N 华润微(688396)/

半导体 IDM 龙头，聚焦于功率与特色工艺

( )

42.01

S0740519090001

Email liuxiang@r.qlzq.com.cn

S0740519090006

Email liushang@r.qlzq.com.cn

	2017A	2018A	2019E	2020E	2021E
	5876	6271	5727	6882	8163
yoy%	33.63%	6.73%	-8.67%	20.17%	18.61%
	70	429	363	481	597
yoy%	123.22%	511.04%	-15.46%	32.54%	24.07%
	0.06	0.37	0.31	0.41	0.51
	1.42	1.26	0.83	0.26	0.45
	1.81%	10.23%	8.62%	5.34%	6.22%
P/E	—	—	135.61	102.32	82.47
PEG	—	—	—	3.14	3.43
P/B	—	—	11.68	5.47	5.13

2020 2 27

( )	1,215.93
( )	237.14
( )	42.01
( )	510.81
	99.62

-

1999 IDM

2018

IDM 2018

21.7 2018

MOSFET MOSFET

MEMS IC BCD

AC-DC IC IC

6 8

2016 30.52% 2019H1 43.40%

400 2018

391

MOSFET

IGBT

IDM

2019~2021 57.27

68.82 81.63 -8.67%/20.17%/18.61%

3.63 4.81 5.97 -15.46%/32.54%/24.07%

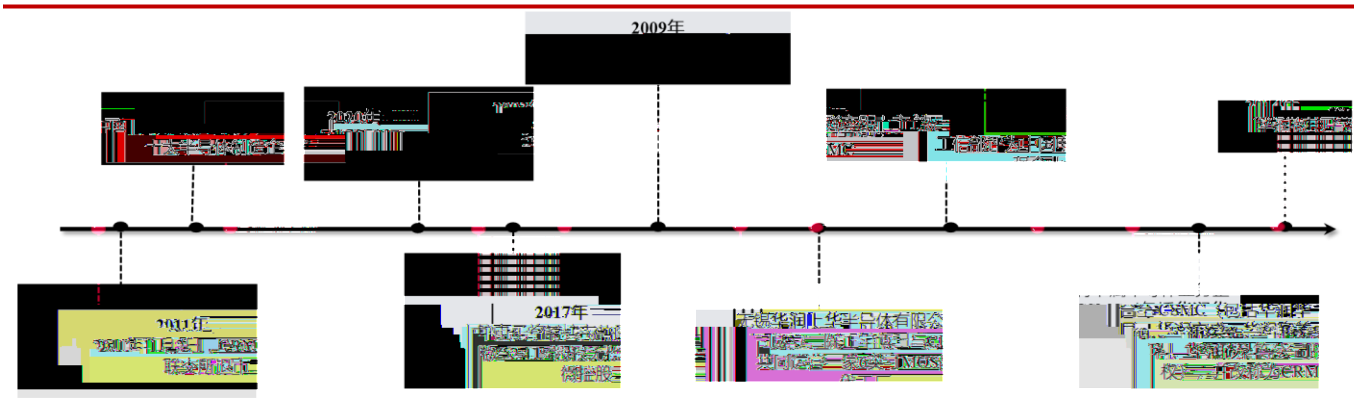
“ ”

