IDM |

—— (688396)

67.63

● IDM
IDM
MOSFET IGBT SBD FRD
IC

●
+
48V/
90 / / 330 /
200
“ ”
10-20
MCU IPM 2019 MCU
12% IPM 7% 5G
“ ” GaN
2023 GaN 70

●
MOSFET
IGBT 12

●
2017-2018 MOSFET PC 8
CMOS

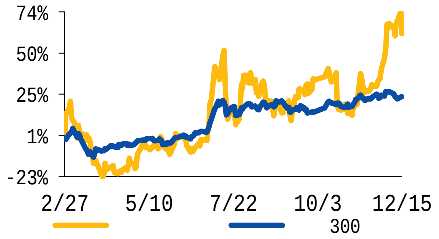
2020-2022 9.93 14.40 17.51
83x 57x 47x “ ”

●

	2018	2019	2020E	2021E	2022E
( )	6270.80	5742.78	6884.80	8365.76	9788.60
%	6.73	-8.42	19.89	21.51	17.01
( )	429.44	400.76	993.05	1439.79	1750.93
(%)	511.02	-6.68	147.79	44.99	21.61
ROE %	10.35	7.39	9.86	12.61	13.39
	0.35	0.33	0.82	1.18	1.44
(P/E)	191.49	205.20	82.81	57.11	46.97

Wind

52 /	72.95 / 32.38
A	249.04
A	1215.93
	16842.90
	82233.02



Wind

—2021
2020-11-29

- 8
2020-11-01

IDM 2020-
10-20

- -
2020-09-18

- 688396
2020-07-29

-
2020-07-14

S0020520060001
021-51097188-1937
hemaofei@gyzq.com.cn

021-51097188
wangshulei@gyzq.com.cn

1. IDM

1.1 IDM

IDM

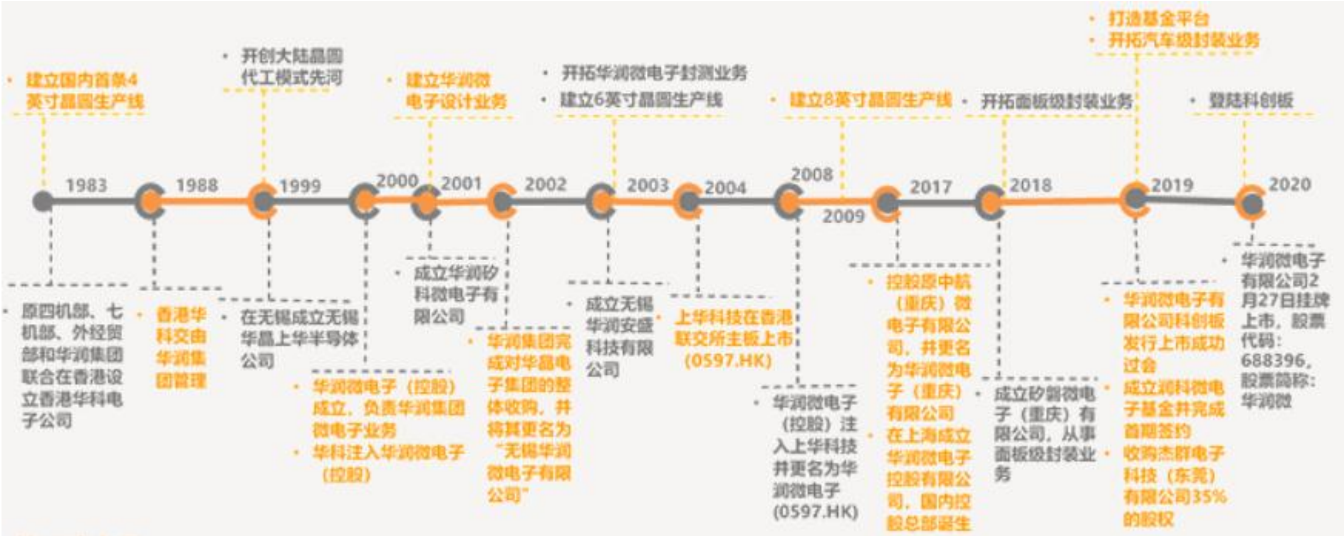
2018

IDM 4

6

2004

1



IDM

IC

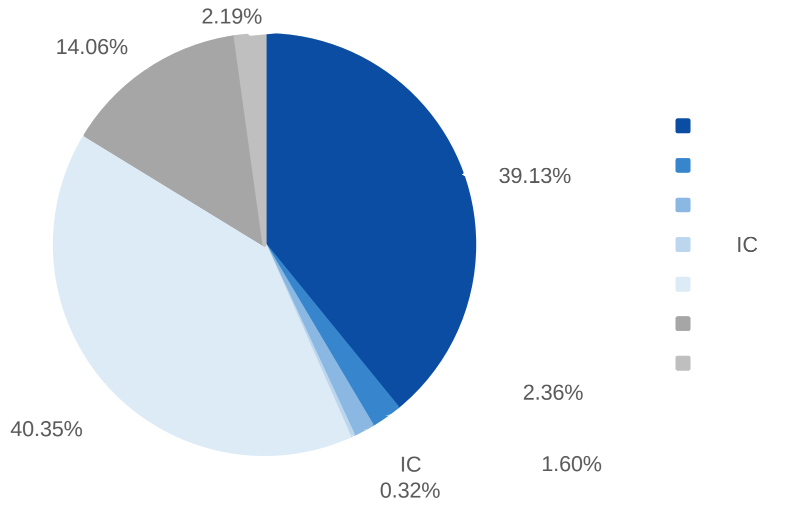
MOSFET IGBT SBD FRD IC

1

MOSFET	1500V	MOS	MOS	MOS	MOS	-100V-
IGBT						600V-1200V

	SBD		SBD SBD 45V-150V 200mA-30A
	FRD		200V-6500V
IC	AC/DC		AC/DC
	LED IC		LED
	BMS IC		
		IC	78 1117 100mA-1A
		IC	100W
		IC	,
		IC	5mW50W AB D

