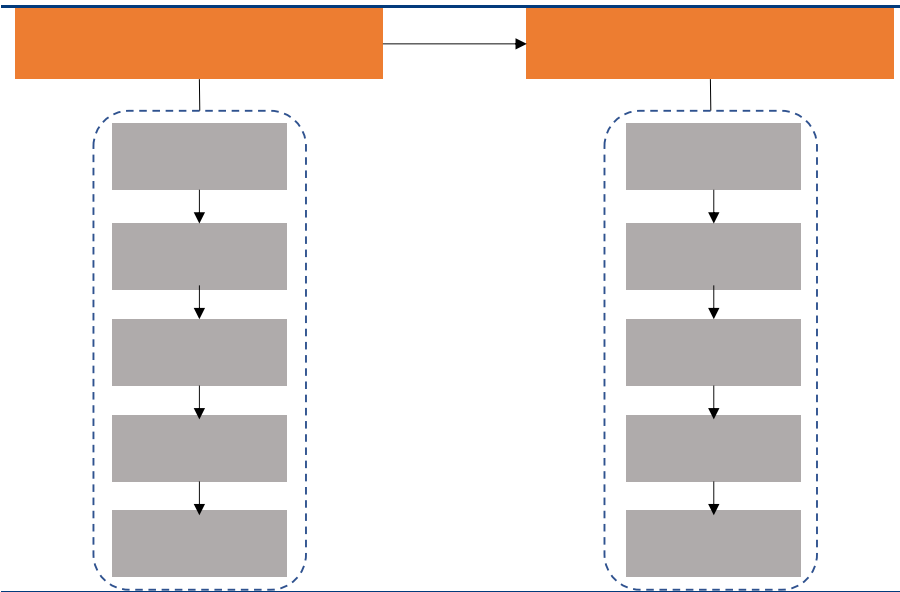
10.95

8



Wind

9



CMOS/ANALOG	BICMOS	RF/Mixed-Signal	CMOS	BCD	MEMS
0.11μm	0.18μm	0.25μm	0.35μm	0.5μm	0.5μm
BCD			BCD		CMOS
		BCD			CMOS
MOSFET				IGBT	DMOS
					0.18μm BCD

8

6.5

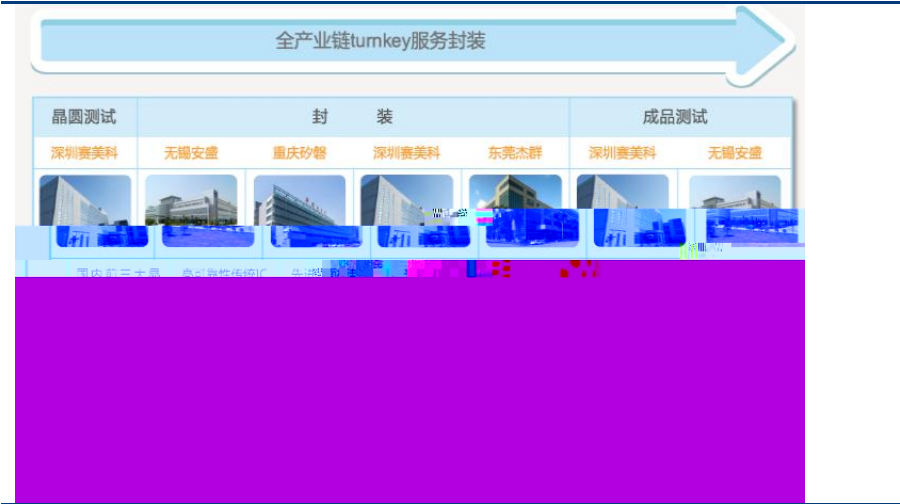
6

20

2018

10

turn-key

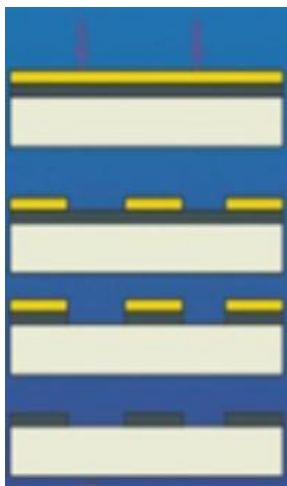


IC

2018

27%

11



12

	TCL

8:2 17% 2016-2020H1
 2019H1 40.49%

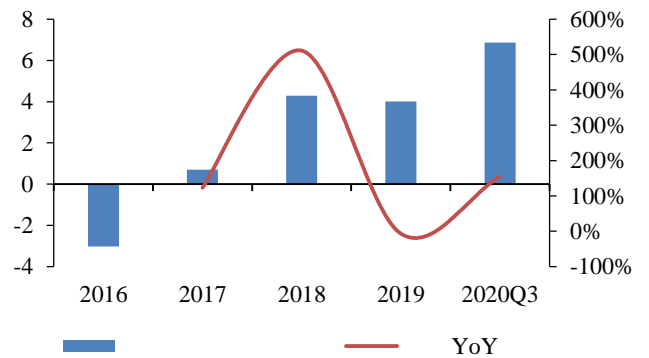
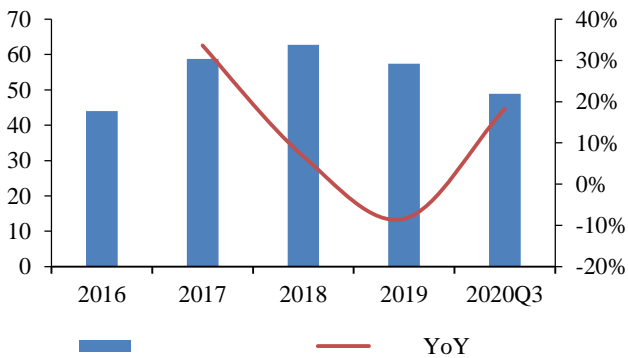
13 2016-2020H1
Wind
14 2019H1 Top5