IDM

1999
6 MOS 2004
2011 2020
4 6
6
MOS
IDM

A
1.00 A

1



2018
10 10 IDM
2018 21.7
2018

2 2018

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

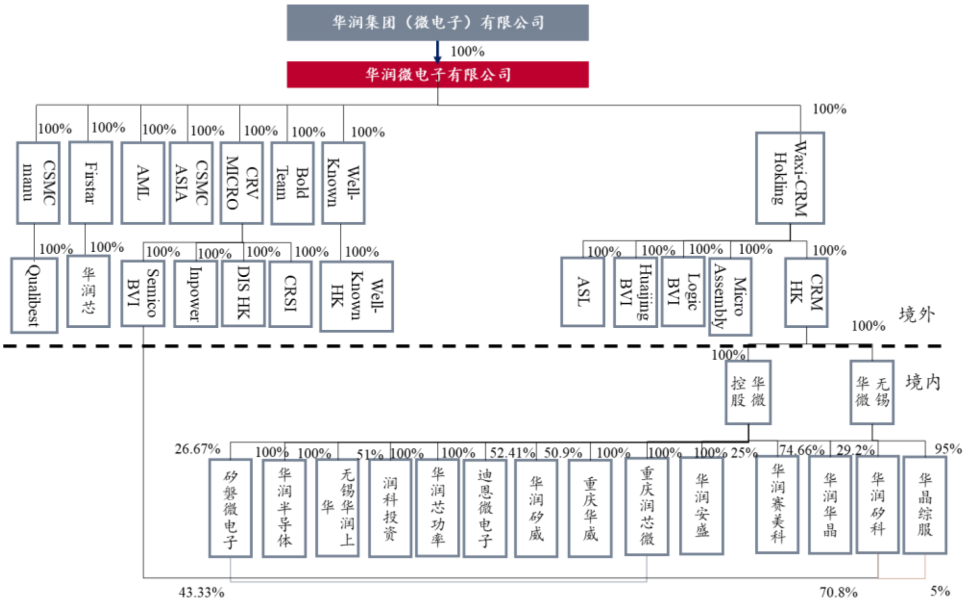
3 2018

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

CRH

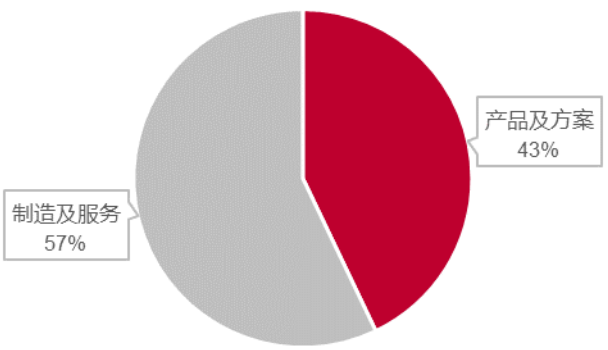
100%

4

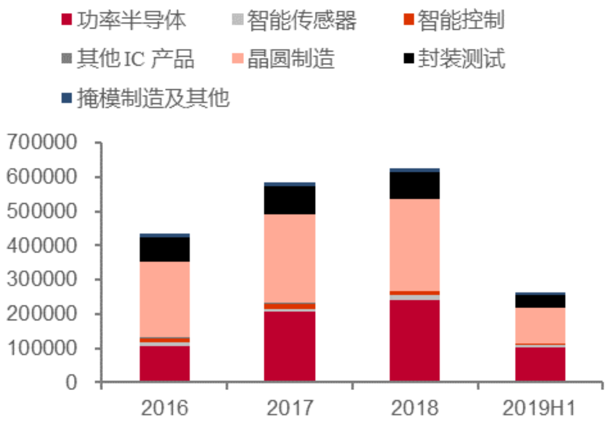


2016 30.52% 2019H1 43.40%

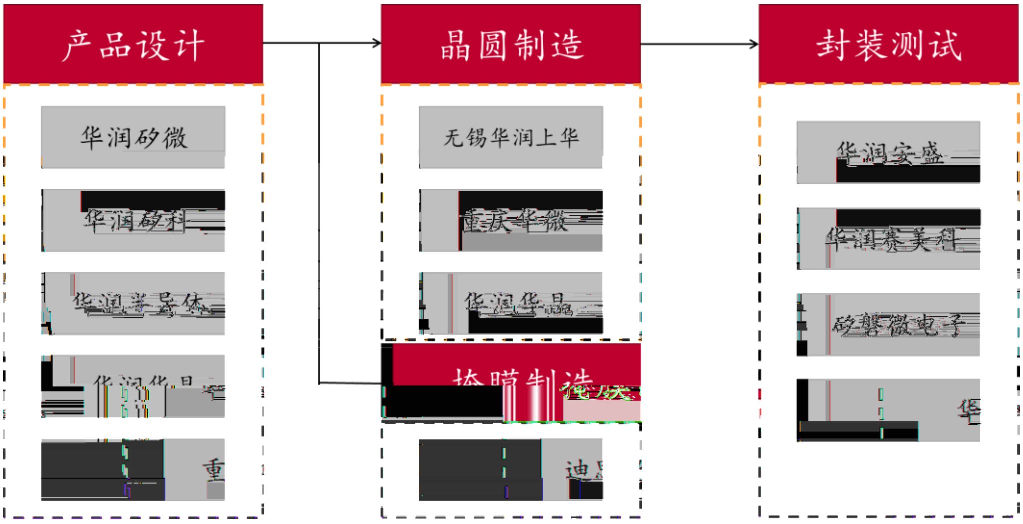
5 2019H1



