

688396

+

68.98

+

“ + ”

12

MOSFET

MOSFET

IGBT

MOS

-100V

1500V

MOS

6

12

PMIC

PMIC

“ + ”

2017-2018

12

2020-2022

9.77/12.10/14.38

“ ”

0755-82755859

gengchen@hcyjs.com

S0360517100004

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

(12)



	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

目 录

IDM+

.....7

IDM

.....7

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6	2018 Top10	10
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59	2008-2018			28
60	2009-2017	12		29
61	2018	8		29
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63				30
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67	2016Q1-2019Q4	8	/	31

68	2016-2019	ASP		32
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70	2016-2019			32
71	2016-2019	EBITDA		32
72	2013-2022	8	/	33
73				33
74	2018-2024			34
75	2019Q1-2020Q4			34
76	2020Q3	PC		34
77	2020			34

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								

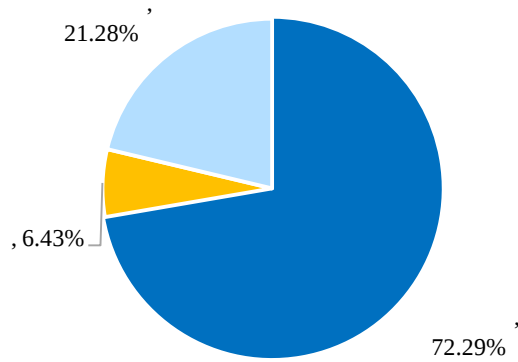
20Q3

72.29%

6.43%

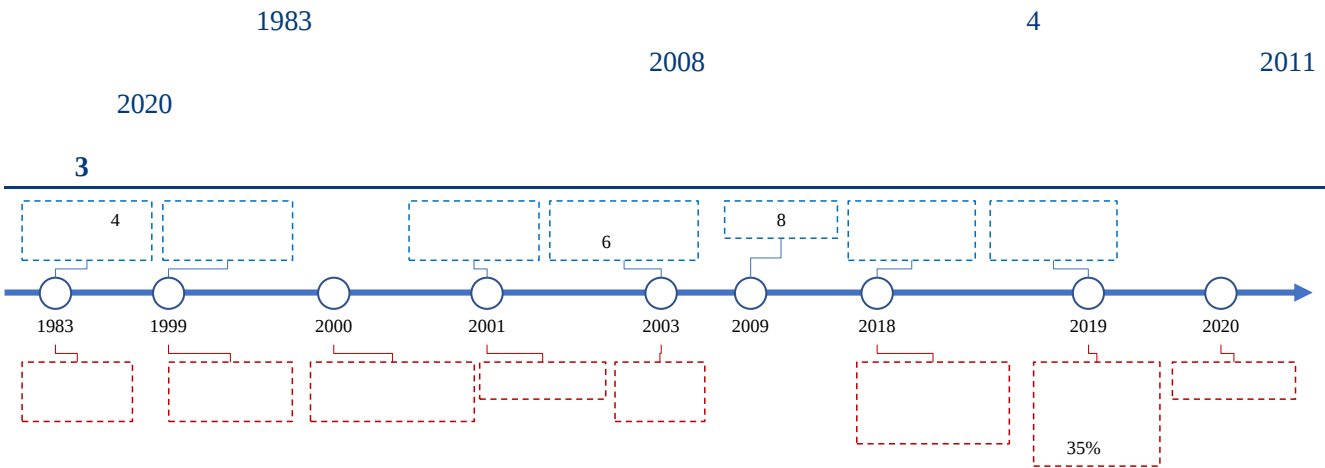
1%

2



Wind

3



4

		/		2018
	3 6		Analog BCD MEMS DMOS Power Discrete	247
	1 8		Advance BCD Analog DMOS	73
	1 8		MOS MOS MOS	

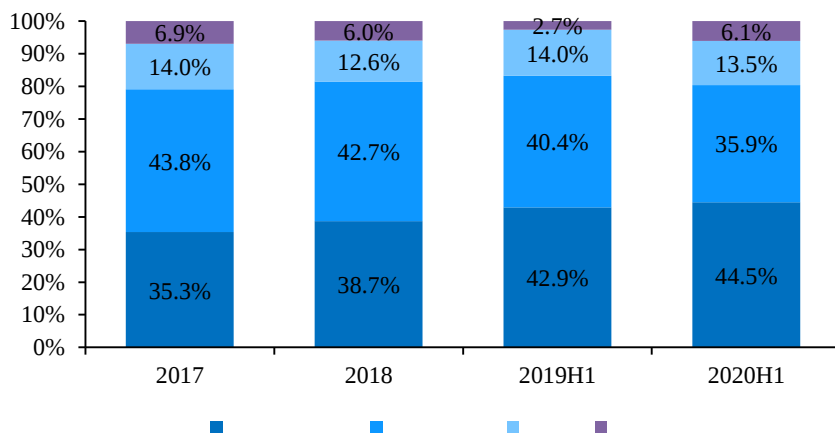
			SBD				60		
	8		8	BCD	8	MEMS	19.2		
	SiC 6		SiC JBS		MOSFET				
	12		MOSFET IGBT				3 /		
							199		
			QFP	QFN	PQFN	FC-QFN	TSSOP	SSOP	62
			MSOP IPM						69
									2.4

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

MOSFET

16

8.7%

MOSFET

2018

24.19

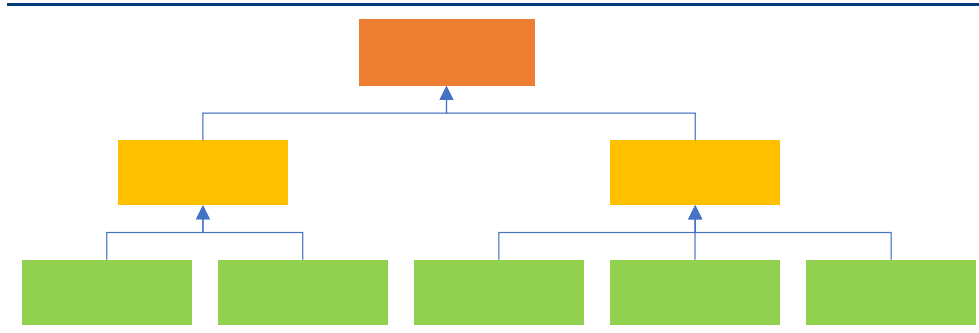
MOSFET

66%

IC

IC

7



20H1

22%

MOSFET

21%

IGBT

UPS

50%

SiC

2020

7

6

SiC

1200V

650V

SiC

2.