2 2019H1



1.2

2019 57.43 8.42%
20H1 30.6 16.03%

5G AIOT

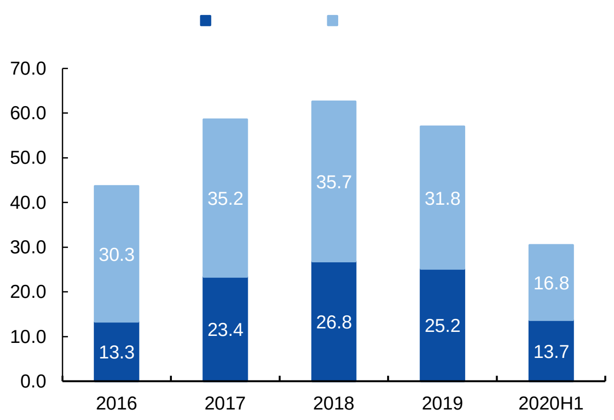
2016-2020H1
30.52%

44.95% 2020H1

22.31% MOSFET 21.43% IGBT

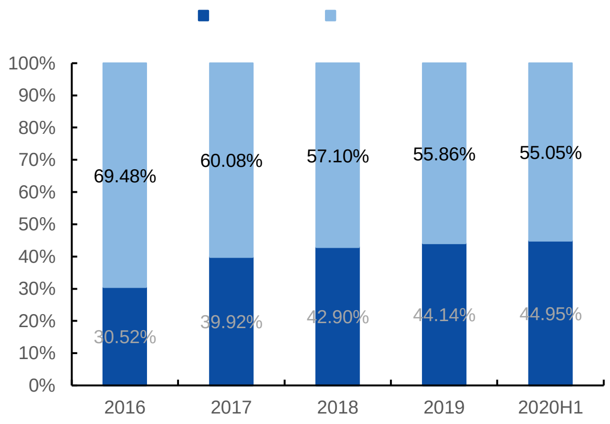
49.90%

3



Wind

4



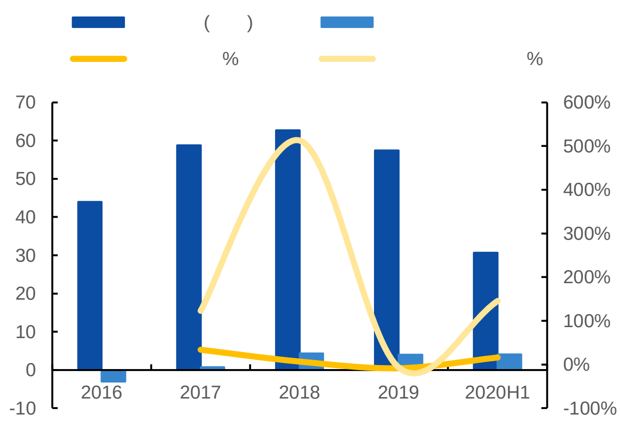
Wind

2016-

2018 2019

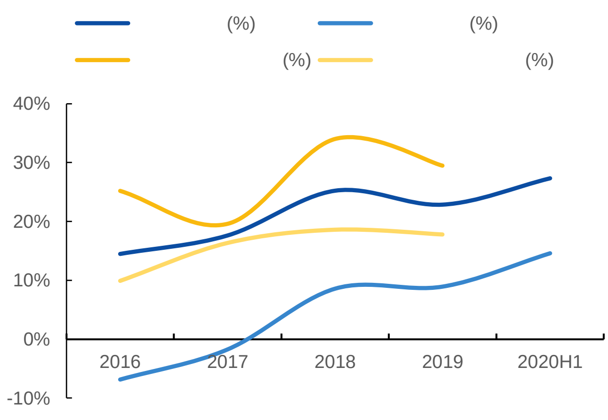
22.8% 2.36% 20H1 27.3%

5



Wind

6



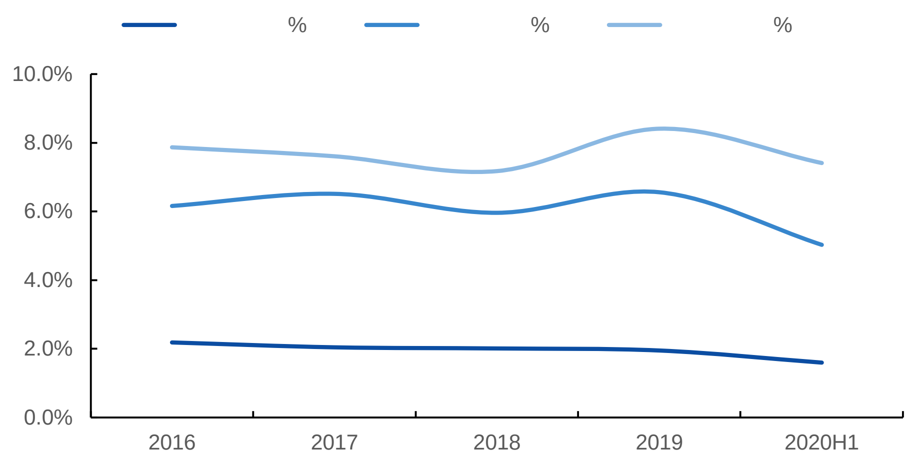
Wind

7-8%

2019H1 2020H1 7.33%

5.4%

7



Wind

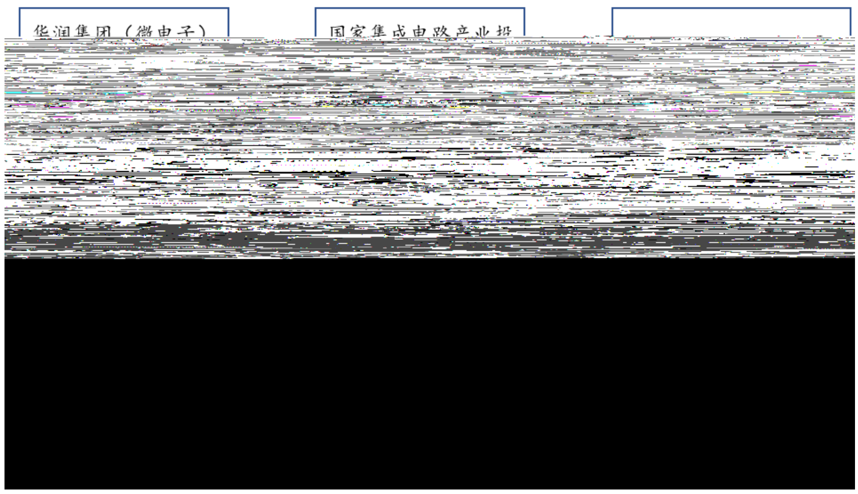
1.3

72.29%

100% 100%

6.43%

8



➢

IC

➢

。

9

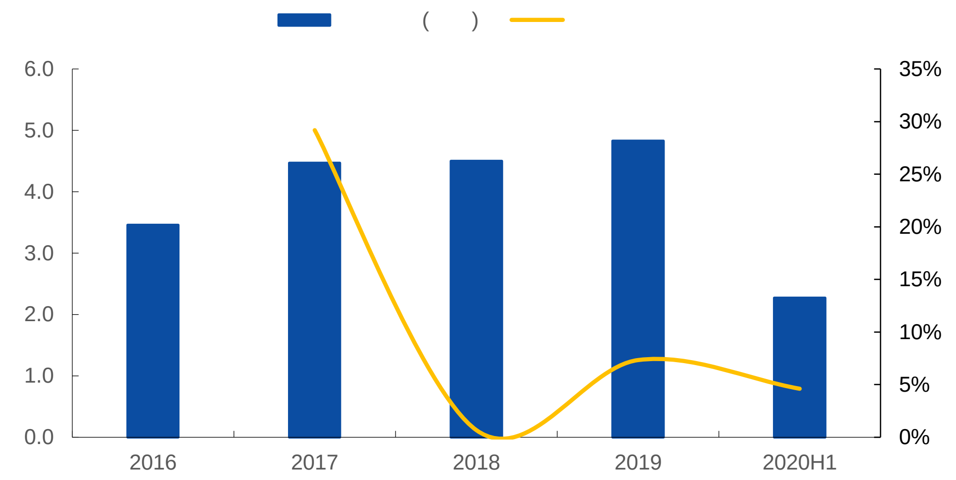
	设计	掩膜	封装测试
集成电路	华润矽威100% 华润矽科100% 华润半导体（深圳）100%	迪思微电子100% **晶圆制造** 华润上华100%	华润安盛100% 华润赛美科100% 矽盘微电子48.73% 杰群电子（车硅级）35%
功率器件	华润华晶99.66% 重庆华微52.69%	华润华晶99.66% 重庆华微52.69%	华润华晶99.66%

自有产品　　持股比例%　　代工服务

1.4

2016-2019　　3.46　4.47　4.50　4.83
7-8%　　MOSFET　IGBT

10



Wind

707　　MEMS　　MCU

11

Wind

2 2019 6

/
MEMS IPM

3

	/
MOS	FOM
MOSFET VDMOS	UIS EMI
MOS	
IGBT IGBT	Trench-FS
SBD	8 Trench 45V-150V
FRD	
IC	WPC QI EMI
IC	2-7 5-8 10
IC LED IC	700V

PMIC **MEMS** IGBT

4

	650V			243,540,000	10,828,400	4.4%
SiC	4 SiCJBS MOSFET			142,170,000	21,749,700	15.3%
IGBT	FS-IGBT IGBT			59,547,100	4,018,700	6.7%

	500V SOI-BCI	43,640,800	2,785,300	6.4%
20-30V DrMOS	20-30V DrMOS PC	20,000,000	0	0.0%
AC-DC Fly-back	USBPD AC-DC Flyback LED	20,000,000	0	0.0%
GaN	GaN	39,480,000	745,100	1.9%
0.11 BCD	BCD BCD PMIC subPMIC	78,750,000	2,766,100	3.5%
	FC QFN,LGA	550,000,000	332,805,780	60.5%
MEMS		15,000,000	1,273,300	8.5%
32 MCU	2 32	42,000,000	1,534,200	3.7%
200V	200V	10,000,000	432,244	4.3%
MOS	4500V VDMOS	4,500,000	390,756	8.7%

2020

1.5

1.5.1

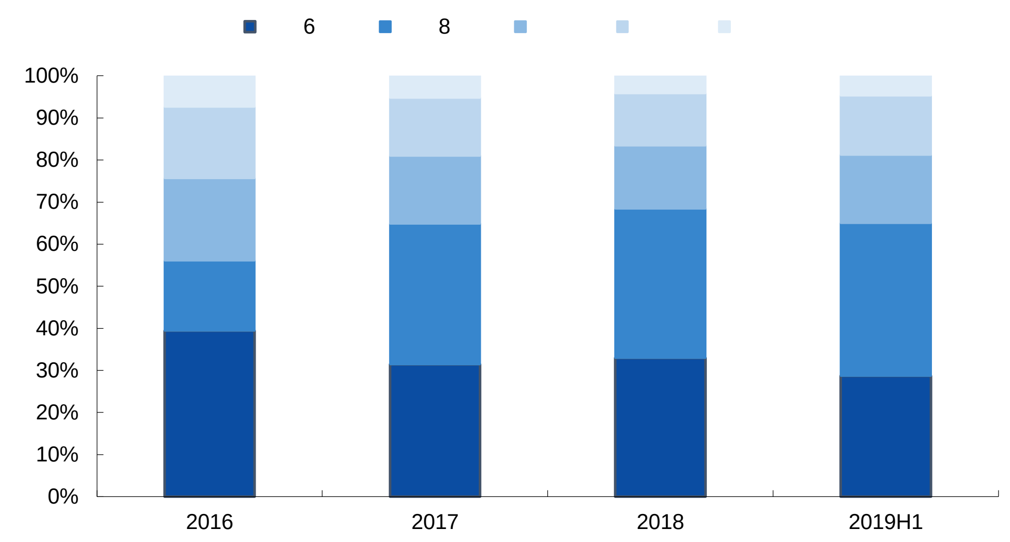
2016-2019H1 20% 15%

5 2019H1

	(		
	9724.23	9%	0.2548
	6354.22	6%	0.1674
SK Siltron Co Ltd	3293.99	3%	0.0868
SUMCO Corporation	2379.01	2%	0.0627
	2298.79	2%	0.0571
	24050.24	22%	

2019
TOPCO SCIENTIFIC Co., Ltd.
,
70% 2016-2019H1
8 8

12



1.5.2

13

1.5.3IDM+

IDM Fabless
Fabless
IDM
IDM

6 IDM Fabless

	IDM	Fabless

IDM Fabless
IDM
IDM

14 IDM

IDM模式在功率半导体行业中的优势
IDM模式经营的企业在研发与生产各环节的积累会更为深厚，更利于技术的积淀和产品群的形成与升级，从而增强市场竞争力、建造壁垒。
拥有IDM经营能力的公司，其产品设计与制造工艺的研发能够通过内部调配进行更加紧密高效的联系。
受益于全产业链的经营能力，相比Fabless模式经营的竞争对手，IDM模式的公司能够有更快的产品迭代速度和更强的产线配合能力。
IDM公司能更好发挥资源的内部整合优势，提高运营管理效率，能够缩短产品设计到量产所需时间，根据客户需求进行更高效、灵活的特色工艺定制。

1.6

42 **8** 2020 3 IPO
42 15 8 6
3

50
3 42 38

5G AIOT

7

8	150,000.00	150,000.00	25,797.19	17.20%
IPO	60,000.00	60,000.00	0	0.00%
42	30,000.00	30,000.00	12,696.68	42.32%
	60,000.00	60,000.00	15,998.83	26.66%
50	420,000.00	380,000.00	0	0.00%
	120,000.00	120,000.00	0	0.00%

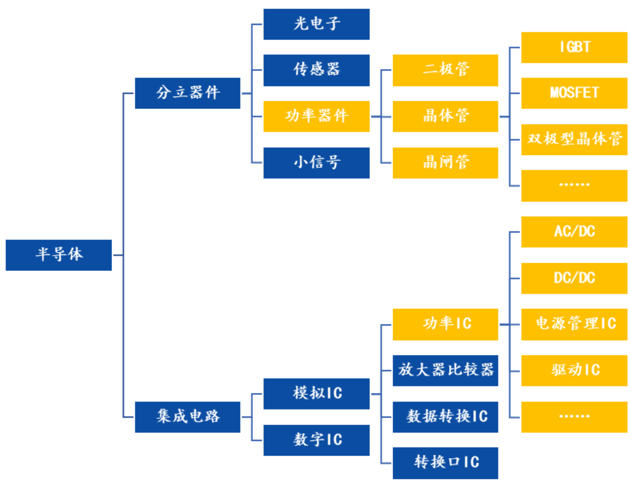
2.