6



7



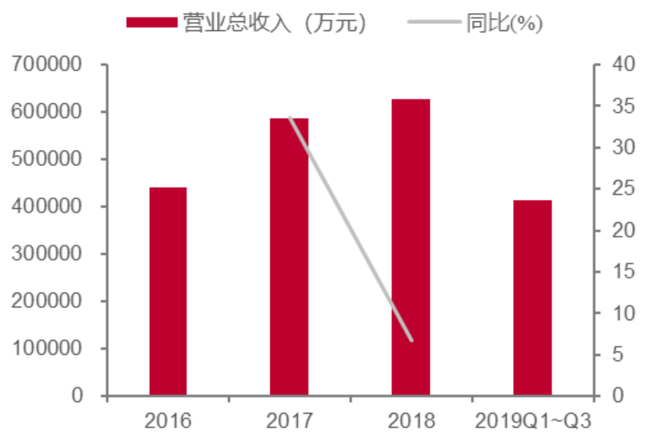
2018 2019 2019 H1

16.86% 43.97%

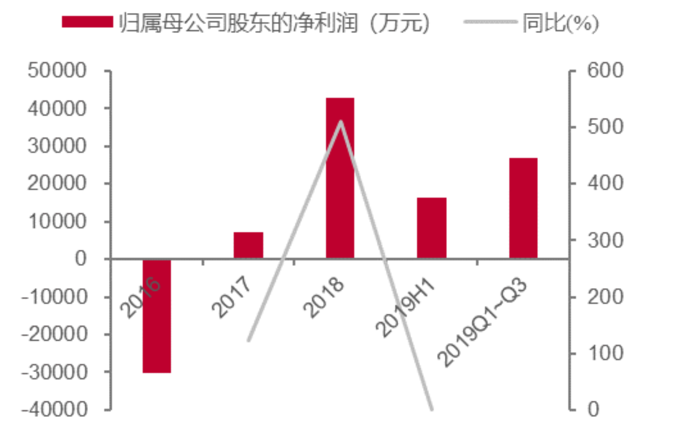
2019 565,000 ~580,000

9.68% 7.28%

8



9



2018

8

2017 2018

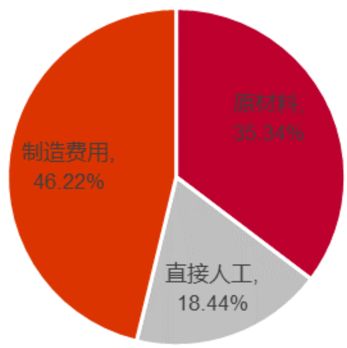
11,079.70 2017 ~2019H1

5,129.50 33,694.46 6,194.99

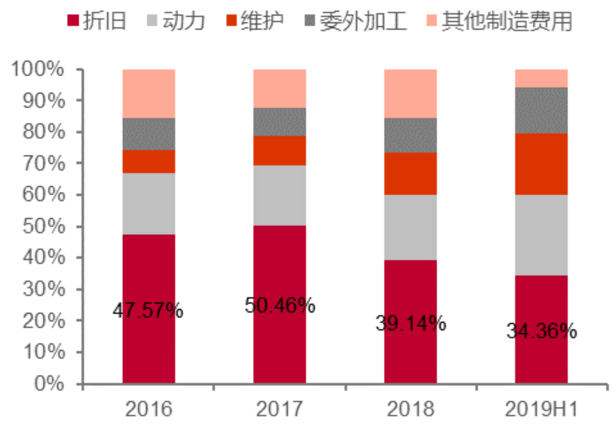
0.87% 5.89% 2.41%

34.36%

10 2019H1



11 2018



2017

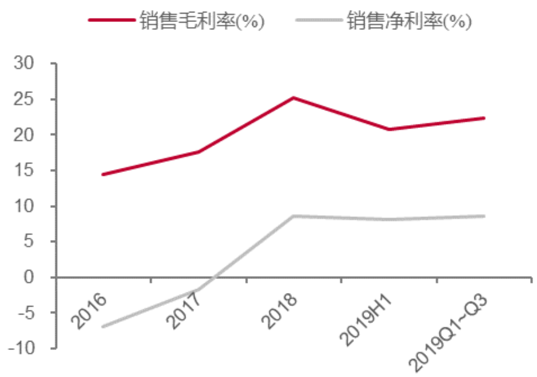
2018 2019