MPS	14.43%	

9.3% CAGR 6.5% 8.7% 2019
 8% 2019H1 2020 2018 12.16%
 18% 2017 2016 -3.03 49
 2015-2016 2016 9 10 2017
 0.7 2018 500% 4 2020
 6.87 155%

15 2016

16 2016

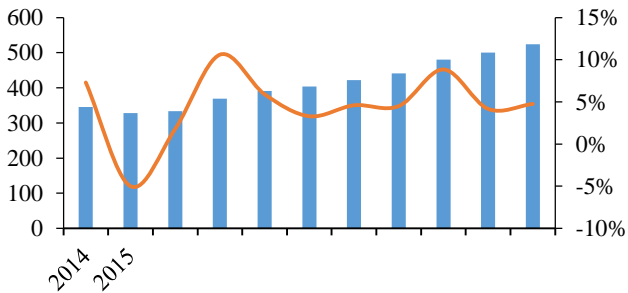


Wind

Wind

17 2014-2024

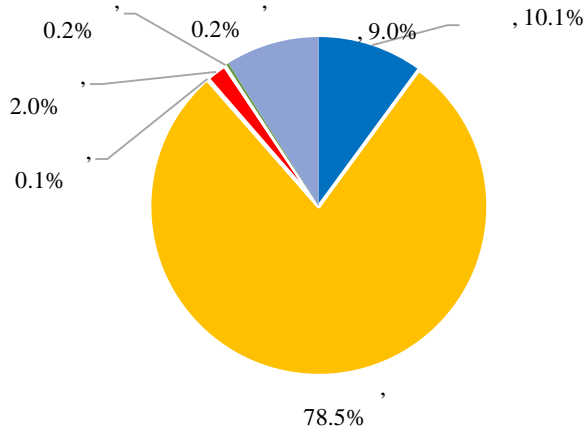
18 2015-2021



IHS Markit

IDM
 20H1 78.5%
 97.5%

19 2020H1



Wind

8 25 10 3-8 2012

2017 8 5359 5466

20 2020H1

		25	5%	3.80%
		8	2%	12.25%
		5	0%	20.00%
		3~5	0%~2%	19.60%~33.33%
		8	0%	12.50%
		5	0%	20.00%
		10	2%	9.80%

2020

21

8		2009
8		2008
6		1997
6	1#	2005
6	2#	2007
		1987

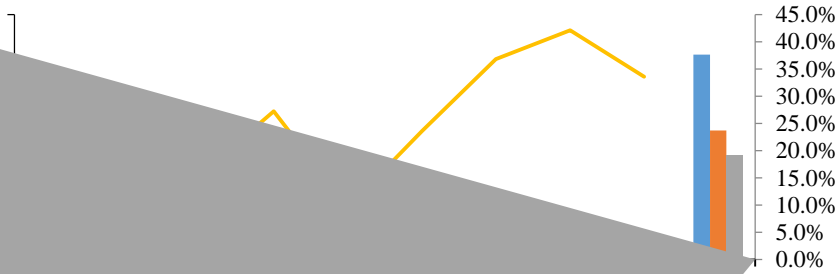
		2003
		2000
		1990

2020

	2009	8		2017		2017	8		
	13.09	9.15	6.62	3.18	2017	2017	2016-2020H1		
%				17.6%	27.3%	2017	22.3%		2020H1
	52.41%					4			
							3.8	0.7	

22 2017-2019

2018



2019

23 2016

24 2016-2020H1

Wind

23

8 BCD
2018 9

2.75

8 MEMS
2021 5

23.11

25 8

	46788	3.80%	1777.9
	129540	12.25%	15868.7
	39694	9.80%	3890.0
	15122		
	231144	9.32%	21536.6