6

2020H1

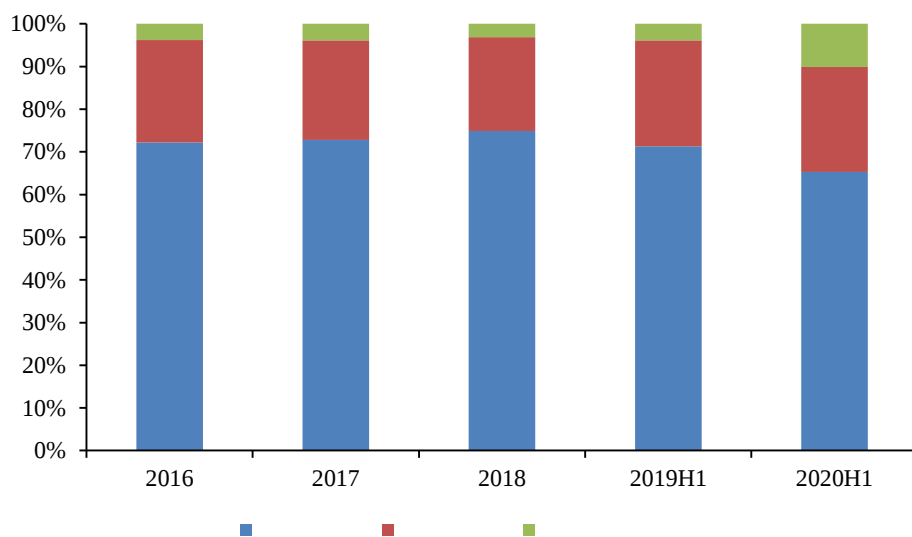
10.95

65.3%

24.6%

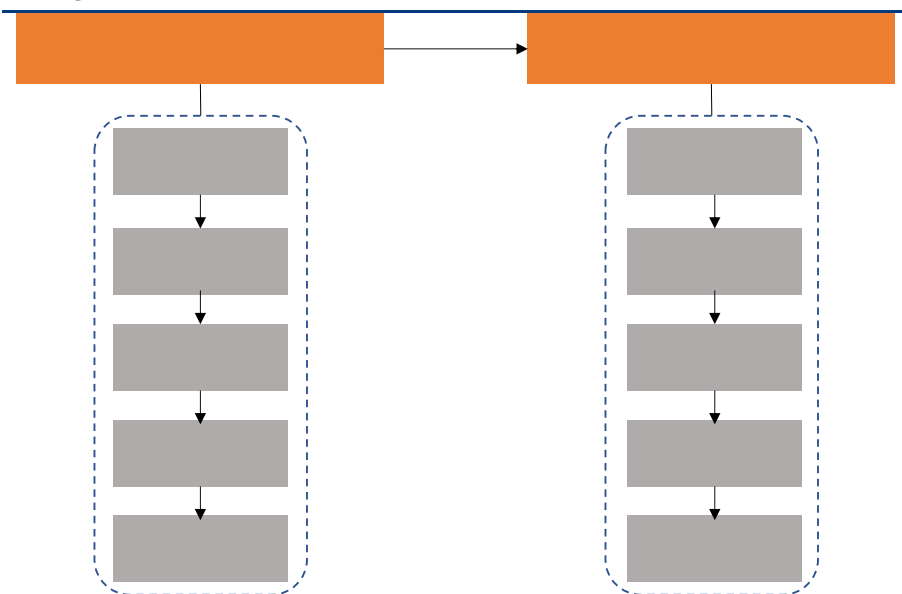
3%-4%

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	
MOSFET	BCD		IGBT	0.18μm BCD	CMOS DMOS