2.1

2.1.1

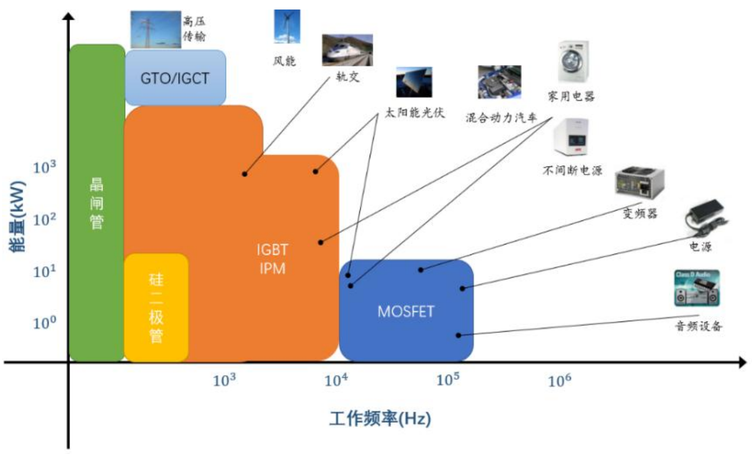
IC

15



/

16



Yole

60% IHS Markit

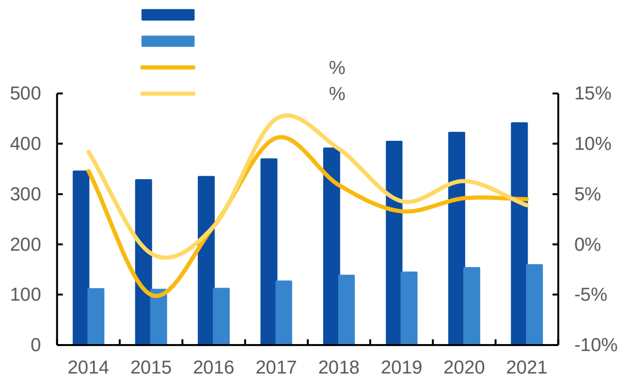
2019 404 144

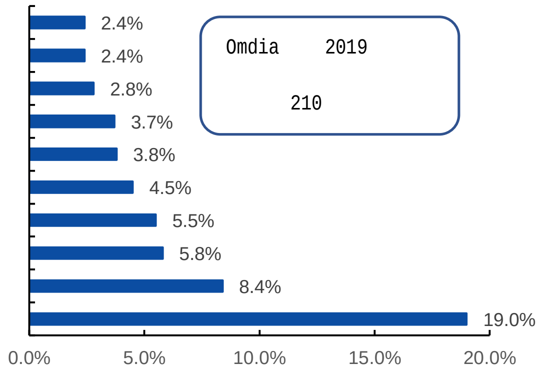
IC Omdia 2019

210

19% 58.3%

17 **18 2019**





IHS

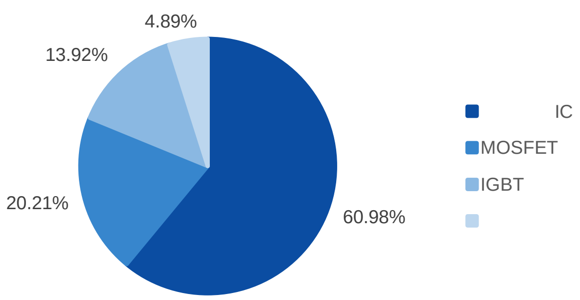
Omdia

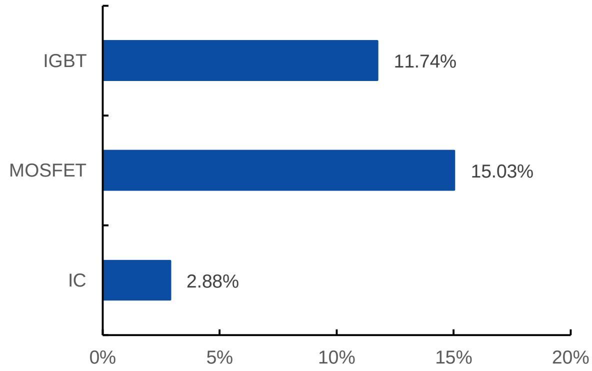
PMIC MOSFET IGBT 2018

60.98% 20.21% 13.92% MOSFET IGBT

2016-2018 15% 12%

19 2018 **20 2016-2018**





IHS

IHS

2.1.2

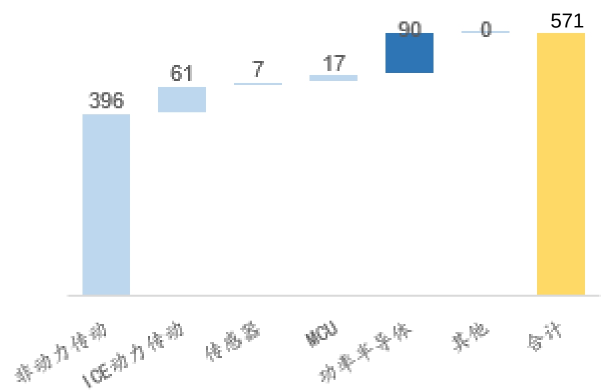
1

+

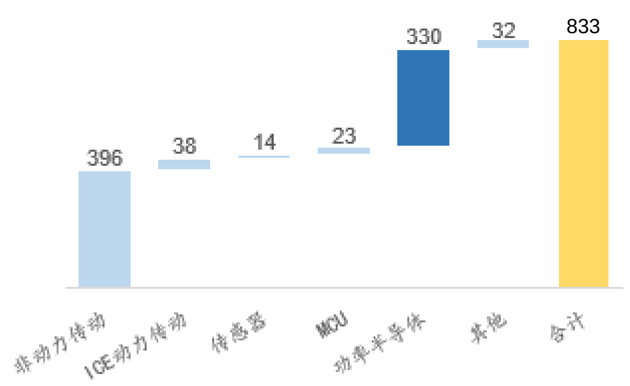
21

48V/ 90 /
/ 330 /

22 48V/



23 /

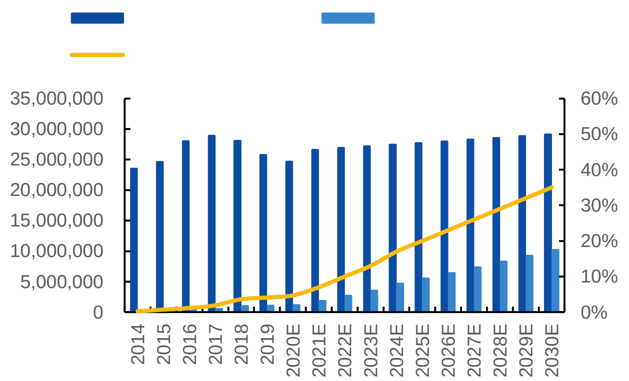


2021-2035
2025 20% 2030 35%
1% 2025

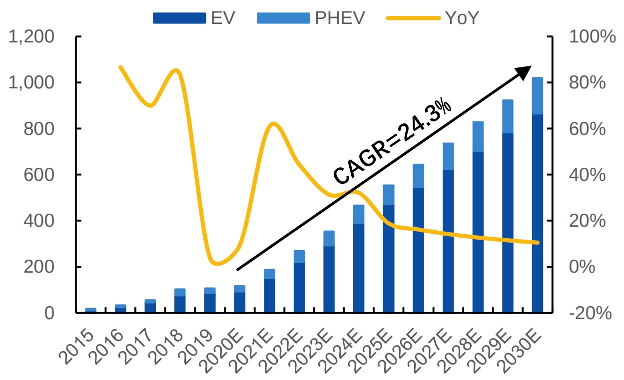
550 2030 1000

10 24.3%

24



25

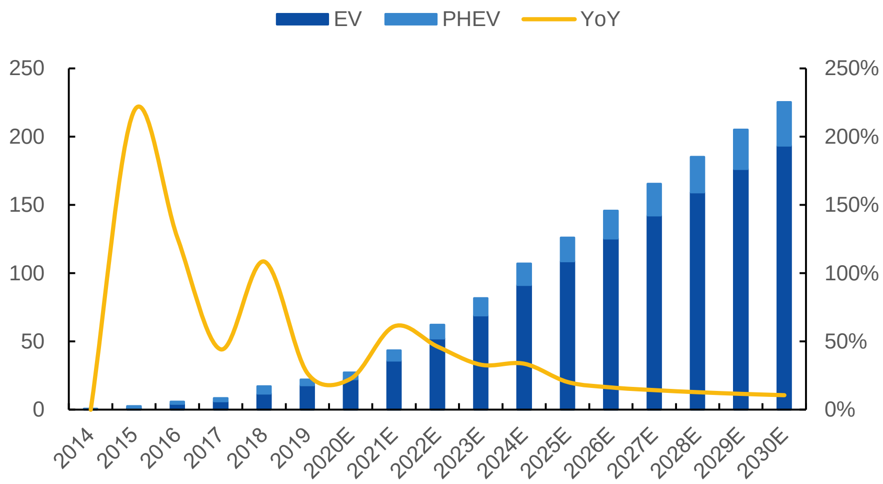


EV A00 C

PHEV

2025 125 2030 225

26



2

3-5 **+**

2018 5

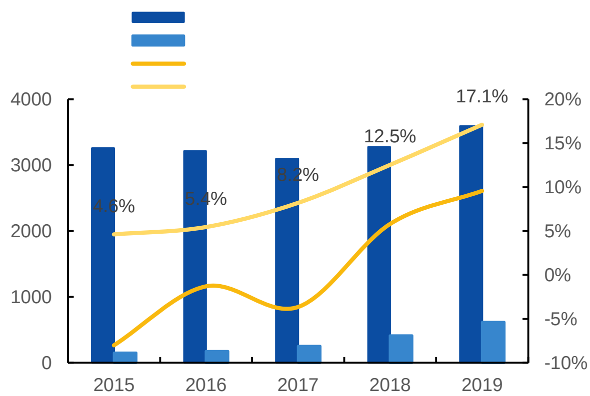
GB 17761-2018 2019 4 15

MOSFET
MOSFET 10

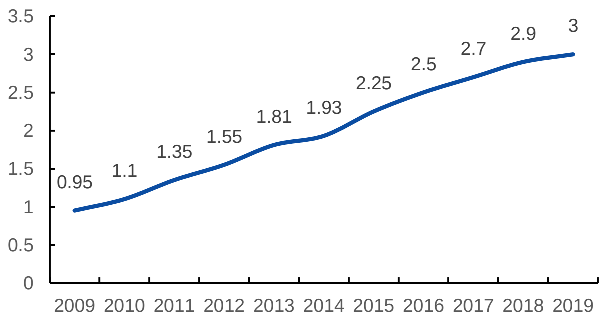
27

2019 3592
3 2019 615
17.1%

28



29



3 **70%**
50% 2020-2024
5% 15% 30% 30% 20% 6000-

8000

55kg

MOS 20 30 **3-5**
MOSFET **10-20**

8 MOSFET

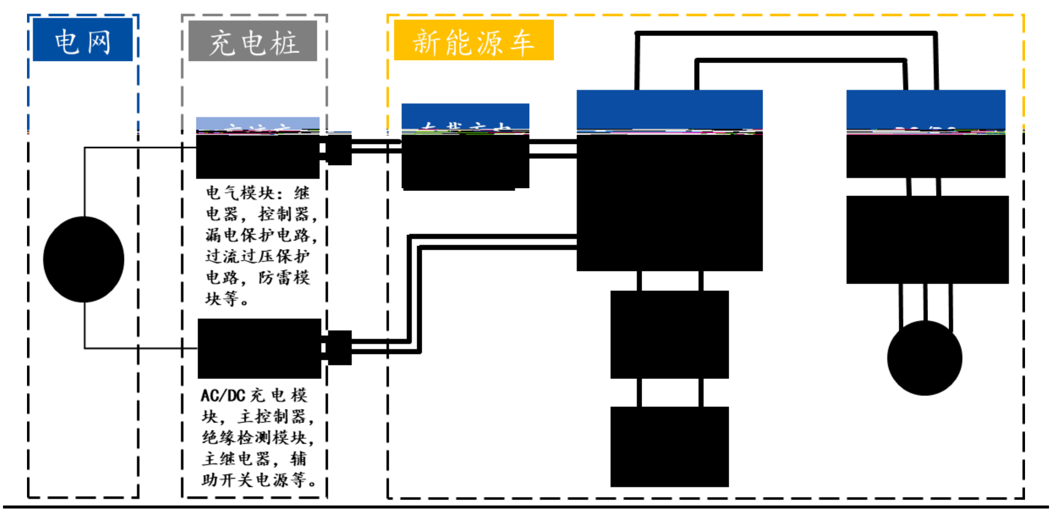
	2019	2020E	2021E	2022E	2023E	2024E
	3592	3200	3200	3200	3200	3200
2019 3 70% 50% 2020-2024						
	5%	10%	20%	30%	25%	10%
	-	1500	3000	4500	3750	1500
	3592	**4700**	**6200**	**7700**	**6950**	**4700**
	17%	20%	27%	35%	43%	50%
	615	940	1674	2695	2989	2350
	2977	3760	4526	5005	3962	2350
/ MOSFET *20 30*						
MOSFET	**7.8**	**10.3**	**14.1**	**18.1**	**16.9**	**11.8**