2020

ASP
MOSFET IGBT

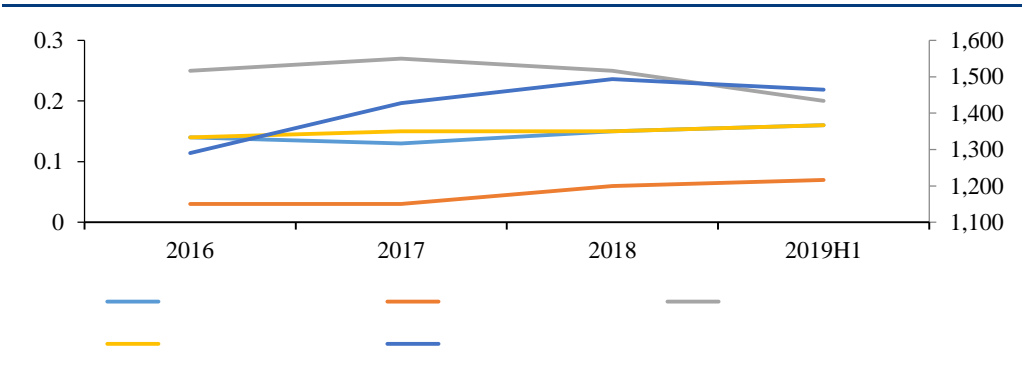
2016

ASP 0.14

2019H1 0.16

ASP 1290 1465
ASP

26 2016-2019H1 ASP



2020

Wind

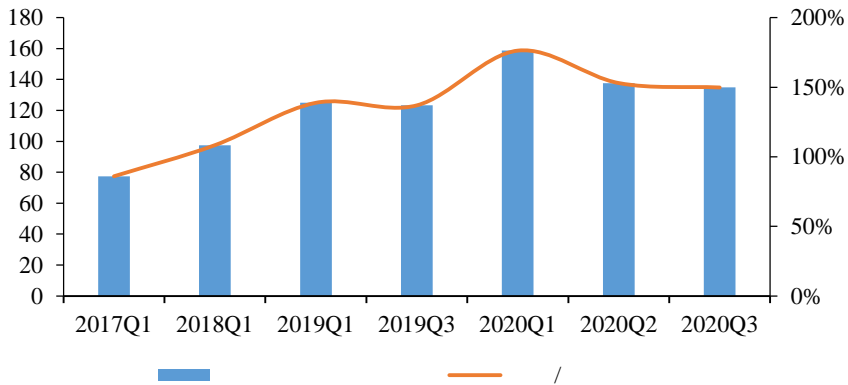
2020Q1

2017

/
3.3%

2019
2018 2020H1

27 2016-2019H1

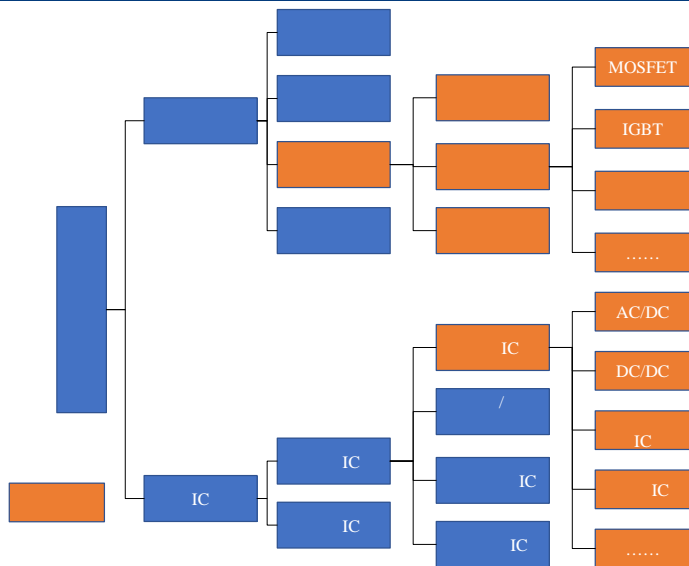


Wind

2020



28



MOSFET IGBT

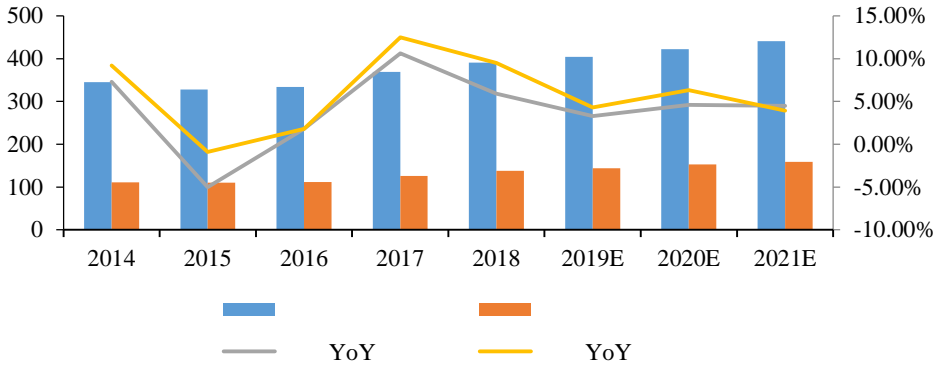
SBD

FRD

SBD

FRD

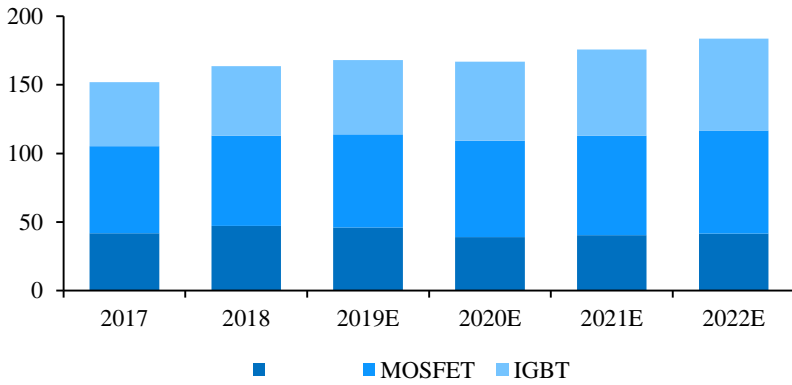
31 2014-2021



IHS Markit

MOSFET		IGBT		60	
IC Insights					
MOSFET	75	IGBT	58	2019	68
		IGBT2020		2022	67

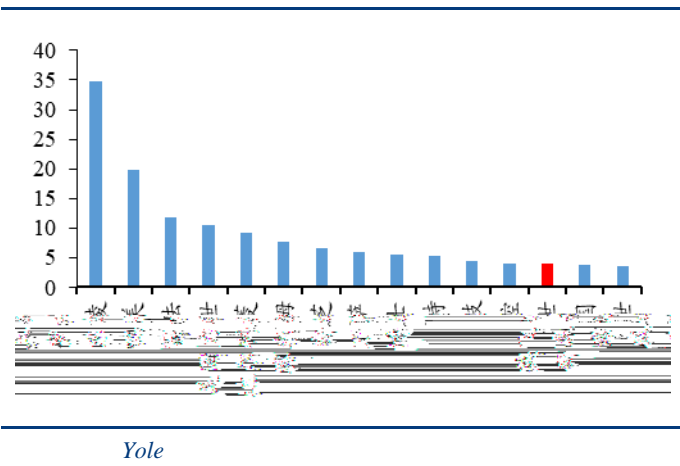
32 2017-2022 MOSFET IGBT



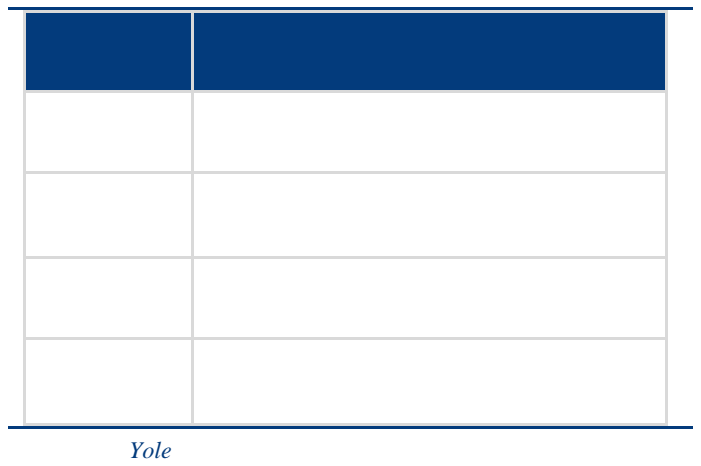
2.