67.13% 75.32% 84.99% 80.16%

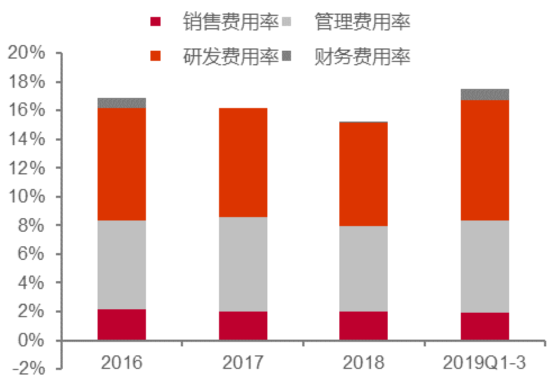
2016~2019H1

16.90% 16.09% 15.15% 16.91% 2019

12

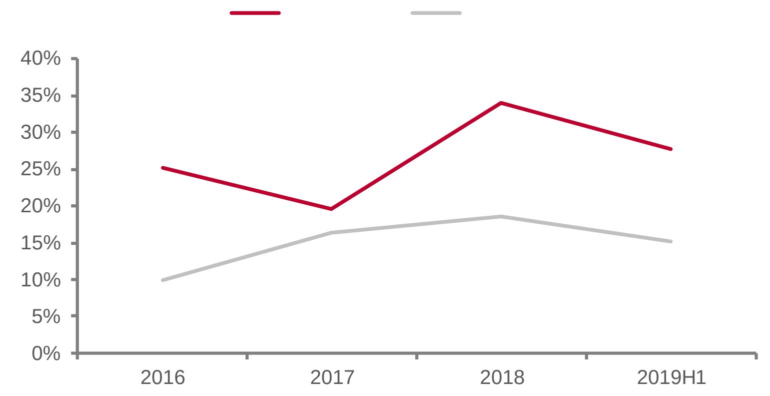


13



2016~2019H1 25.19% 19.59%
34.02% 27.70% 9.91% 16.33%
18.57% 15.24%
15% 20%

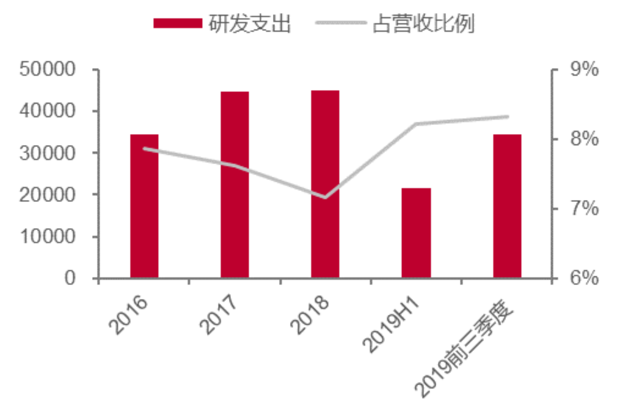
14



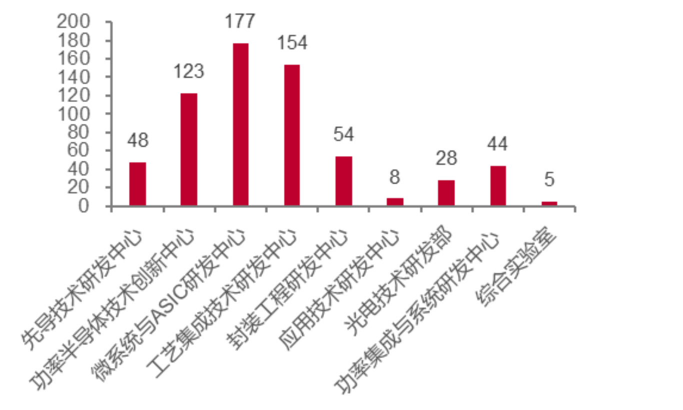
2016~2019H1 34,558.55 44,742.09
44,976.10 21,688.67
7.86% 7.61% 7.17% 8.22% 2019
641 2290 36.93%