8

6.5

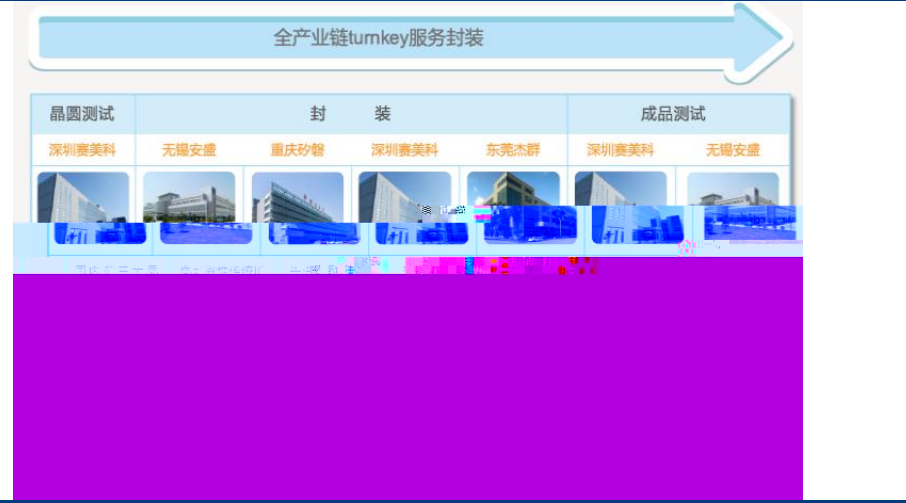
6

20

2018

10

turn-key

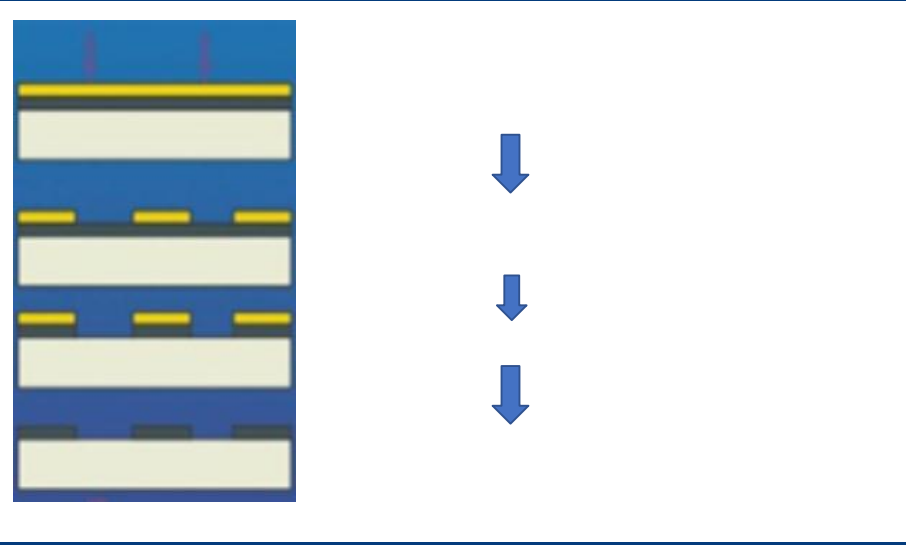


IC

2018

27%

11



12

	TCL	

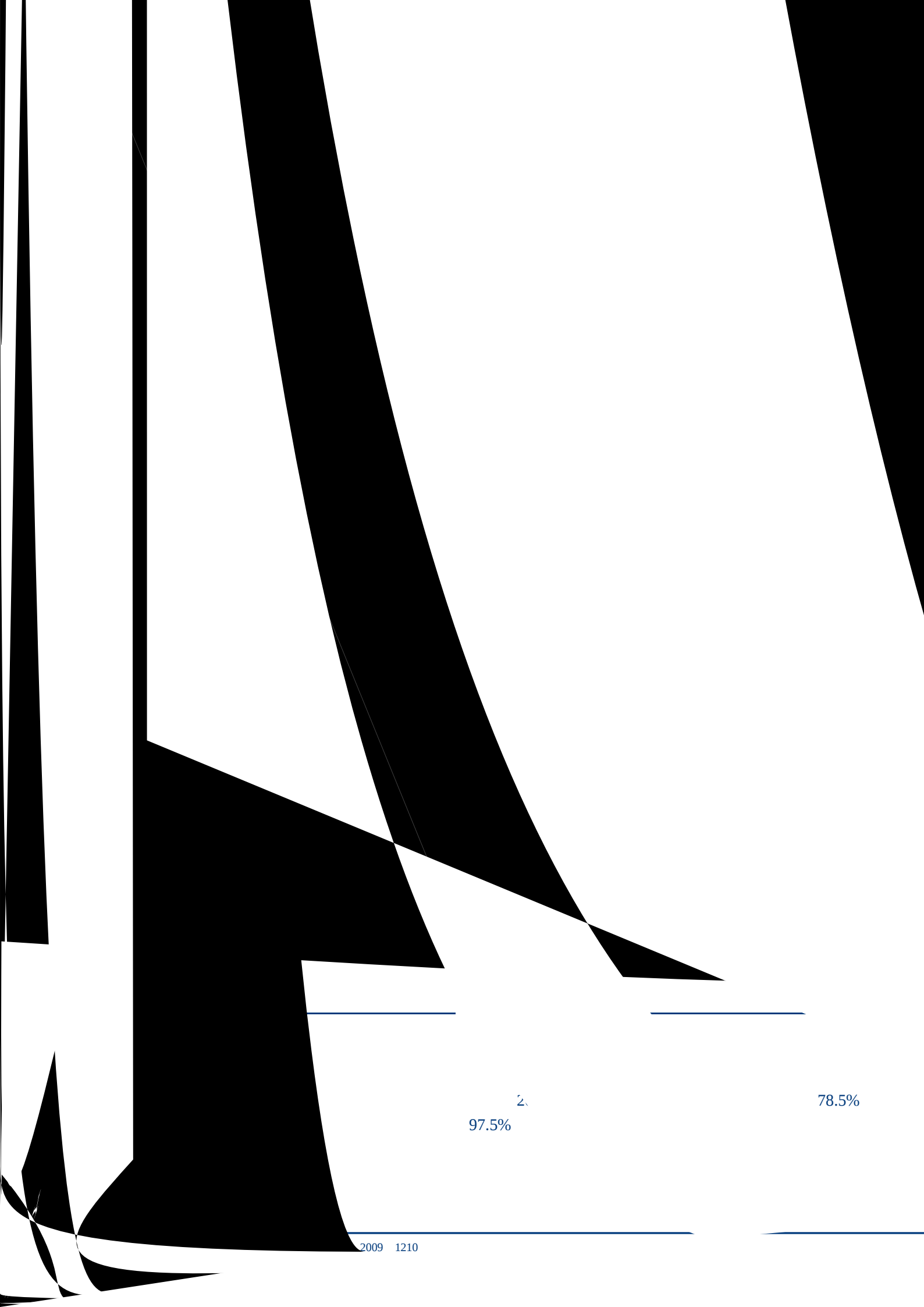
2019H1	2016-2020H1
17%	40.49%

13 2016-2020H1

Wind

14 2019H1 Top5

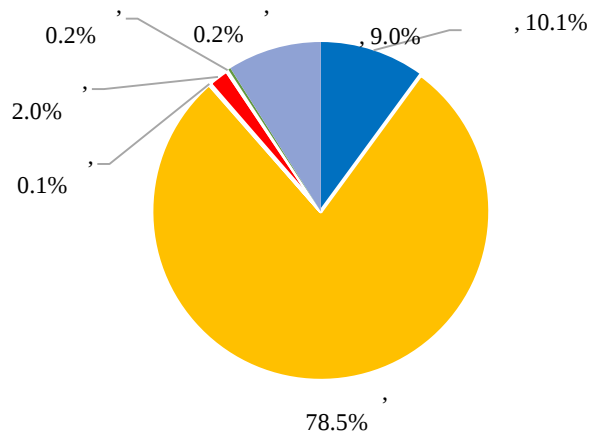
MPS	14.43%	



2、
97.5%

78.5%

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

2017

8

2017

2016-2020H1

2009

8

2017

2017 22.3%

2020H1

10.4%

17.6%

27.3% 2017

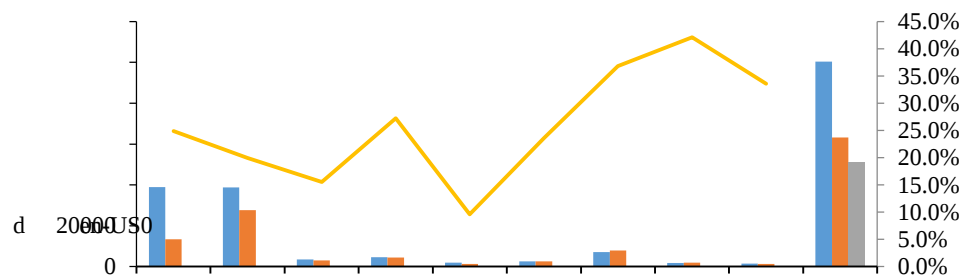
4

52.41%

3.8 0.7

22 2017-2019

2018



2019

2019

23 2016-2020H1

24 2016-2020H1

Wind

Wind

8

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

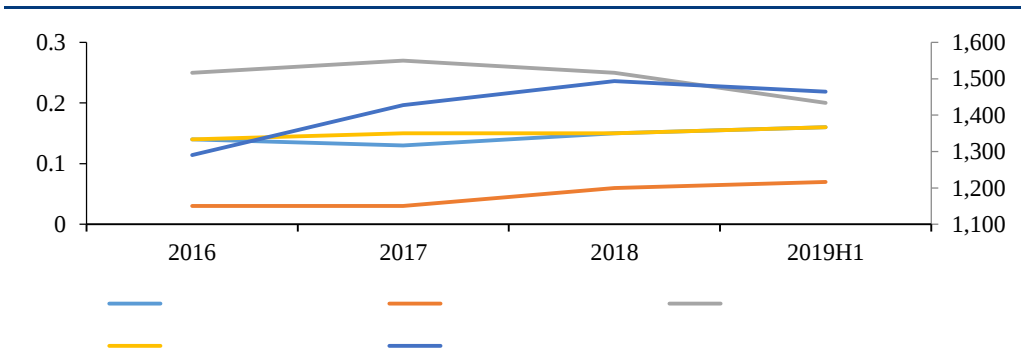
ASP 0.14

2019H1 0.16
ASP 1290
ASP

1465

26 2016-2019H1

ASP