Top10		35		Yole		2019	
&		Top15		20			
12				4	5	5	1
2019							

33 To15 &

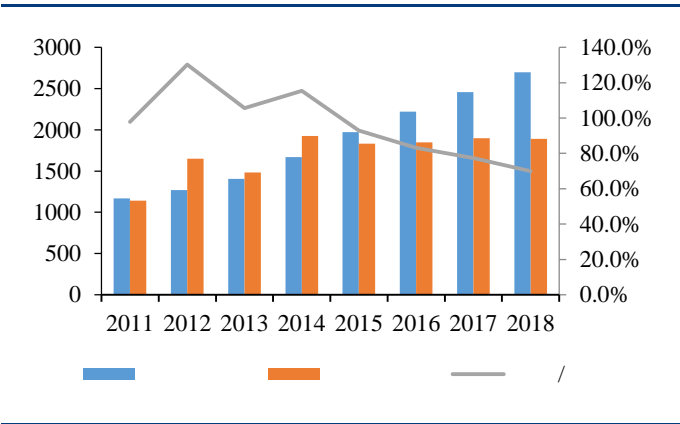


34

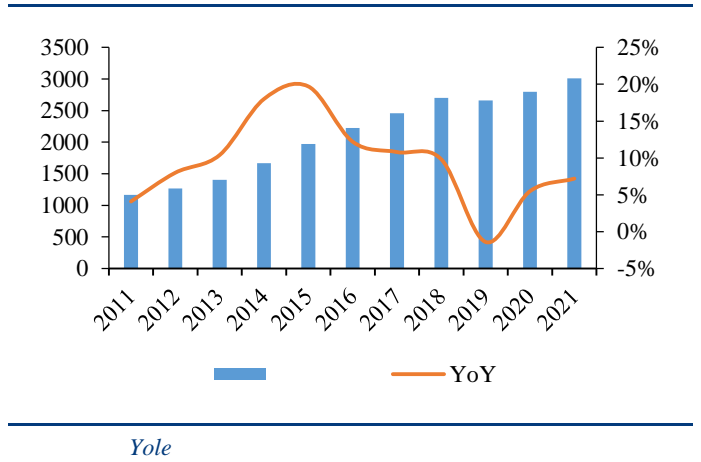


1970 1832 93% 2015
 2016-2018 83% 77% 70% 2017
 2025 3000 50% 1500 50%

35 2011-2018



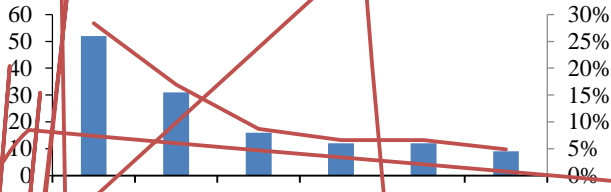
36 2011-2021



MOSFET
 MOSFET 52 28.4%
 MOSFET 16 8.7%
 72.1%

IHS Markit 2018
 16.9% 45.3%
 Top6 CR6

37 2018 MOSFET



38 2018 MOSFET

IHS Markit

IGBT

IHS Markit

IHS Markit 2018

IGBT

IGBT

90%

75%

39 2017 IGBT

IGBT

IDM

IDM

40 IGBT

SITRI

5G

5G

900

Yole	2017	-2023	IGBT	MOSFET				
					300	2025		150
	2023				440	2022		900

41 2017-2023 MOSFET IGBT

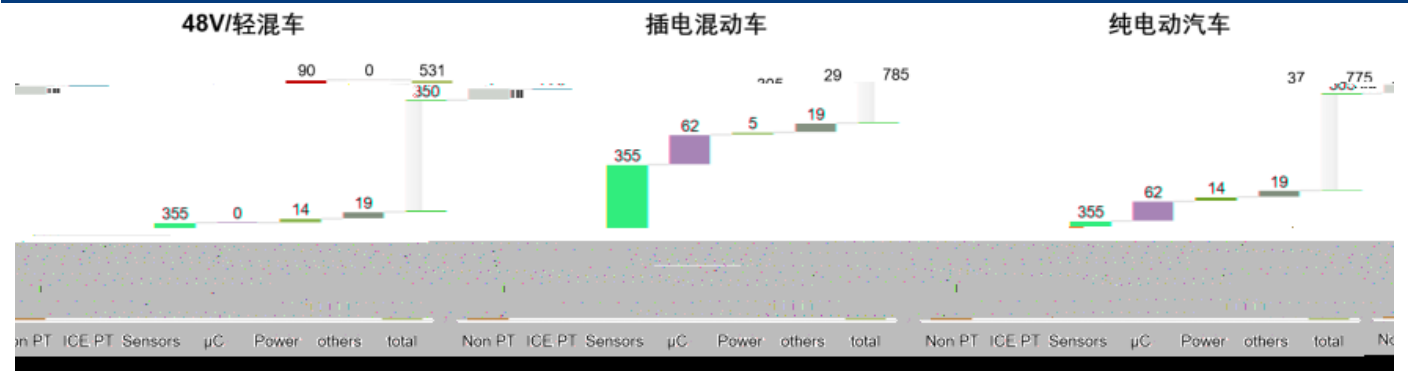
Yole

1. 300

360 17 90 305

42

265



MOSFET&IGBT

300

MOSFET&IGBT
2025

IGBT

MOSFET
210

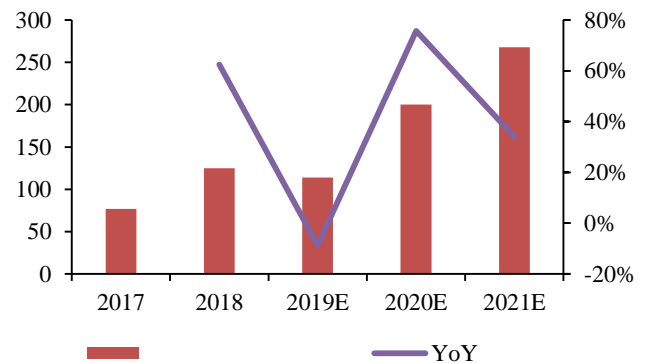
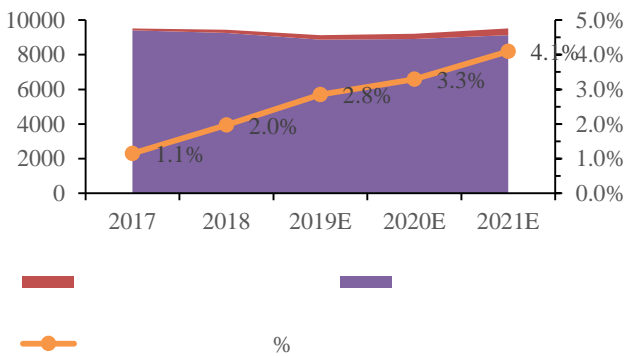
2022