SBD
BCD 2019
6 30 2,428
282 1,325
1,173 152

15



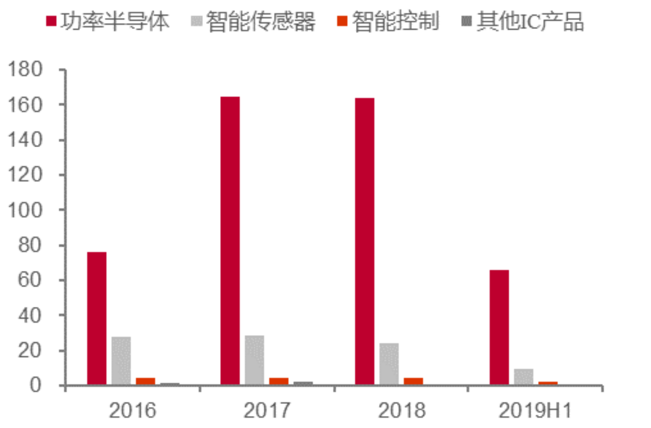
16



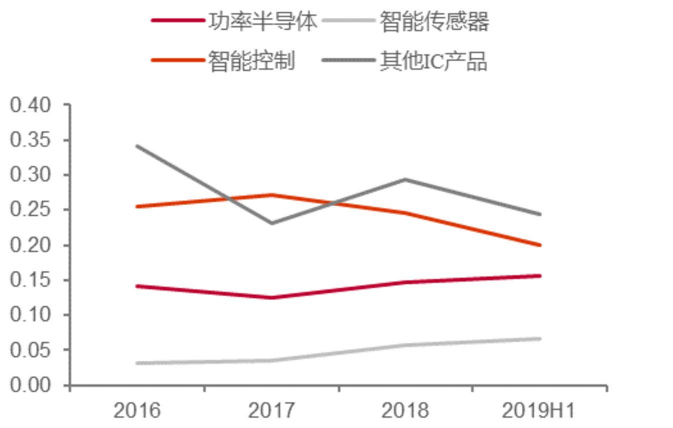
MOSFET

IC

17



18 /



MOSFET IGBT SBD FRD MOSFET MOSFET -100V 1500V MOSFET MOSFET MOS VDMOS MOS IHS Markit MOSFET

IGBT Trench-FS 600V-6500V IGBT SBD 8 Trench FRD

19

MOSFET	MOS MOS MOS MOS) -100V-1500V
IGBT	) 600V-1200V
SBD	SBD SBD) 45V-150V) 200mA-30A
FRD	200V-6500V

20 MOSFET

	MOSFET	
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

MEMS

MEMS

MEMS

CMOS MEMS

MEMS 20 MEMS

2018 MEMS 10 6

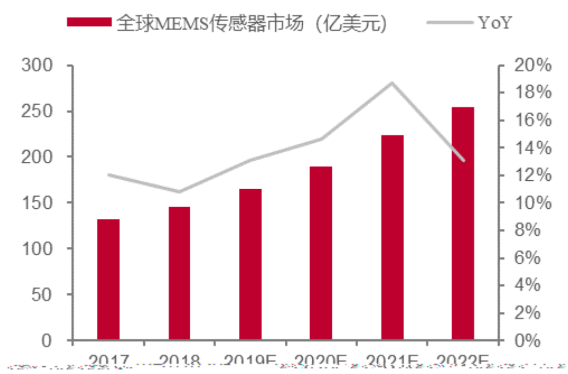
Yole 2018 MEMS 146

2018-2022 MEMS

14.85% MEMS 60%

21 MEMS

22 /



BCD **IC**

BCD BIPOLAR-CMOS-DMOS

BCD

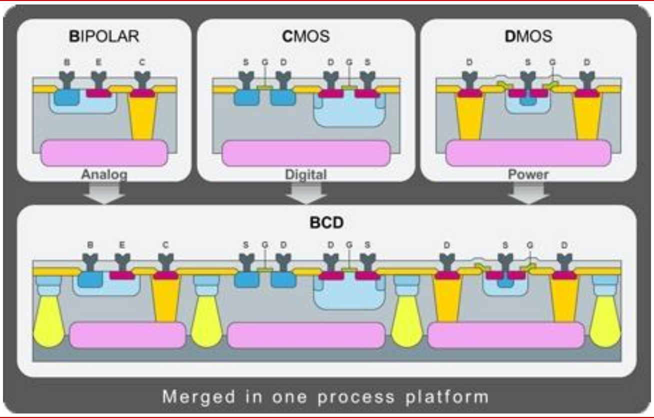
CMOS DMOS

BCD 5-700V BCD BCD SOI BCD BCD

BCD 0.18μm BCD 7-120V 6 0.11μm BCD 2007 700V CDMOS CMOS 700V DMOS SOI BCD IGBT

BCD CMOS LED AC-DC

23 BCD



24 IC

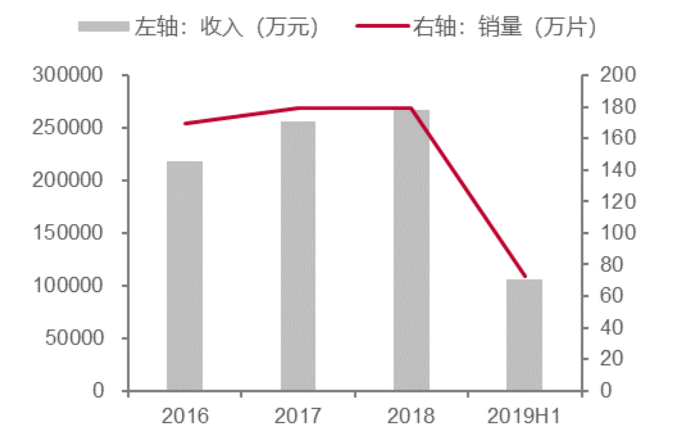