2020

Wind

2020Q1

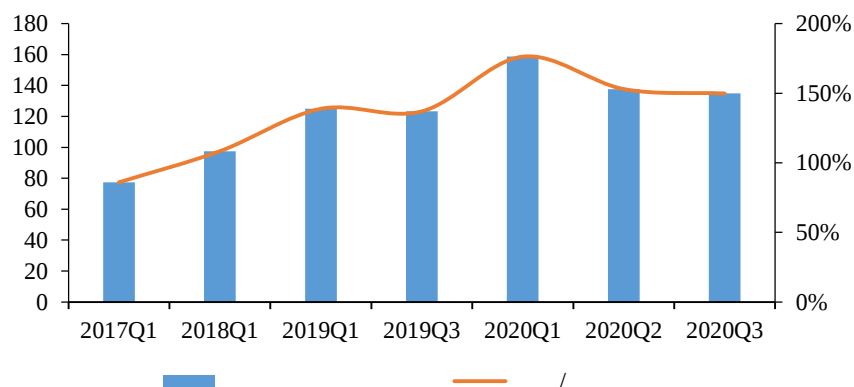
2017

/

3.3%

2019
2018 2020H1

27 2016-2019H1

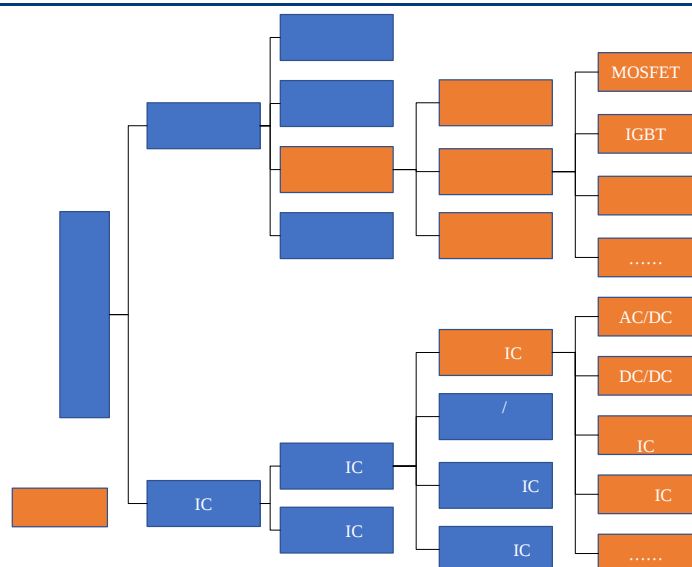


Wind

2020



28



MOSFET IGBT

SBD

FRD

SBD

FRD

MOSFET

UPS

MOS

MOS

MOS

MOS

IHS

40%

IGBT

MOSFET

IGBT

1700V

SiC GaN

GaN

SiC

5G

SiC

1.

500

5G

27%

23%

35%

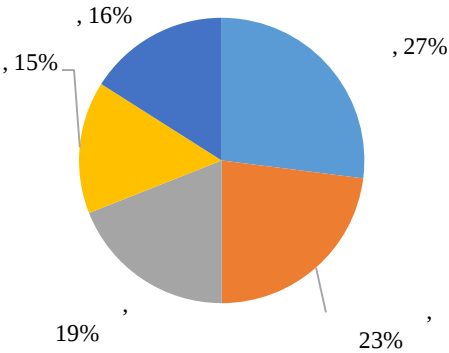
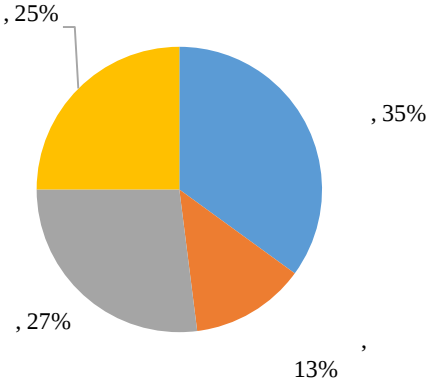
27%
19%

13%
15%

75%
16%

29 2019

30 2019



404

Omida

500
2024

2018

2021

138

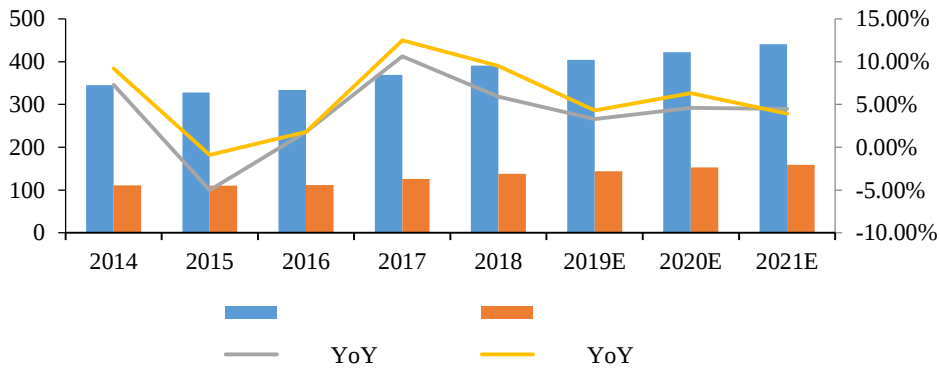
524

IHS Markit 2019
5.3%

9.5%
159

35%
4.8%

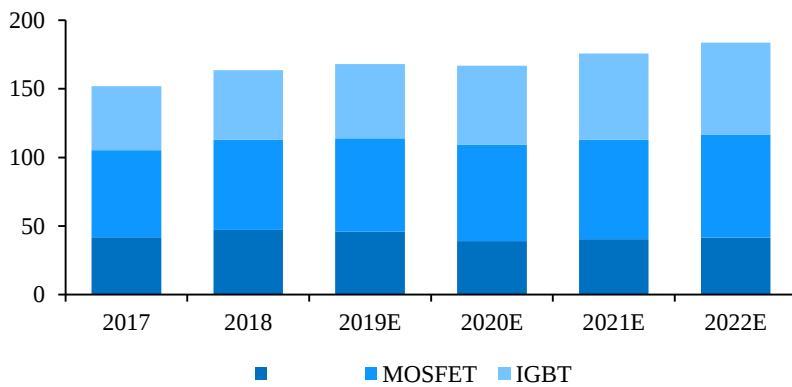
31 2014-2021



IHS Markit

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

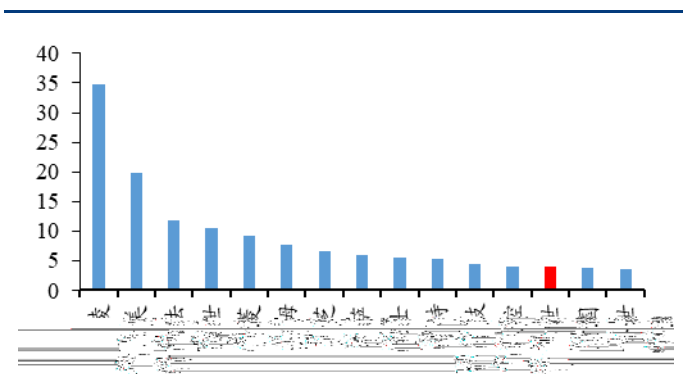
32 2017-2022 MOSFET IGBT



2.