GGII

3

" + " " + "

30

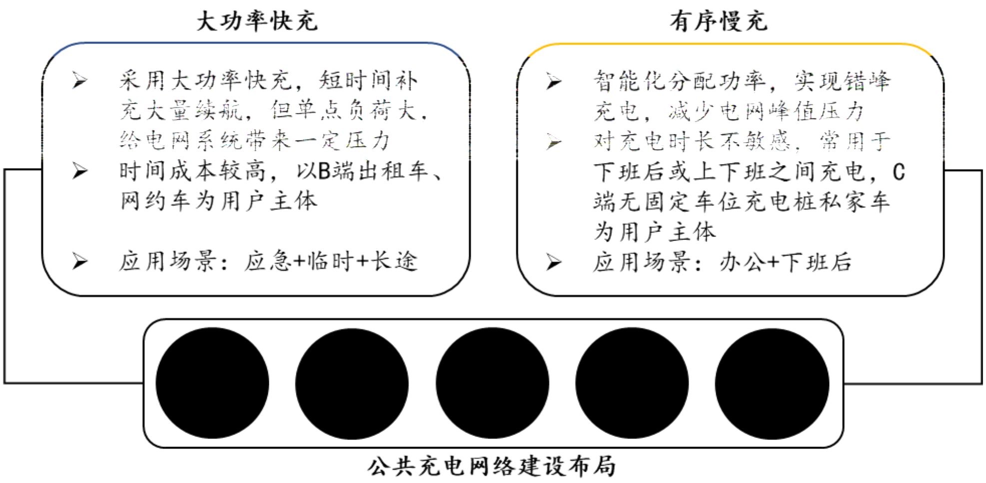


1 3 1

2 1 2

3 / 6 4
/ 1 1

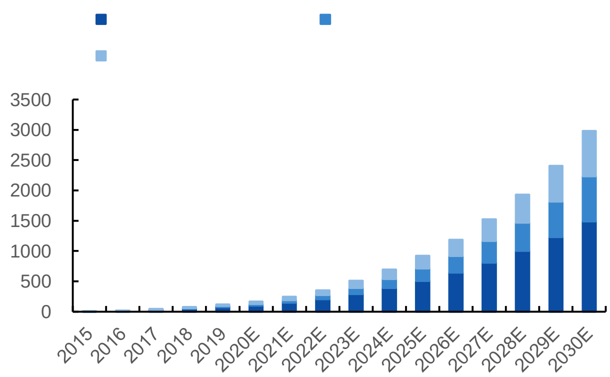
31



4:6 2030 1:1
2025 210 2030 750

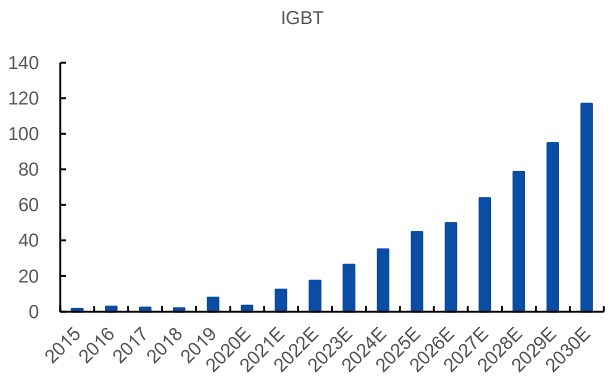
10
500

32



EVCIPA

33



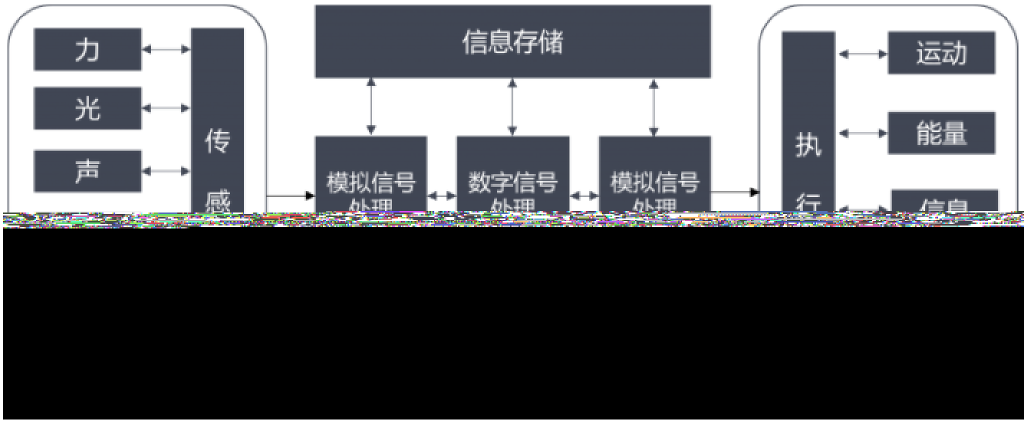
GGII

2.2AIOT MEMS

MEMS

A/D

34 MEMS



AIOT

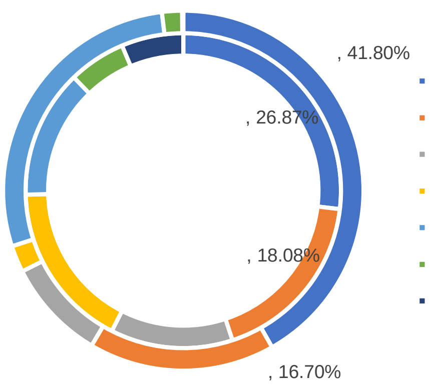
MEMS

26.87% 13.19% 18.08% Yole

MEMS 32.6% 2025

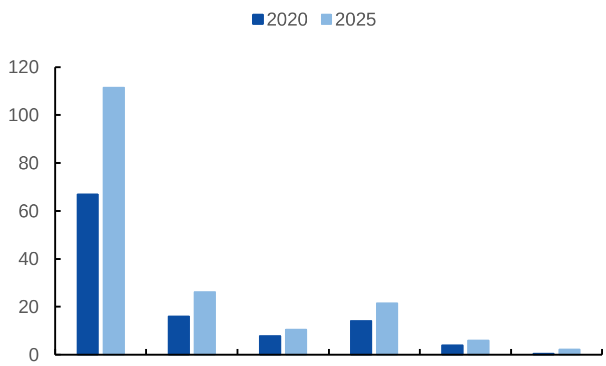
111.4 10.4 26

35 MEMS



CCID

36 MEMS



Yole

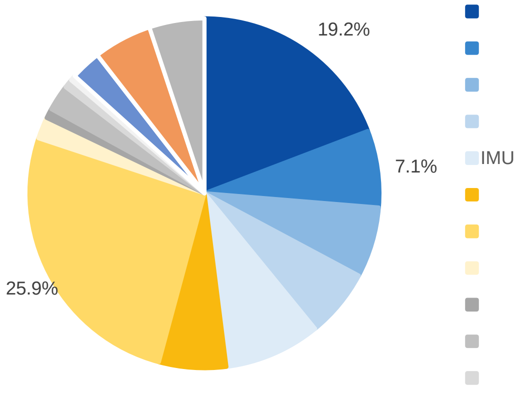
2019 **MEMS** **600** **2021**

810 MEMS

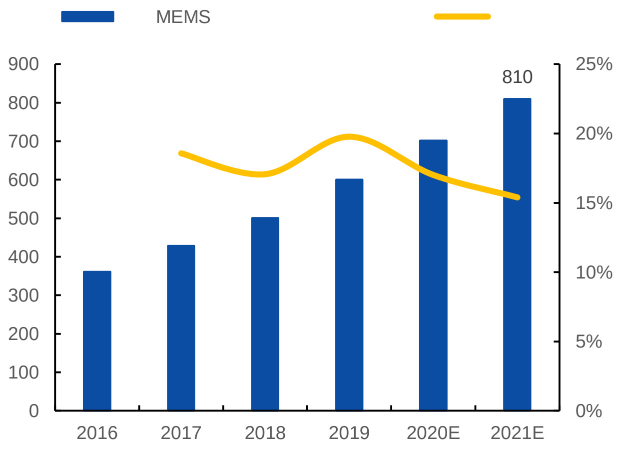
,

QORVO MEMS

37 2019 MEMS



38 2016-2021 MEMS



MEMS

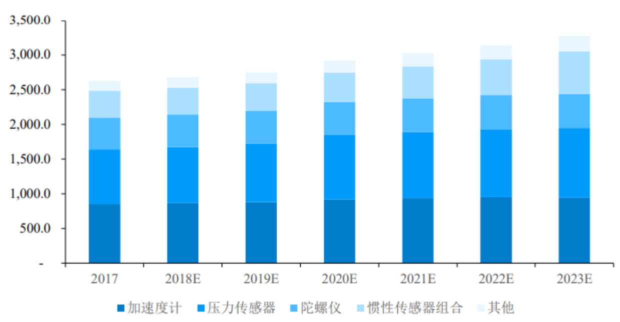
MEMS
2018 MEMS 116.6 2018-2021
8.88% 2021 150

MEMS

SCR

MEMS

39 MEMS



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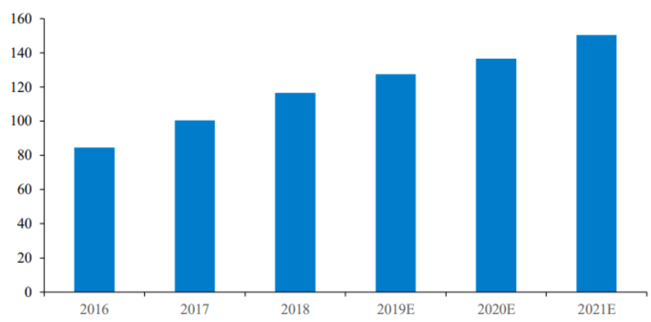