116

IGBT
310

43 2017-2021

44 2017-2021

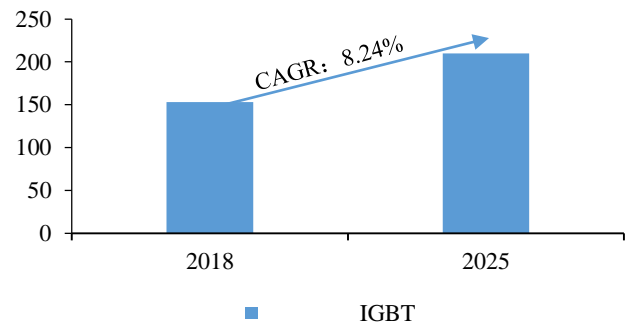
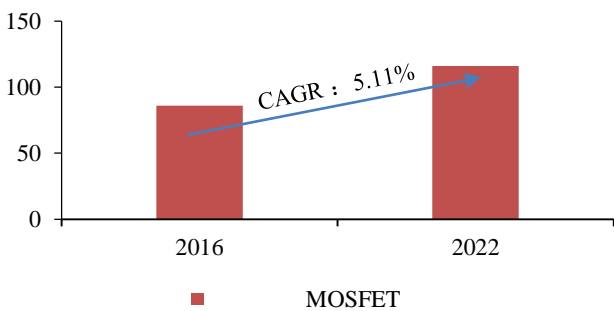


Bloomberg NEF marklines

45 MOSFET

46 2025

IGBT



UPS

%-10%

202

3.

MOSFET

1. 2017

2017-2018 8

2016 20.6% 14.6%
5.0% 11.5% 2016-2018 8

8

2017-2018 7.6% 7.1%
CAGR 32% 20%

53 2016-2018

8

/

54 2015-2018

/

SUMCO

Wind

1 8

20

,2018 92%,
50%

28%

IC insights
26%

55

IC insights

2017 8

3% 2018Q1

2017 8

10% 8

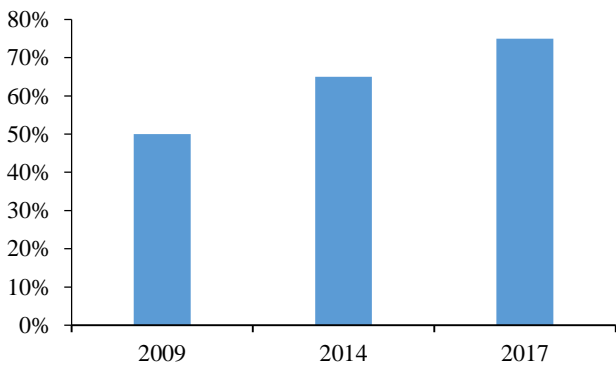
Q1

		8		2016		8	
90%	2017	44%					
56	2007-2019	8		\$/		57	2016-2017
						8	

1	8								
		10							
	2007	8	1.4	/		2007	8		
		8				2017		43%	
SEMI	2008-2018					8			
	2018		25%			2008	8	200mm	35%
58	2007-2018	8				59	2008-2018		

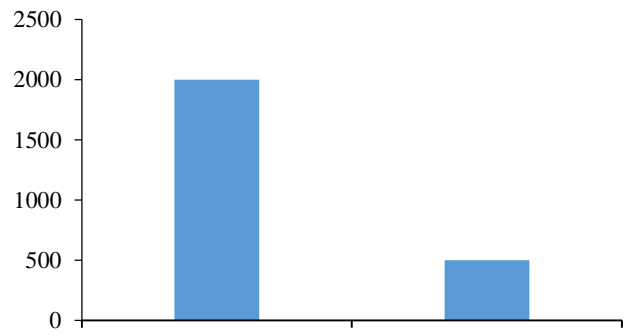
8
8
12 75% VLSI research 20 90 2000 2017
8 9 8 12 8 116
3 5 2018 8 Surplus Global 2017 8
500 8 2018 8 2000 8
8