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

33 To15 &



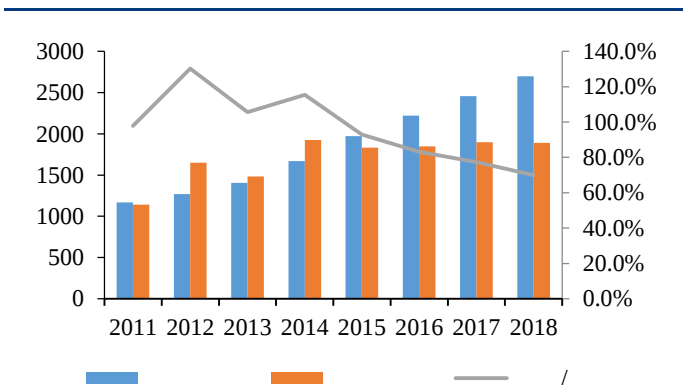
Yole

34

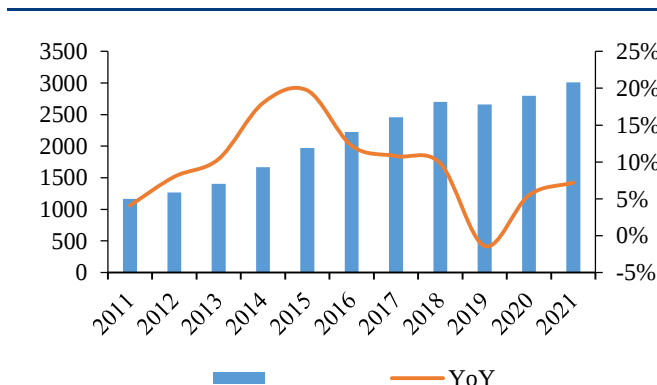
Yole

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

35 2011-2018



36 2011-2021

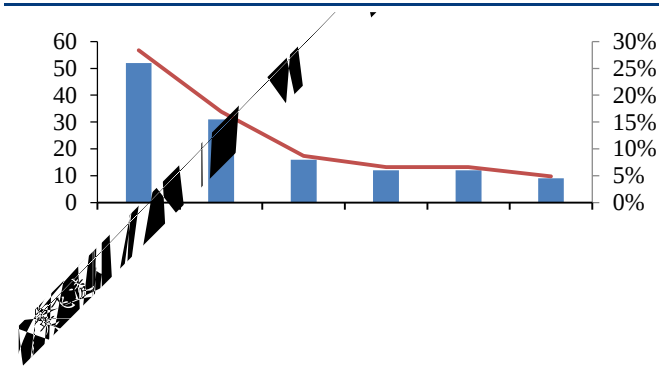


Yole

MOSFET MOSFET 52 28.4%
 MOSFET 16 8.7%
 72.1%

IHS Markit 2018 45.3%
 Top6 CR6

37 2018 MOSFET



IHS Markit

IGBT

38 2018 MOSFET

IHS Markit

IHS Markit 2018	IGBT	75%
IGBT	90%	

39 2017 IGBT

IGBT	IDM	0	0	IDM
------	-----	---	---	-----

40 IGBT

SITRI

5G

5G

900

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

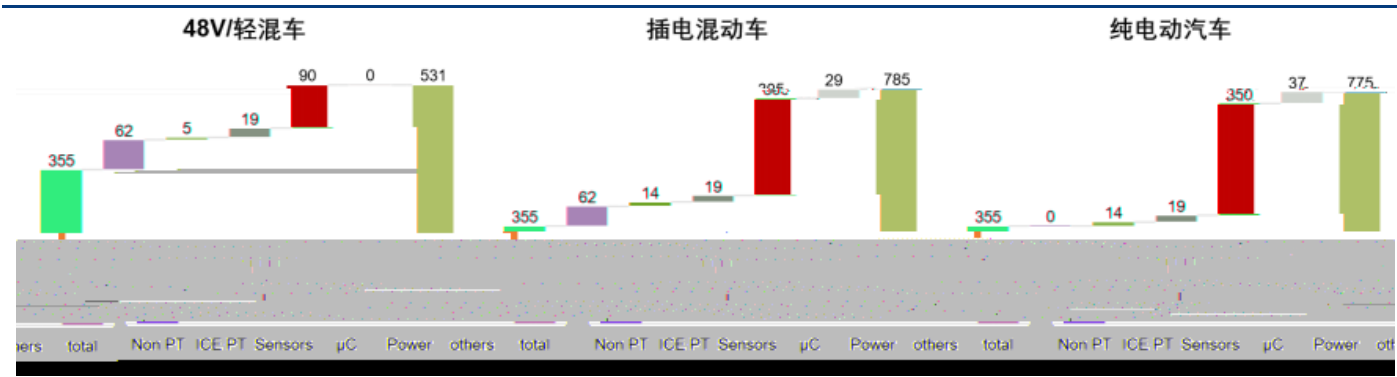
41 2017-2023 MOSFET IGBT

Yole

1.			300				
		17		90			305
360							

42

265



MOSFET&IGBT

300

MOSFET&IGBT
2025

IGBT

MOSFET
210

2022

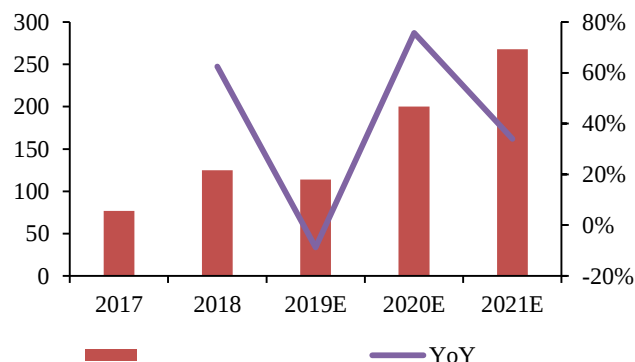
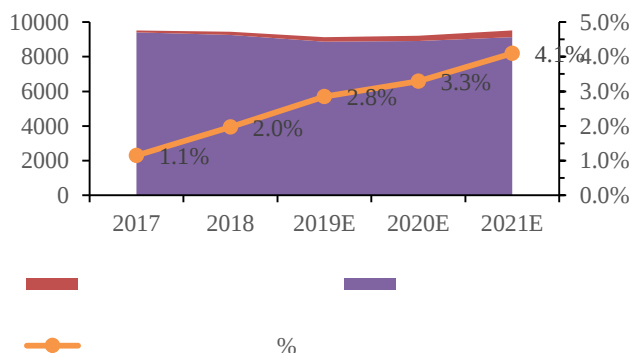
116