Yole

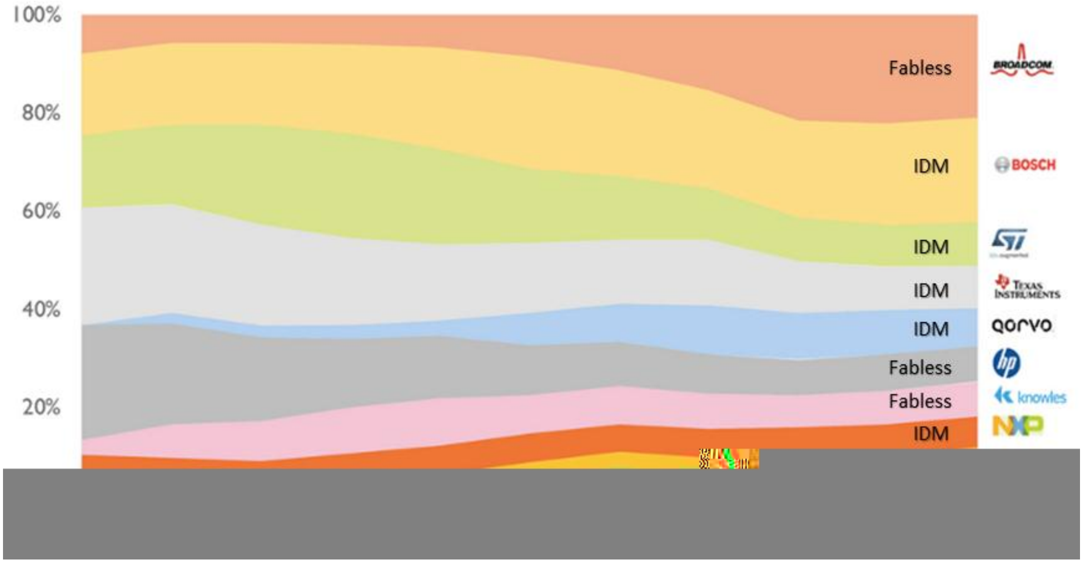
MEMS

MEMS

MEMS

MEMS
IDM
MEMS IDM
CMOS MEMS
MEMS
MEMS

41 MEMS



Yole

2.3

2.3.1 PMIC MCU IPM

IPM

MCU IC

1 IC

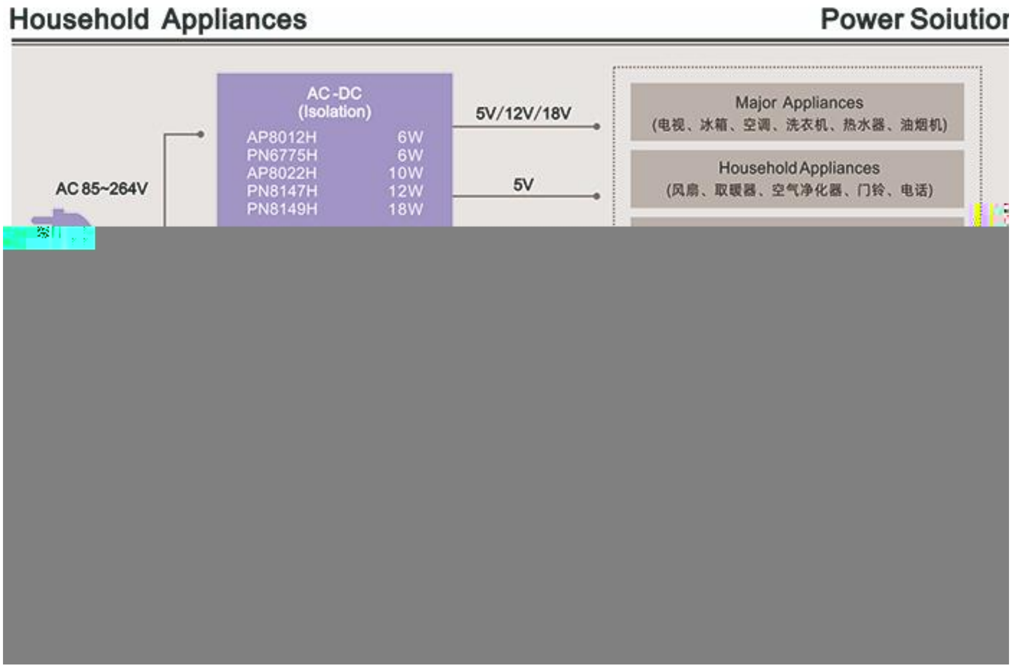
IC

IC

IC

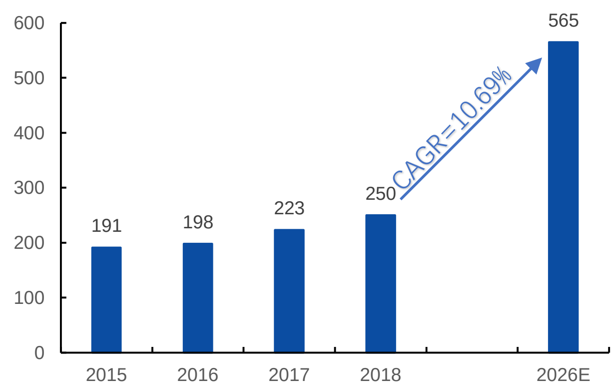
IC

42

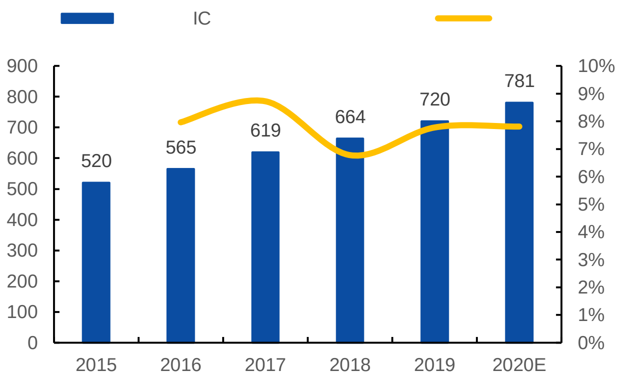


SEMI 2026
565 2018-2026 10.69%
2015-2019
520 720
781

43 IC



44 IC



SEMI

IC 70%
21% ADI IC

Yole

[redacted] PMIC

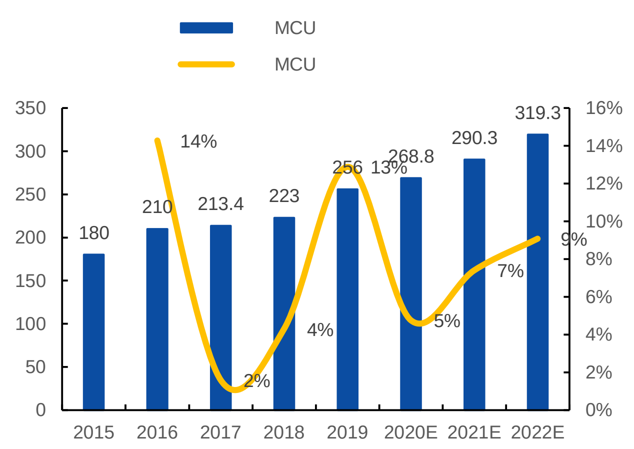
2024[redacted]103

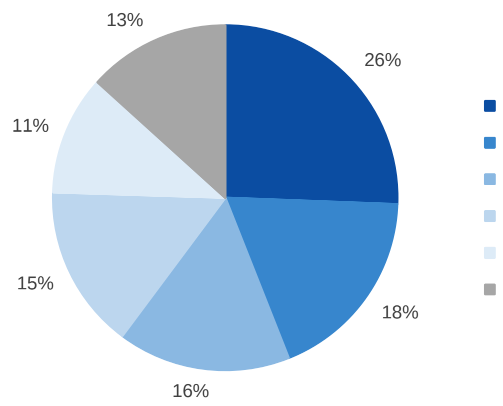
45 IC 46

ASPENCORE 2019 MCU
26% 18% 16%

48 MCU

49 2019 MCU





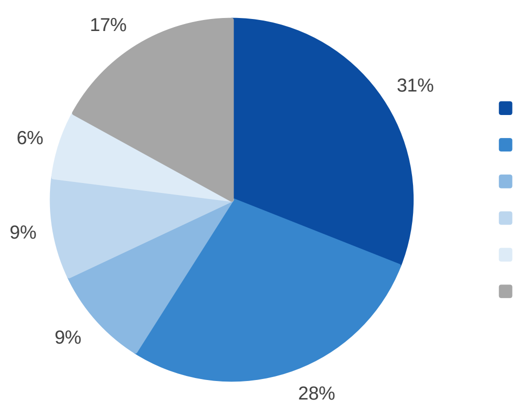
IHS Markit

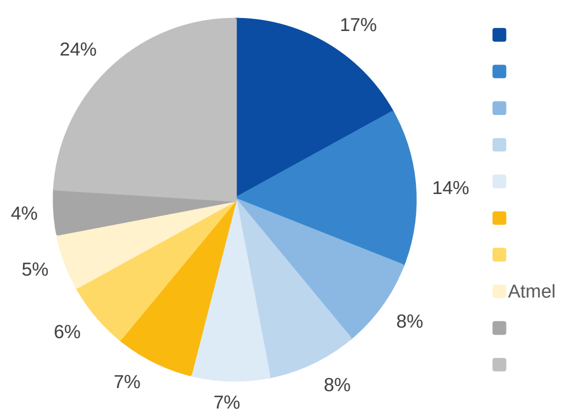
ASPENCORE

2019 MCU
80% 31% 28% MCU
9
5%

50 2019 MCU

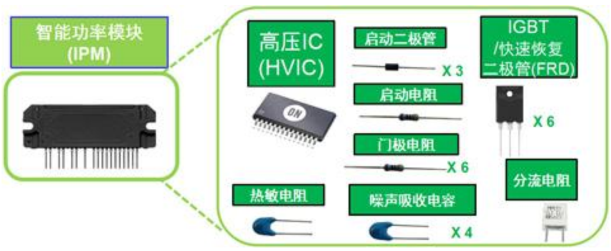
51 2019 MCU

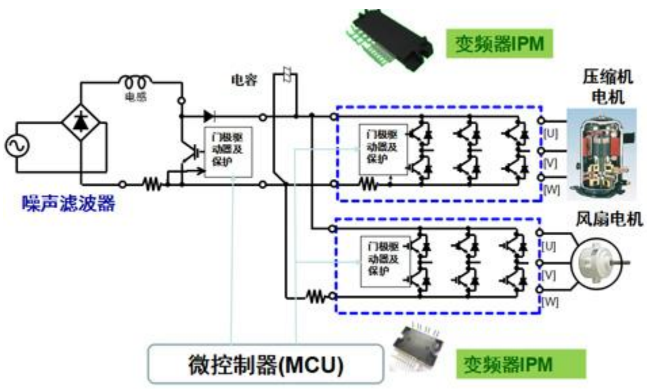




IPM IGBT
IGBT GTR MOSFET MOSFET GTR IGBT
IPM ,

52 IPM　　　　53 IPM





60-70% 2020

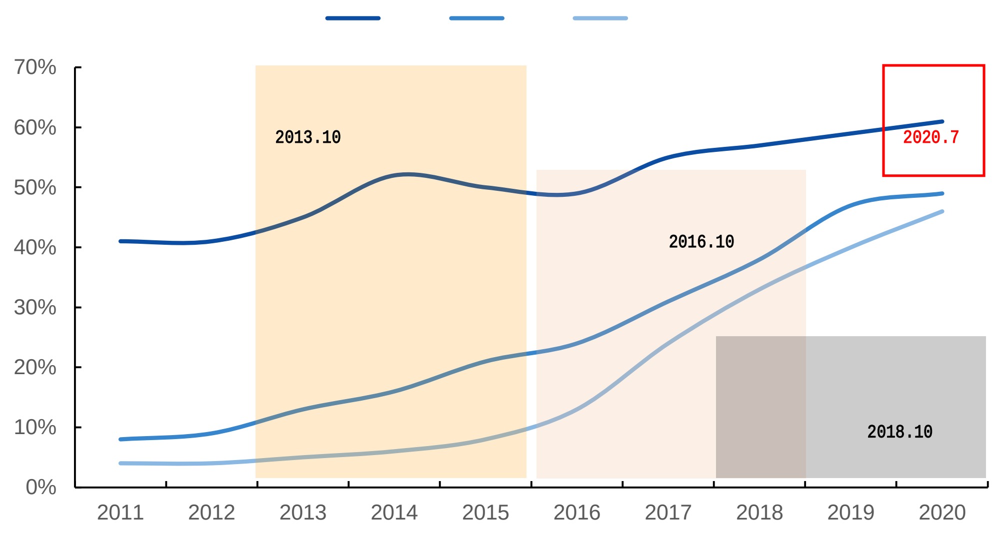
61% 49% 46%

0.79 10.67

IPM 2020 IPM

2.2 MCU 4.56

54



MCU IPM

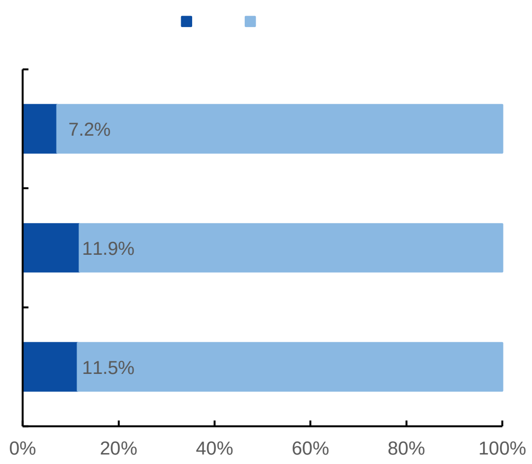
2019 MCU 12% IPM

7% 2020 IPM

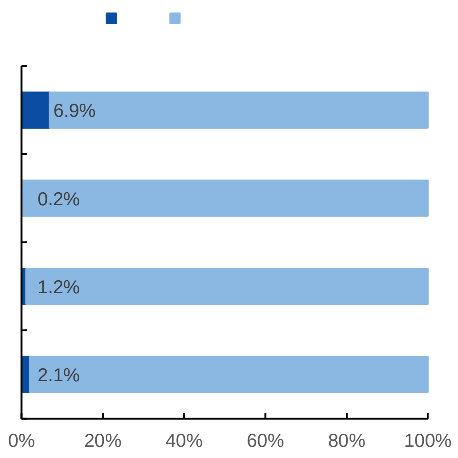
2.2 20% MCU 4.56

0.6%

55 2019 MCU



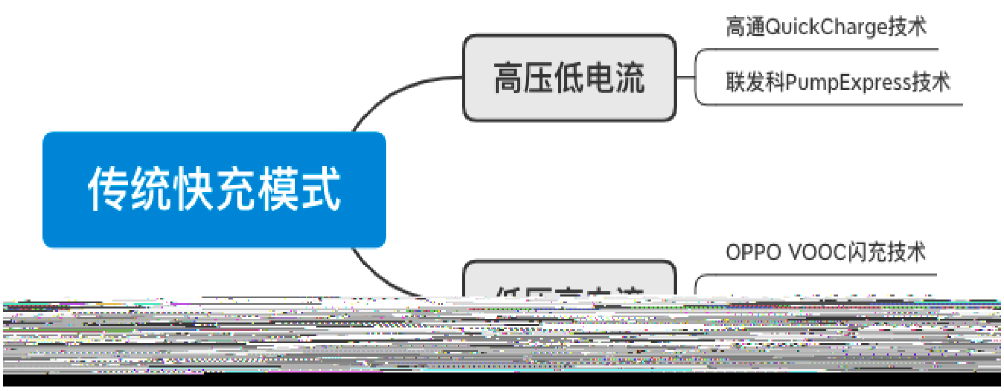
56 2019 IPM



2.3.2

OPPO

57



10
120W IQOO
120W 6C
OPPO 125W

9

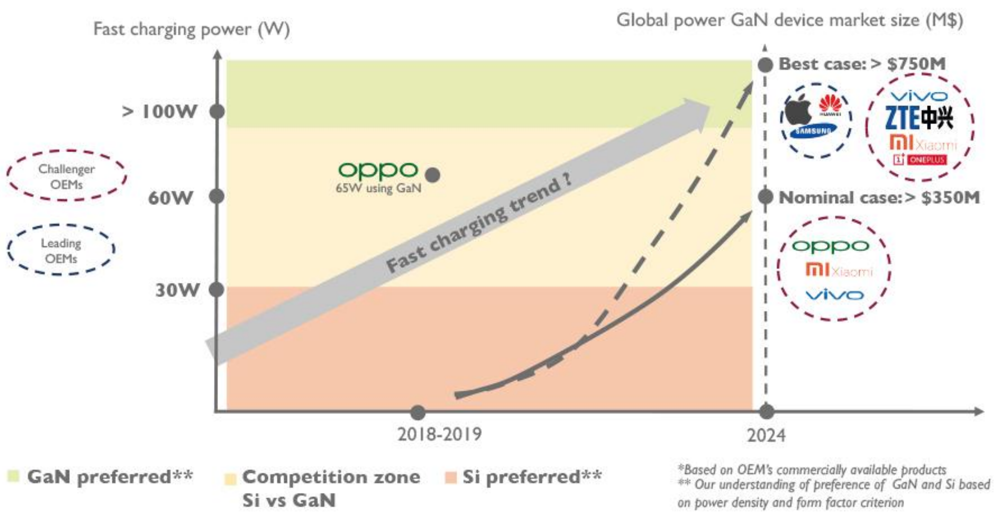
OPPO	125W	· · 6C · · 14 ·