60 2009-2017 12



IC Insights

61 2018 8



Surplus Global

2

IC MCU 8 3 8 CIS
8 2016
20% CIS 2017-2018 CIS CIS 2017 10 12 33%

62

%

63

Yole Frost&Sullivan,

ADAS

8

65%

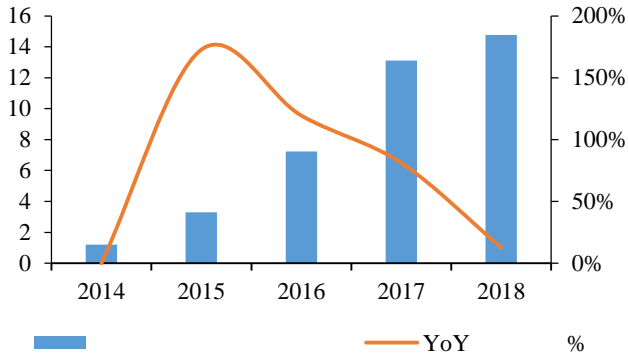
15% 2017-2018

53% 62%

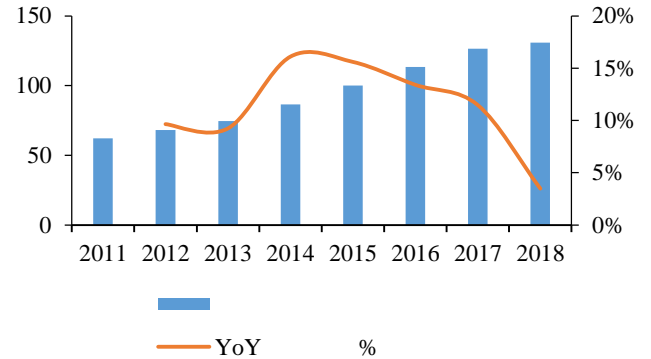
64 2016-2019

IGBT

65 2014-2018

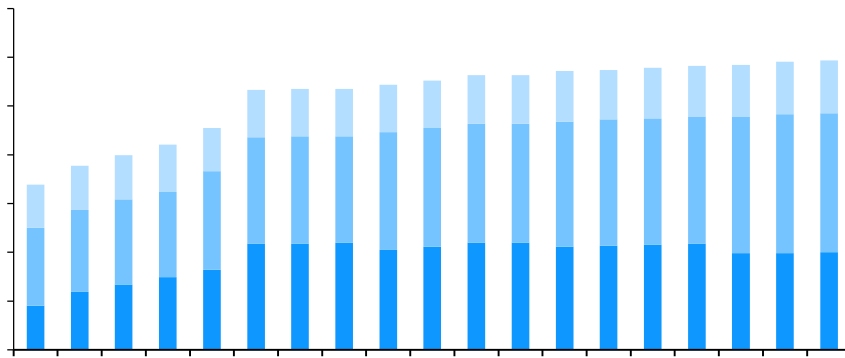


66 2011-2018



460	/	2017 8	540	/	SUMCO 2016 Q4 8
15	/	SEMI 2017Q2 2021	8		2016Q4 12.7% 525
					550 / 2017

67 2016Q1-2020Q3



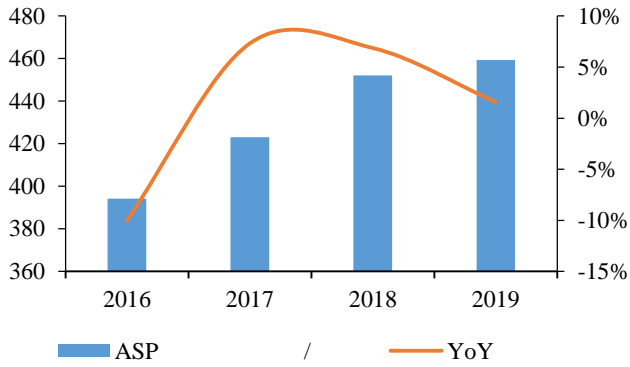
SUMCO

3

		ASP				2017-2018	
2017-2019	ASP	7.3%	6.9%	2016	2019	ASP	-10.0%
	ASP	10.6%	4.6%				1.6%

68 2016-2019

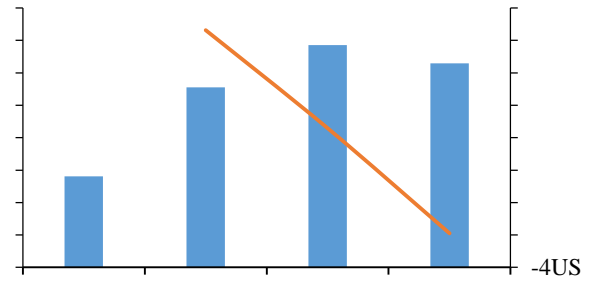
ASP



Wind

69 2016-2019H1

ASP



33.1% 33.4%
2017-2018

2016 2019

30%

2017-2018

70 2016-2019

71 2016-2019

EBITDA

Wind

2. 2020

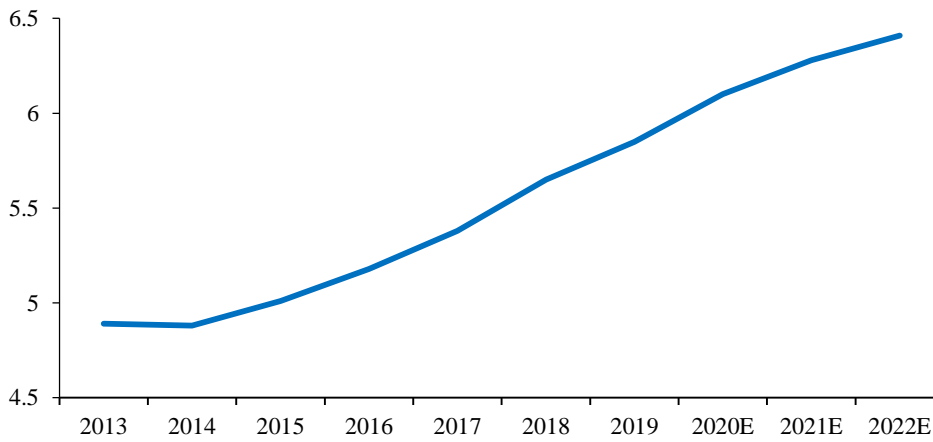
1 8

	8		2018	15	8
	SK		8	SEMI	2019-2022
16	8	14	70	2019-2022 CAGR	4.5%

72 2013-2022

8

/



SEMI

2020

IDM

7

2020 HI

IDM

73

Beyond Borders: Semiconductors are a Uniquely Global Industry

Typical semiconductor production process spans multiple countries: 4+ Countries, 4+ States, 3+ trips around the world, 25,000 miles travelled, 100 days TPT, 12 days in transit