IGBT

310

43 2017-2021

44 2017-2021



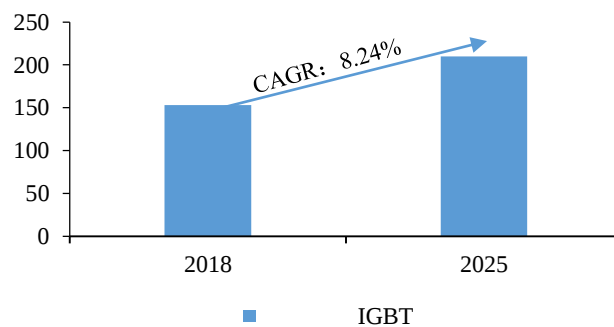
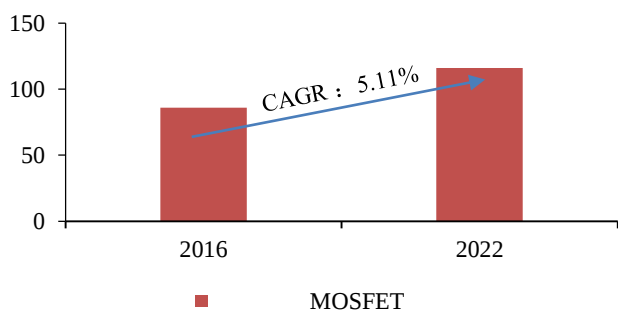
Bloomberg NEF marklines

45

MOSFET

46 2025

IGBT



2. 5G 23

5G 5G Massive MIMO AAU

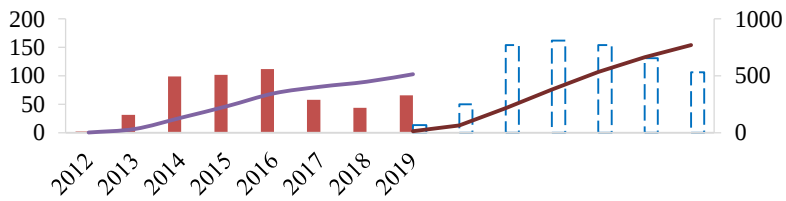
DU CU 5G

100 4

5G 5G 700

4G 5G 1.5 5G 771 5G 4G 1.5-2 4G

47 5G 7.7



2019

UPS UPS UPS

IGBT& IGBT 6%-10% UPS

15

Yole 2017 & 13.5

2023 15.1

48 2017-2023

Yole

3. 68

GaN-MOSFET

1. 2017

[illegible]

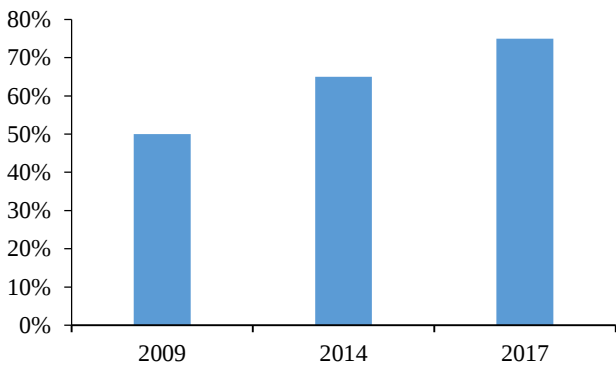
		8		2016	8	
90%	2017	44%				
56	2007-2019	8	\$/	57	2016-2017	8

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

8
 8
 12 75% VLSI research 20 90 2000 2017
 8 9 8 12 8 116
 8

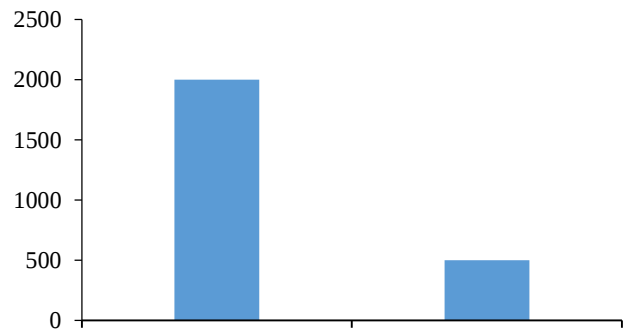
Surplus Global 2017 8
 3 5 2018 2018 8 2000 8
 500 8
 8