vivo	120W	· · “ ” · IC · “ IC ”
	120W	· · ·

10W

30W

30-100W

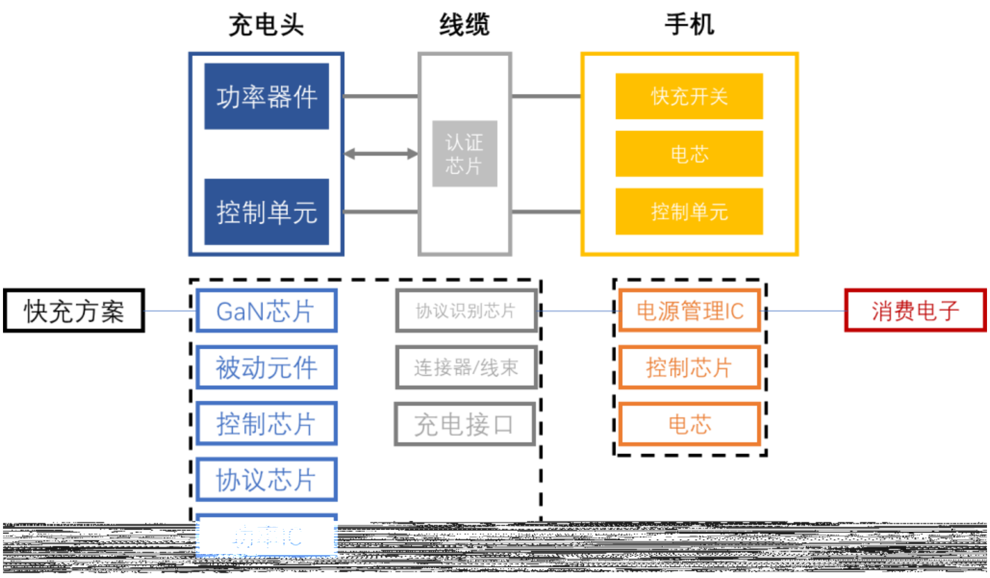
58



Yole

GaN

59 GaN



GaN 150
50

10

/				
Anker PowerPort PD 2	2019	USB-PD QC	18W 9V2A	199
Anker PowerPort Atom PD 1 GaN	2018	USB-PD	30W 20V1.5A	258
Anker PowerPort Atom PD 4	2019	USB-PD Apple2.4A	100W 20V5A	598
18W USB-PD	2019	USB-PD	18W 12V1.5A	49
GaN X PD65W	2020	USB-PD QC PPS Apple2.4A AFC	65W 20V3.25A	159
18W PPS TC-075PQ	2019	USB-PD QC FCP AFC Apple2.4A PPS	18W 12V1.5A	49
GaN2 Pro 2C+U 65W	2020	USB-PD QC FCP/SCP AFC Apple2.4A PPS PE+	65W 20V3.25A	148
GaN2 Pro 2C+U120W GaN	2020	USB-PD QC SCP/FCP AFC MTK Apple2.4A PPS	100W 20V5A	299
18W A1695	2018	USB-PD	18W 9V2A	243
5W A1443		USB-PD	5W 5V1A	145

	45W	EP-TA845	2019	USB-PD	45W(20V2.25A)	299
	25W	EP-TA800	2019	USB-PD QC	25W 9V2.77A	219
	40W	HW-100400C00	2018	QC FCP SCP	40W 10V4A	159
	22.5W	HW-050450C00	2017	QC FCP SCP	22.5W(5V4.5A)	109
	18W	HW-059200CHQ	2016	QC FCP SCP	18W 9V2A	69
	65W	AD651P	2020	USB-PD QC MI ChargeTurbo	65W 20V3.25A	99
	30W	MDY-11-EX	2020	USB-PD QC MI ChargeTurbo	33W(20V1.35A)	69
	18W	AD181	2020	DCP USB-PD	18W 9V2A	39
OPPO	OPPO 65W SuperVOOC	VCA7JACH	2019	VOOC SuperVOOC	65W 10V6.5A	199
	OPPO 30W	VC56HACH	2020	DCP VOOC	30W 5V6A	99
VIVO	OPPO 30W	VC56HACH	2020	DCP QC VIVO 2.0	55W(11V5A)	129
	VIVO 33W	V3330L0A0-CN	2019	DCP QC VIVO 2.0	33W 11V3A	99