SIA

2

5G

2017

2020

CINNO Research 2020

40%

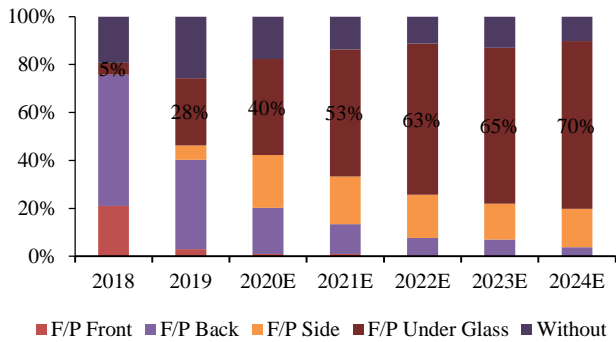
Counterpoint 2020Q1

3.5

8

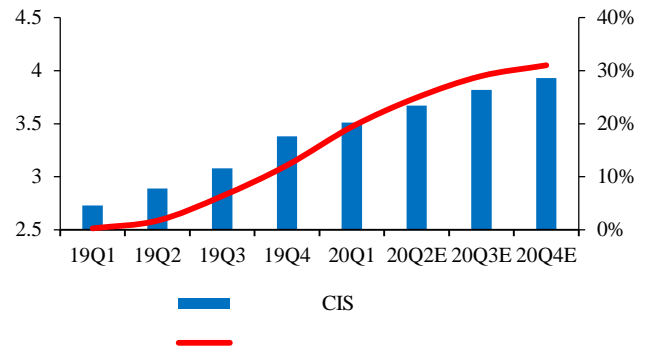
CIS

74 2018-2024



CINNO Research

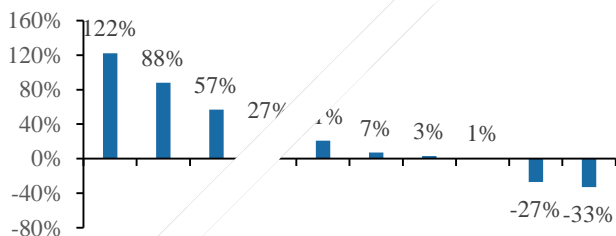
75 2019Q1-2020Q4



199IT

5G
5G
21%
5G
4G
1
IGBT
SCR
Q3
52.5%
2020
7
130
100
1.245
19.3%
MOSFET
4
5G
23%
NB/PAD
NB/PAD
Canalys
PC
2020Q2-Q3
88%
57%
10.9pct
9-10
65%

76 2020Q3 PC



199IT

77 2020

21%

20H1

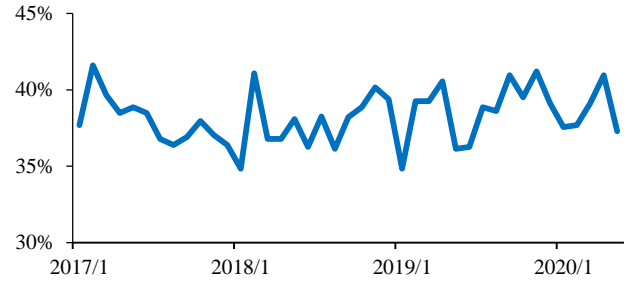
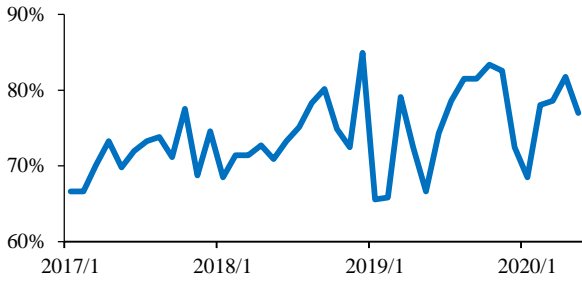
2019

11%

6

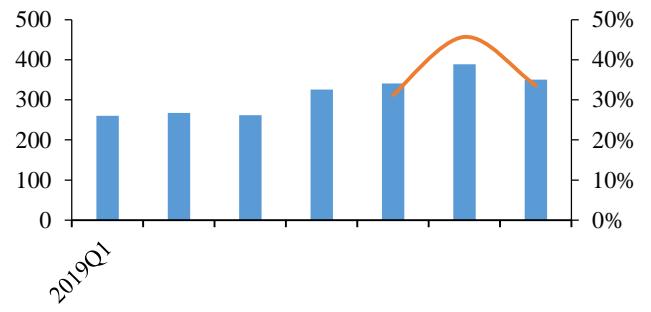
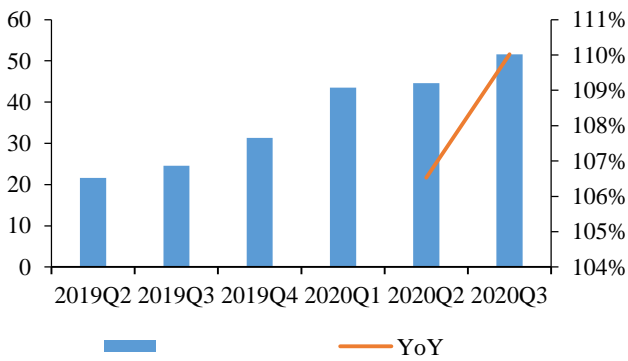
78 2017-20H1