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%

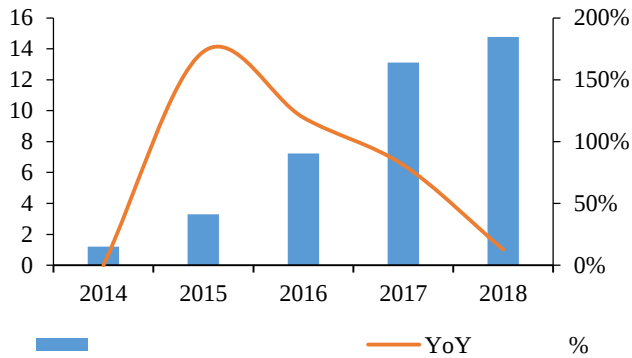
15% 2017-2018

53% 62%

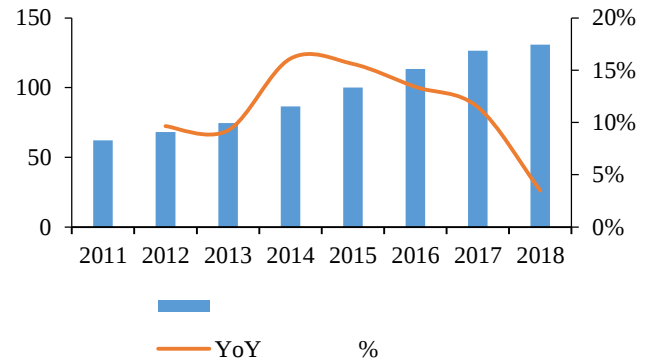
64 2016-2019

IGBT

65 2014-2018



66 2011-2018

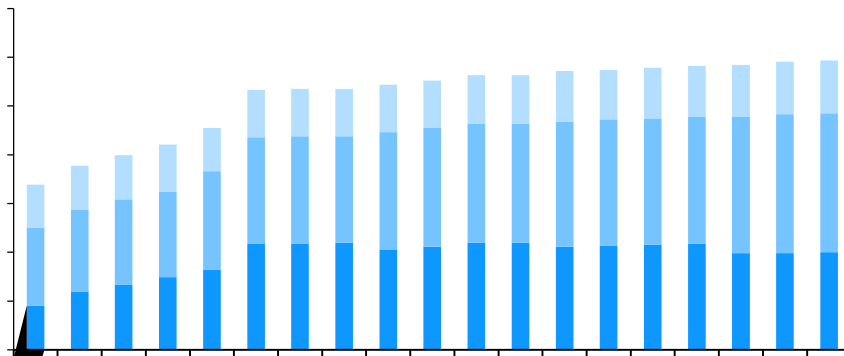


	2017	8		SUMCO	2016	Q4	8
460	/	2017Q2	540	/	2016Q4	12.7%	525
15	/	SEMI	8		550	/	2017

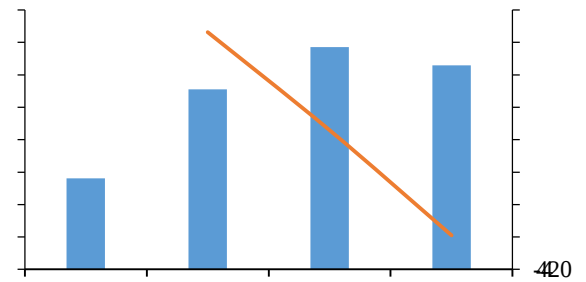
67 2016Q1-2020Q3

8

/



SUMCO



EBITDA

Wind

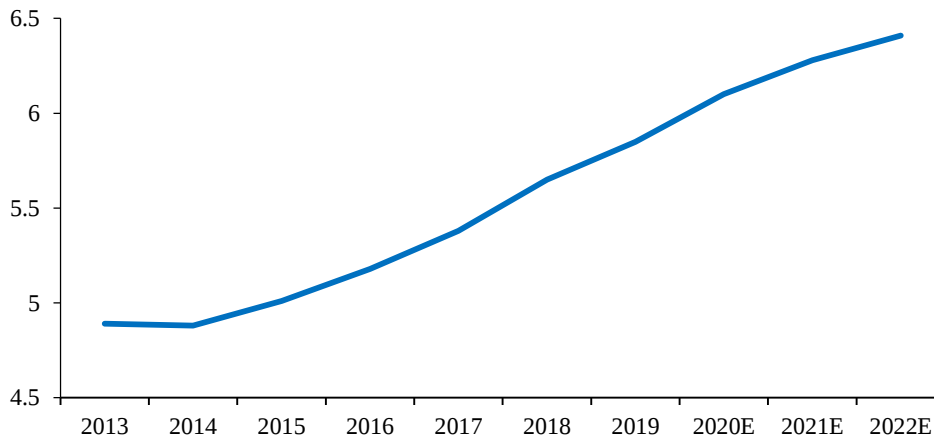
2. 2020

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

72 2013-2022

8

/



SEMI

2020

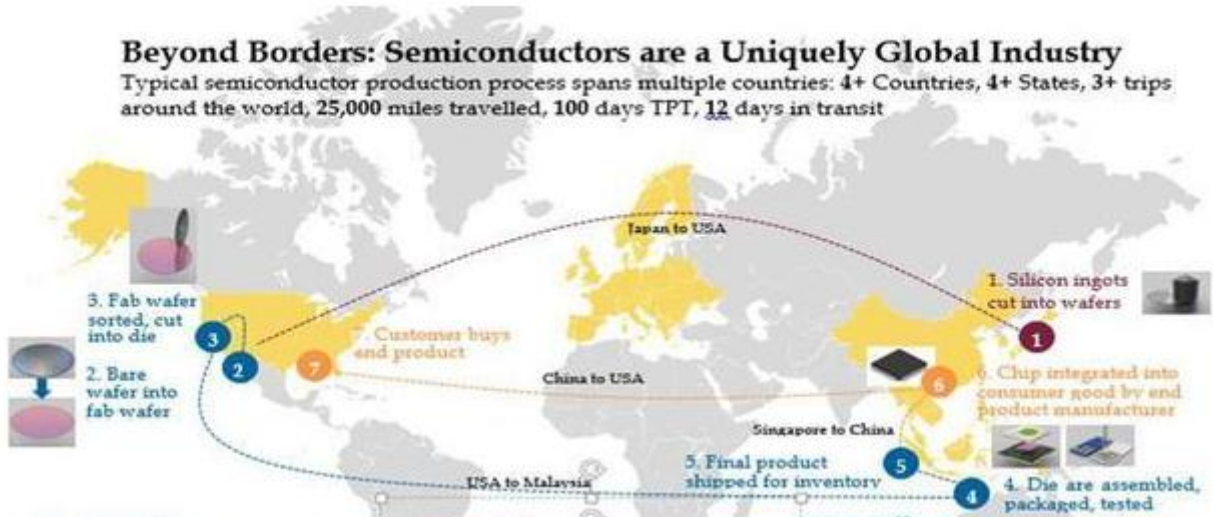
IDM

7

2020 H1

IDM

73



SIA

2

5G

2017

2020

CINNO Research 2020

40%

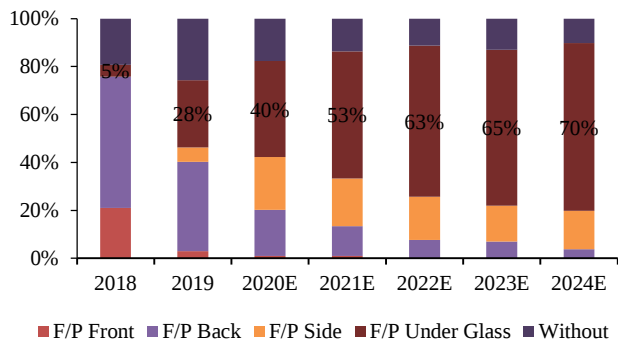
Counterpoint 2020Q1

3.5

8

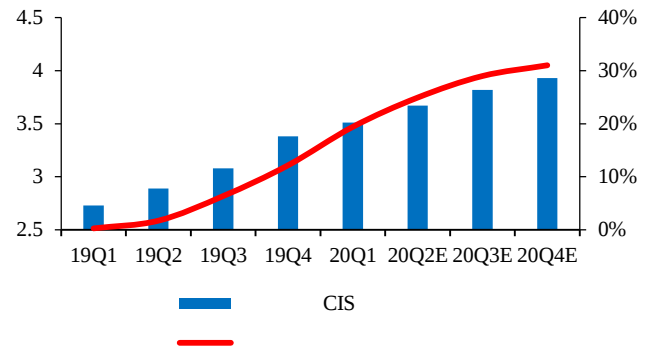
CIS

74 2018-2024



CINNO Research

75 2019Q1-2020Q4



199IT

5G 5G 4G Tom's Guide iPhone12 5G 4G 2

21% 130 MOSFET BCC Research 2020

5G 100 4 5G Massive MIMO

4G 1 IGBT SCR 5G UPS

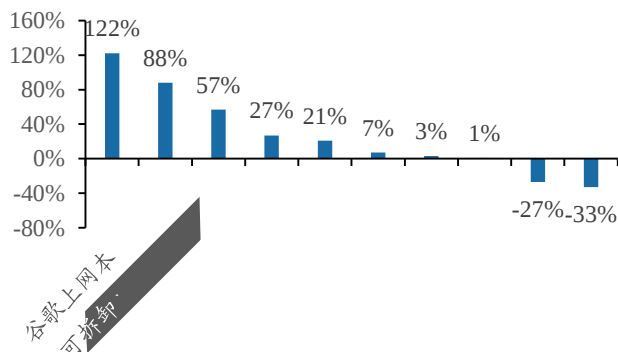
NB/PAD NB/PAD Canalys PC 2020Q2-Q3

Q3 1.245 23% 88% 57%

52.5% 10.9pct

2020 7 19.3% 9-10 65%

76 2020Q3 PC



199IT

77 2020

21%

20H1

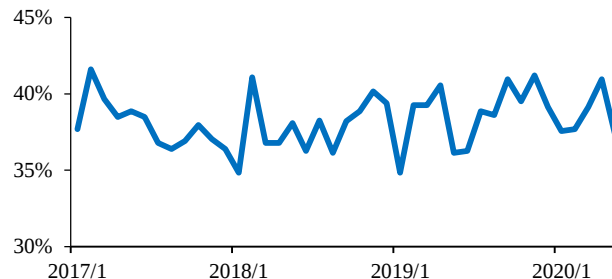
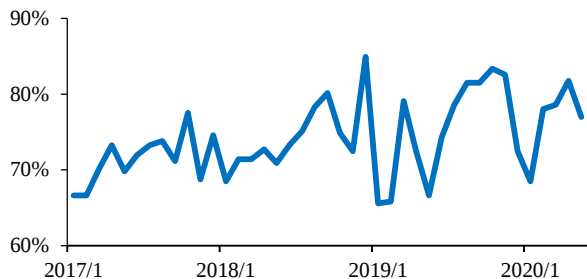
2019

11%

6