Amazon

OPPO Realme
5G
GaN 12 9

5G
GaN

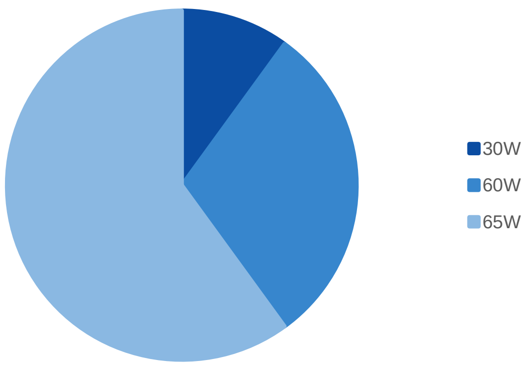
60 2020 4 GaN


天猫氮化镓快充销量TOP 10榜单
www.chongdiantou.com

品牌	功率	接口	售价	月销量
Baseus倍思	65W	2C1A	168	10000
ZENDURE征拓	65W	2C1A	188	3209
nubia努比亚	65W	2C1A	169	2331
ROCK洛克	65W	2C1A	99	1649
ELECJET电友	65W	2C1A	128	1251
RAVPOWER	61W	USB-C	169	1244
ANKER安克	30W	USB-C	168	595
ANKER安克	60W	2C	288	161
MOMAX摩米士	65W	2C1A	198	145
ANKER安克	60W	1A1C	268	71

数据来源：充电头网评测室

61 GaN



GaN 65W
149 NV6115 NV6117
50 1/3

11 GaN Type-C 65W

		/		
1	PCB	-	-	-
2		400V 100μF 400V 18μF	AiSHi	2
3		TEC25001	-	1
4	ACDC	E002M DBF310		2
5		UCC28780	TI	1
6	GaN	NV6115 NV6117	Navitas	2
7		3.15A 250V	-	1
8		NCP51530B		1
9		EL1018		1
10	Y	-	-	4
11		MP6908	MPS	1
12	MOS	BSC0805LS		1
13			Kemet	2
14	VBUS PMOS	TPCC8104		1
15	USB PD	CYPD3174	Cypress	1
16	LDO	D8B	-	1

GaN 1 5G 5G
“ ” 2
3

GaN 1 5G GaN
2 3000 20-25% GaN
3 2020 GaN 55
4 35% 25% 15%5G GaN
2023 GaN 70
40

12 GaN

	2020E	2021E	2022E	2023E
	12.2	13.6	14.1	14.5
	3.3	3.5	3.6	3.7
5G	2.0	4.4	5.5	6.5
5G	1.8	2.8	3.2	3.4
	55	**50**	**47**	**45**

/ 3000 20-25%	3000			GaN
	35%	77.0	90.5	102.4
GaN	25%	55.0	64.6	73.1
	15%	33.0	38.8	43.9
	35%	48.6	53.0	54.0
GaN	25%	34.7	37.9	38.6
	15%	20.8	22.7	23.1

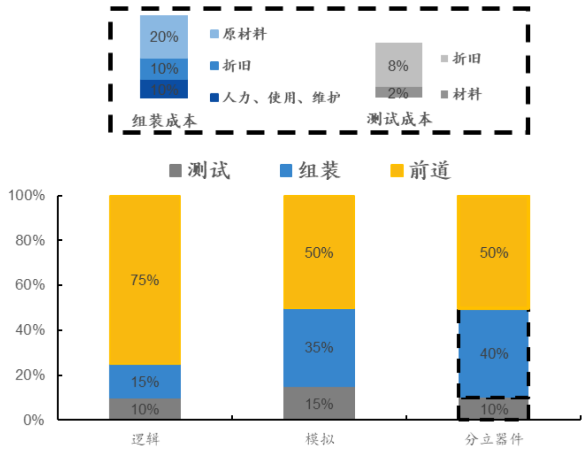
IDC Bloomberg

2.4

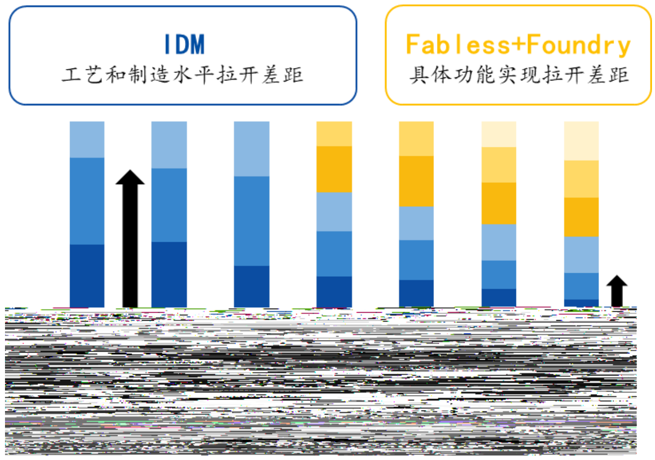
2.4.1

eNVM BiCOMS RFCOMS BCD MEMS

62 IC IC

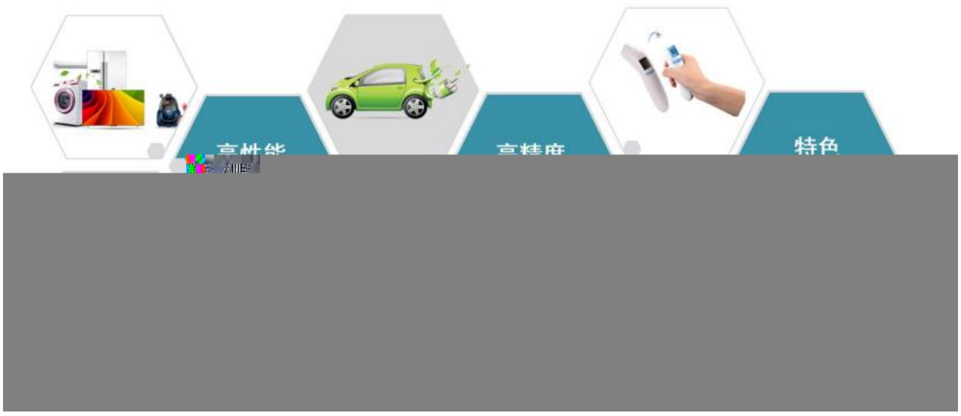


63



BCD BCD BCD
MEMS

64



IDM IDM

13

		IDM
		IDM
IC	IC	IDM
	MOSFET IGBT	IDM
		IDM
MOSFET IGBT	IC SiC	IDM
MOSFET		IDM

3 6 247 8
73 8 60 5.7 /
6.2 6 SiC 1000 / 650/1200V
12 2021

14

3	6	Analog BCD MEMS DMOS	247	-

1 8	Advance BCD Analog DMOS	73	5.7 /	6.2 /
1 8	MOS MOS MOS SBD	60		
1 6 SiC	SiC 650V/200V	1.2	-	
1 12	MOSFET IGBT	-		
1 8	BCD 0.13um/0.11um MEMS 6 8	19.2		2020.7

5G

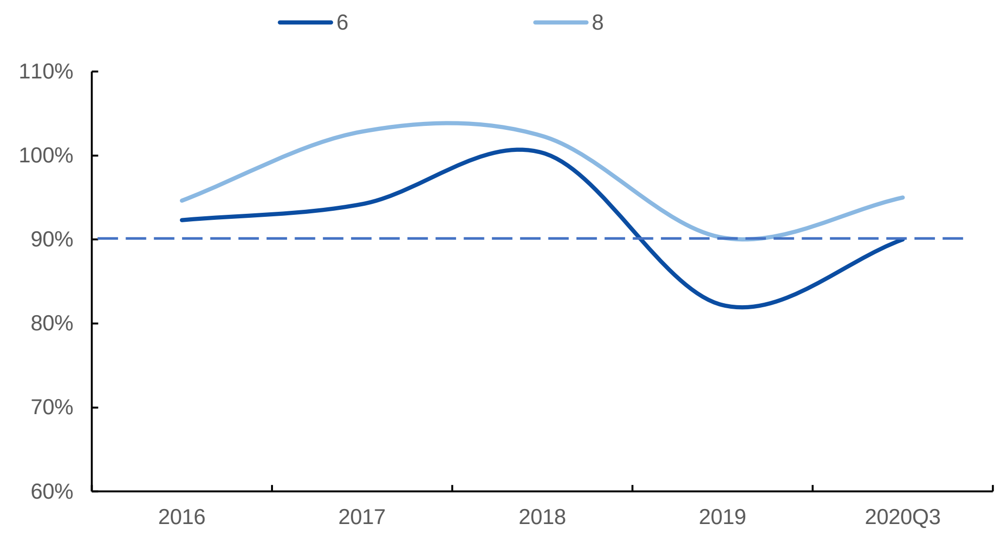
4-6

MOSFET

6 IGBT MOSFET

2019 6 90% 8

65



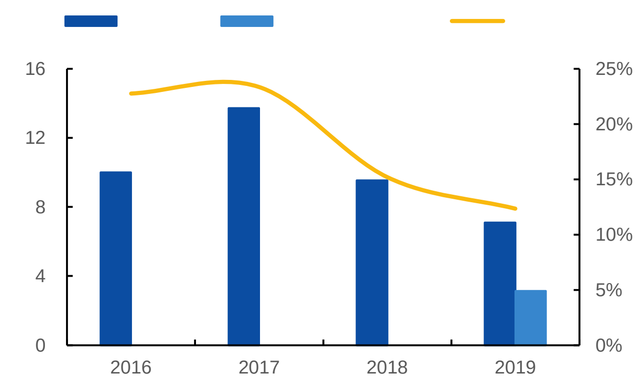
15

	IDM	8"35 / 6"24 /
	IDM	4"80 / 5"130 / 6"65 / 8"80 / 8"20 /
	IDM	8"50 / 70 / 12" 6"206 / 8"61 /
	IDM	4"1000 / 6"70-80 /

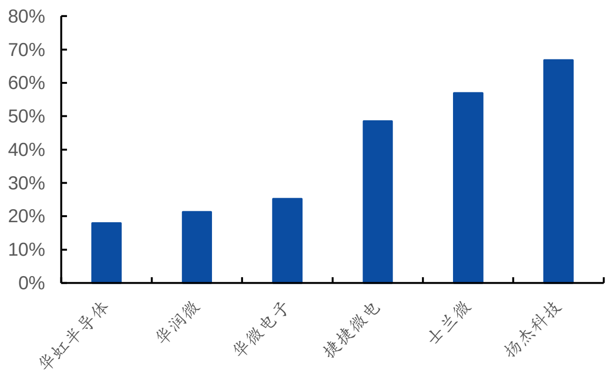
	IDM	6 21 / 8 5 / 8 2.1 / 1 12 90 8 / 100 1 4/6 4/6
	IDM	6" SiC5 / 8"IGBT50 /
	IDM	6"IGBT 100 /
	IDM	IPO 4"58 / IPO 4"35 / 4"40 / 6"50 / 4"125 /
	IDM	6" 10 / 6"MOSFET35 / 6" 50 /
	IDM	12"20 / 12"50 /
/		5" 6" 8"65 / 8" 8"60 / 12"50 / 6"SiC5 /
		/ 8"25 / 8"40 / 8"42.5 / 2023 100 /
		8 " 180 / 12 " 40 /