79 2017-20H1



80 2019Q2-2020Q3

81 2019Q2-2020Q3



Wind

Wind

3 2020

8

5G

IC MOSFET

3D sensing

8

DIGITIMES

20H2

12

8

10-20%

IC

20Q3

MOS

IDM+

8

IC

know-how

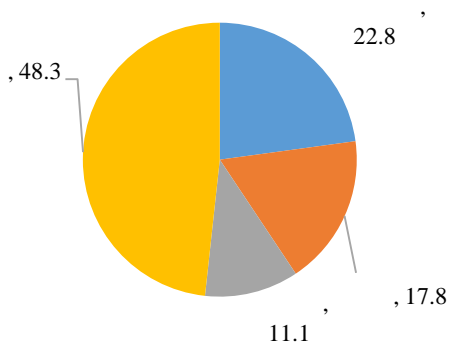
IC

IC

20Q2 2019 51.7% 8 100 / 12 17.8 / 1:1 2019 8 2019 8 11 / 8 2019 8 45.7 / 22.8 / 8

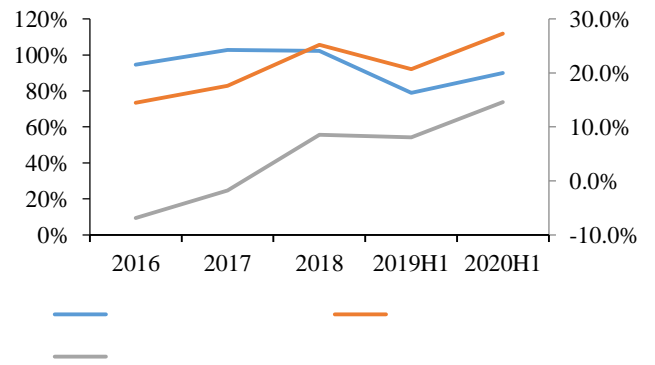
94% 2017-2018 2020 100% 2019H1 79% H1 2016-2018 90%

82 2019 8



2019

83 2016-2020H1



Wind

2020H1

90%

2020H1

8

8

2021

1.6

/ 12

8

2021

12

2020

84 2020H1

	8	20H1	1.6
	12		
	12	2019 9	4
	8	20H1	1.5 2.1
	8	20H1	8

2020H1

SEMI 2019-2022 CAGR 4.5% IHS 16 8
 Omida 2019-2024 CAGR 5.3% 14 70 2019-2022 CAGR 5.3%

IDM+

IDM

Fabless

“Fabless+Foundry”

Fabless

50%

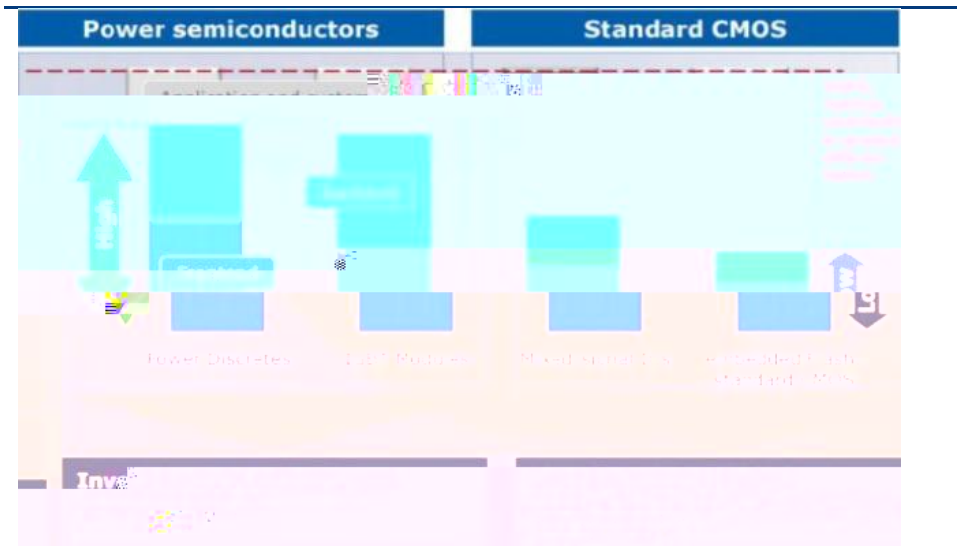
IDM

IDM

Fabless

85

IC



IDM

Fabless

MOSFET

IDM

IDM

Fabless

IDM

86 **IDM** **Fabless**

Wind

IDM+

IDM

Fabless

know-how

IDM

87

	/						
MOSFET	MOSFET						
	MOSFET						
	MOSFET						
		1500V	700V	800V		300V	500V
IGBT							
		SiC	GaN		650V GaN		SiC MOS

2020

2019A	2020E	2021E	2022E	2019A	2020E	2021E	2022E
1,931	2,169	3,184	4,723	5,743	7,083	8,637	9,995
191	580	628	671	4,431	5,082	6,203	7,282
815	886	1,044	1,211	66	82	100	100
52	60	73	85	112	131	157	172

&

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			010-63214683	houbin@hcyjs.com
			010-63214683	guoyunlong@hcyjs.com
			010-66500867	liuyi@hcyjs.com
			010-63214683	dana@hcyjs.com
				cheyizhe@hcyjs.com
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			0755-83715428	wangliyan@hcyjs.com
			0755-82756805	duanjiayin@hcyjs.com
			0755-83024576	zhuyan@hcyjs.com
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			021-20572257-2552	huangchang@hcyjs.com
			021-20572585	zhangjiani@hcyjs.com
			021-20572506	wujun1@hcyjs.com

021

(300)

6	20%		
6	10%	20%	
6		-10%	10%
6	10%	20%	
3-6			5%
3-6			-5% 5%
3-6			5%

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