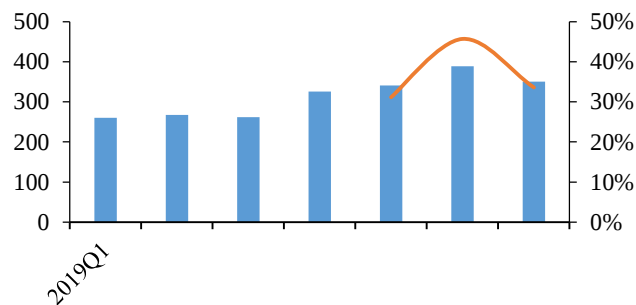
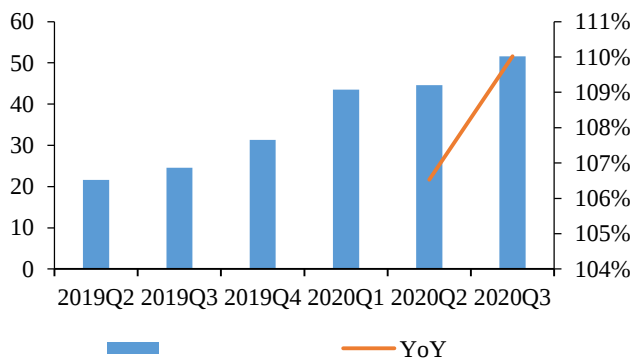
78 2017-20H1

79 2017-20H1



80 2019Q2-2020Q3

81 2019Q2-2020Q3



Wind

Wind

3 2020

8

5G

IC MOSFET

3D sensing

DIGITIMES

20H2

12

8

8

10-20%

IC

20Q3

MOS

IDM+

8

IC

know-how

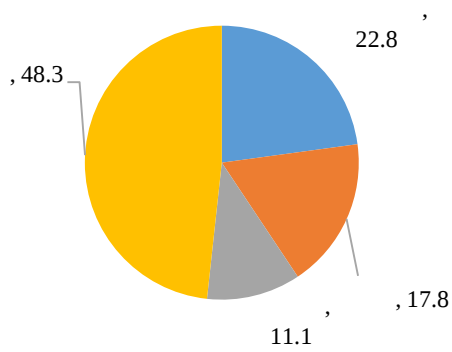
IC

IC

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

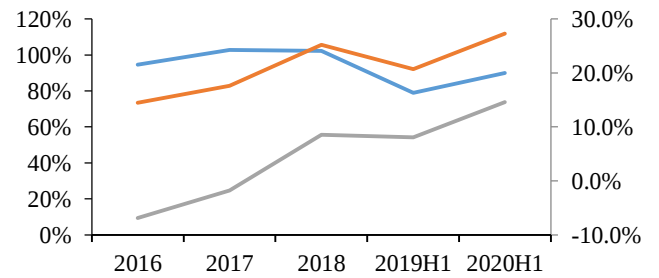
94% 2017-2018 2020 100% 2019H1 79% 2016-2018 H1 90%

82 2019 8



2019

83 2016-2020H1



Wind

2020H1

90%

2020H1

/ 12 12 2020 2019 9 1.6 12 2021 8 8

84 2020H1

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

2020H1

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

IDM+

IDM

Fabless

50%

IDM

“Fabless+Foundry”

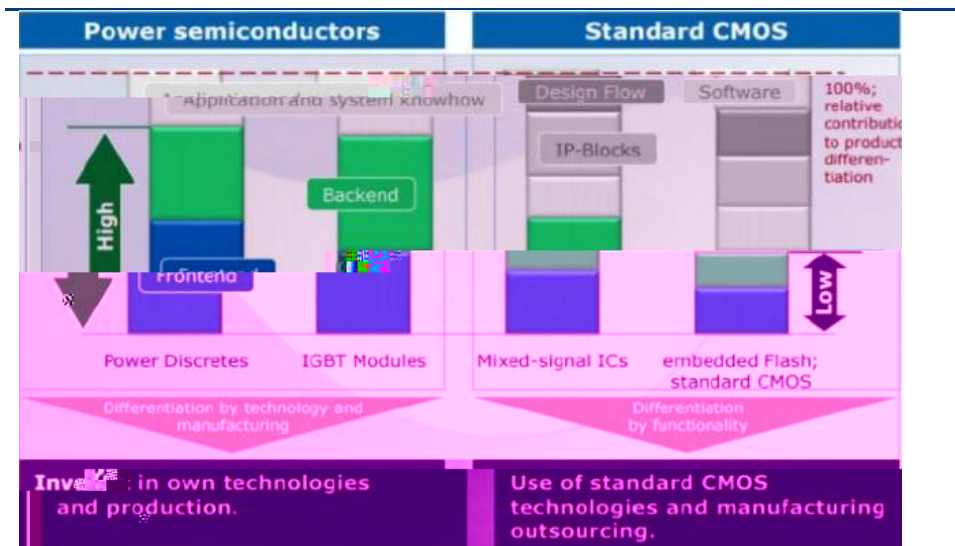
Fabless

IDM

Fabless

85

IC



IDM

Fabless

MOSFET

IDM

IDM

Fabless

IDM

Fables

Fables

IDM

87

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

2020

2019A	2020E	2021E	2022E
1,931	2,169	3,184	4,723
191	580	628	671
815	886	1,044	1,211
52	60	73	85

2019A	2020E	2021E	2022E
5,743	7,083	8,637	9,995
4,431	5,082	6,203	7,282
66	82	100	100
112	131	157	172

&

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(300)

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

“ ”