2019 3.13
7.09 21.2% 6
20% 8 20%

66



67

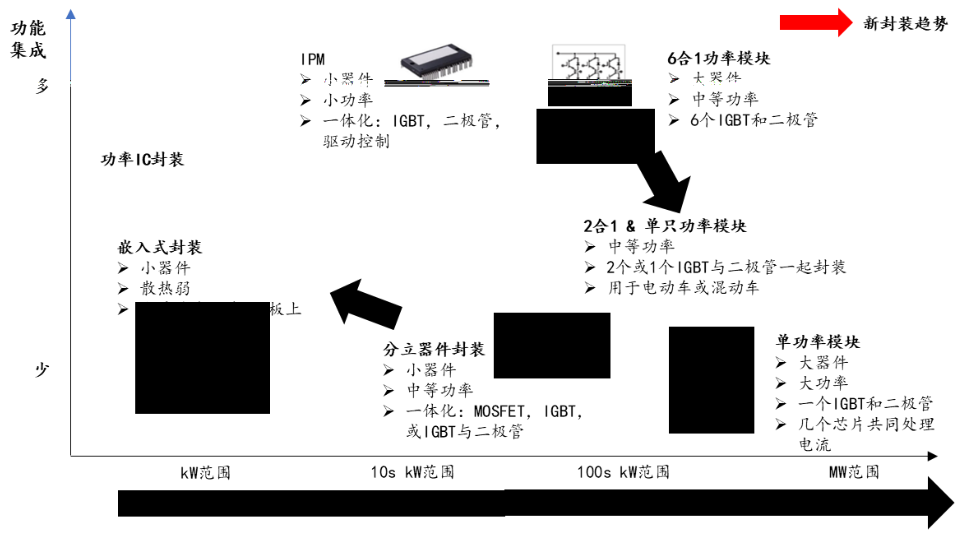


Wind

2.4.2

IC IPM

68



Yole

IC & sensor

69

晶圆测试	封装				成品测试	
深圳赛美科	无锡安盛	重庆矽磐	深圳赛美科	东莞杰群	深圳赛美科	无锡安盛
国内前三大晶圆测试工厂 销售额：3.5亿 220+晶圆测试 10ea激光修调 高温测试 12"：2万片/年 8"+6":120万片/年	高可靠性传统IC封装 销售额：7.5亿 IPM module，QFN，LQFP，TSSOP，SSOP，SOT，SOP FCOL package	先进面板封装 成立：2018.11 引进国际先进面板封装工艺，提供高能效低成本封装方案，用于功率产品大规模封装，可替代传统QFN，LGA BGA等	光耦和硅麦等sensor封装 和客户合作一起开发相应的满足市场需求的各类sensor	聚焦功率电子封测业务，Stacks、Modules、MOS-FETs / IGBTs、Drivers、IPMs、Controllers。拥有独特的技术优势、知名的管理团队和全球高质量的功率及汽车电子领导客户。	各类产品成品测试 200台套成品测试设备 年测试产出30亿颗 数字，模拟，混合	中高端成品测试 220台套测试设备 年产出21亿颗， 高温，常温，低温测试能力， 高端工业控制， 汽车电子测试要求

2.4

2018

27%

。

62

50

60%-70%

16

	2018
	199
QFP QFN PQFN FC -QFN TSSOP SSOP MSOP IPM	62
	69
	2.4

3.

2020-2022 68.85 83.66 97.89 28.18% 30.02% 30.75%

1

2

IGBT MOS SiC

3

17

	2019	2020E	2021E	2022E
	3,183.52	3,820.22	4,393.26	4,832.58
	565.39	859.55	1,010.45	1,135.66

	2,515.66	3,018.79	3,924.43	4,905.54
	741.62	1,071.67	1,491.28	1,864.10
	43.60	45.78	48.07	50.47
	4.38	9.16	9.61	10.09
	5,742.78	6,884.80	8,365.76	9,788.59
%		19.89%	21.51%	14.66%
	1,311.49	1,940.38	2,511.35	3,009.86
%	22.84%	28.18%	30.02%	30.75%

2020-2022 9.93 14.40 17.51 130x 96x 72x 2017-2018 MOSFET PC 8 CMOS

2020-2022 9.93 14.40 17.51 83x 57x 47x “ ”

18

	(	PE			PB		
		2020E	2021E	2022E	2020E	2021E	2022E
605111.SH	220	146.5	102.0	74.4	24.9	20.3	16.2
603290.SH	430	231.2	168.3	124.1	41.7	34.1	27.7
300373.SZ	193	55.0	42.5	33.7	6.8	5.9	5.1
300623.SZ	230	87.5	69.6	56.4	9.8	9.0	8.1
		130.1	95.6	72.1	20.8	17.3	14.3

Wind * 2020 12 15 wind

4.

:	2018	2019	2020E	2021E	2022E
	5106.31	5092.50	9914.66	12341.14	15221.72
	1537.64	1930.67	7148.73	9032.00	11358.38
	601.61	815.01	977.08	1187.26	1389.18
	1183.63	12.96	15.53	18.88	22.09
	68.18	51.89	57.90	68.55	79.38
	1181.25	1054.76	1176.90	1393.50	1613.52
	533.99	1227.20	538.51	640.95	759.17
	4885.74	5002.79	5102.52	4396.47	3565.82
	0.00	81.71	81.71	81.71	81.71
	3898.40	3815.75	4201.04	3658.27	2929.77
	293.96	274.94	254.94	234.94	214.94
	693.37	830.40	564.83	421.55	339.41
	9992.05	10095.29	15017.18	16737.61	18787.54
	4653.87	1978.72	2099.39	2302.29	2506.93
	0.00	0.00	0.00	0.00	0.00
	715.57	748.64	835.33	989.07	1145.23
	3938.29	1230.08	1264.06	1313.22	1361.71
	318.39	1725.74	1768.71	1771.23	1755.23
	0.00	1506.11	1506.11	1506.11	1506.11
	318.39	219.63	262.60	265.11	249.11
	4972.26	3704.47	3868.10	4073.52	4262.16
	871.61	967.69	1081.83	1247.33	1448.58
	829.72	829.72	1215.93	1215.93	1215.93
	6020.82	5449.61	8719.42	8719.42	8719.42
	-3049.20	-1225.49	-259.82	1112.13	2764.68
	4148.18	5423.13	10067.25	11416.76	13076.80
	9992.05	10095.29	15017.18	16737.61	18787.54

:	2018	2019	2020E	2021E	2022E
	1482.44	576.26	1575.32	2368.75	2759.85
	537.56	512.43	1107.19	1605.29	1952.18
	953.19	709.17	1057.69	1201.58	1326.17
	0.24	30.99	-63.66	-84.33	-136.95
	-10.59	0.03	-30.00	-30.00	-30.00
	-95.14	-714.71	88.71	-387.73	-397.34
	97.18	38.35	-584.61	63.94	45.78
	-575.17	-40.71	-72.00	-479.53	-479.53
	544.42	612.31	500.00	500.00	500.00
	0.00	82.00	0.00	0.00	0.00
	-30.75	653.60	428.00	20.47	20.47
	-626.65	-179.65	3714.73	-5.95	46.06
	0.00	0.00	0.00	0.00	0.00
	0.00	1506.11	0.00	0.00	0.00
	0.00	0.00	386.21	0.00	0.00
	-1.29	-571.21	3269.81	0.00	0.00
	-625.36	-1114.55	58.71	-5.95	46.06
	317.06	374.49	5218.06	1883.27	2326.38

:	2018	2019	2020E	2021E	2022E
	6270.80	5742.78	6884.80	8365.76	9788.60
	4690.26	4431.29	4944.42	5854.41	6778.74
	84.55	66.16	68.85	83.66	97.89
	126.13	112.02	110.16	133.85	156.62
	373.62	376.84	344.24	334.63	391.54
	449.76	482.62	516.36	585.60	685.20
	0.24	30.99	-63.66	-84.33	-136.95
	-71.74	-36.57	-10.00	0.00	0.00
	0.00	0.04	5.00	5.00	5.00
	10.59	-0.03	30.00	30.00	30.00
	585.61	477.76	1131.43	1644.94	2002.56
	10.99	32.69	10.00	10.00	10.00
	6.02	4.50	0.00	0.00	0.00
	590.58	505.95	1141.43	1654.94	2012.56
	53.02	-6.47	34.24	49.65	60.38
	537.56	512.43	1107.19	1605.29	1952.18
	108.12	111.67	114.14	165.49	201.26
	429.44	400.76	993.05	1439.79	1750.93
EBITDA	1539.03	1217.92	2125.46	2762.19	3191.78
EPS	0.52	0.48	0.82	1.18	1.44

	2018	2019	2020E	2021E	2022E
(%)	6.73	-8.42	19.89	21.51	17.01
(%)	1376.15	-18.42	136.82	45.39	21.74
(%)	511.02	-6.68	147.79	44.99	21.61
(%)	25.20	22.84	28.18	30.02	30.75
(%)	6.85	6.98	14.42	17.21	17.89
ROE(%)	10.35	7.39	9.86	12.61	13.39
ROIC(%)	8.99	11.20	19.79	31.23	41.65
(%)	49.76	36.69	25.76	24.34	22.69
(%)	49.29	40.66	38.94	36.97	35.34
	1.10	2.57	4.72	5.36	6.07
	0.84	1.90	4.02	4.60	5.26
	0.64	0.57	0.55	0.53	0.55
	9.69	7.83	7.23	7.27	7.15
	6.20	6.05	6.24	6.42	6.35
( )	0.35	0.33	0.82	1.18	1.44
( )	1.22	0.47	1.30	1.95	2.27
( )	3.41	4.46	8.28	9.39	10.75
P/E	191.49	205.20	82.81	57.11	46.97
P/B	19.82	15.16	8.17	7.20	6.29
EV/EBITDA	53.22	67.25	38.53	29.65	25.66

投资评级说明

（1）公司评级定义	（2）行业评级定义

[redacted]