AC-DC	AC-DC)	
LED IC	LED)	
BMS IC	)	
IC	) 78 1117) 100mA-1A	
IC	100W)	
IC	'	
IC	) AB D) 5mW-50W	

6 8

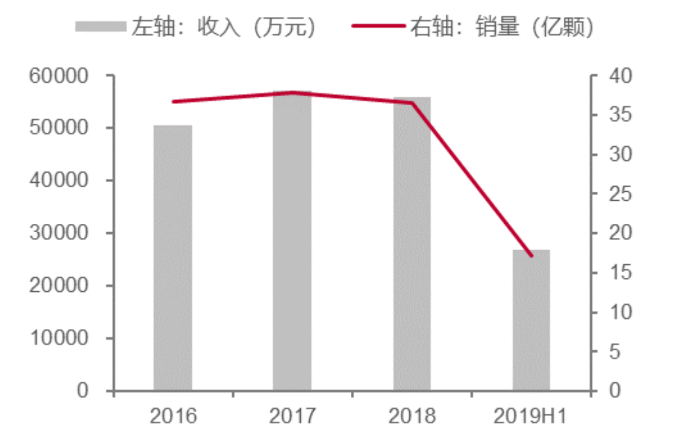
25

		2018
	3 6 Analog BCD MEMS DMOS Power Discrete	247
	1 8 Advance BCD Analog DMOS	73
	1 8 MOS MOS MOS SBD	60
		199
	QFP QFN PQFN FC-QFN TSSOP SSOP MSOP IPM	62
		69
		2.4

26



27



CMOS/ANALOG, BICMOS,RF/Mixed-Signal CMOS,BCD, MEMS

28

● Available ◉ Developing * Include SOI Process

Tech.	BCD	HV CMOS	Mixed-Signal	Logic/RF	e-NVM
0.13μm/0.11μm	◉			●	◉
0.18μm/0.153μm	●	●	●	●	●
0.25μm	●		●		
0.35μm			●	●	●
0.5μm	*●	●	●	●	●
>0.5μm	●	●	●	●	
>1.0μm		●	●	●	
MEMS	Pressure Sensor, Microphone Sensor and Photoelectric MEMS are available. Gyroscope and Accelerometer are under development.				
Power Discrete	Include Planar DMOS, Trench DMOS, IGBT, FRD, Bipolar, Transistor. IGBT 3300V-6500V are under development.				

2019

2019 8 6

8 94.5%

2019 6 62.30%

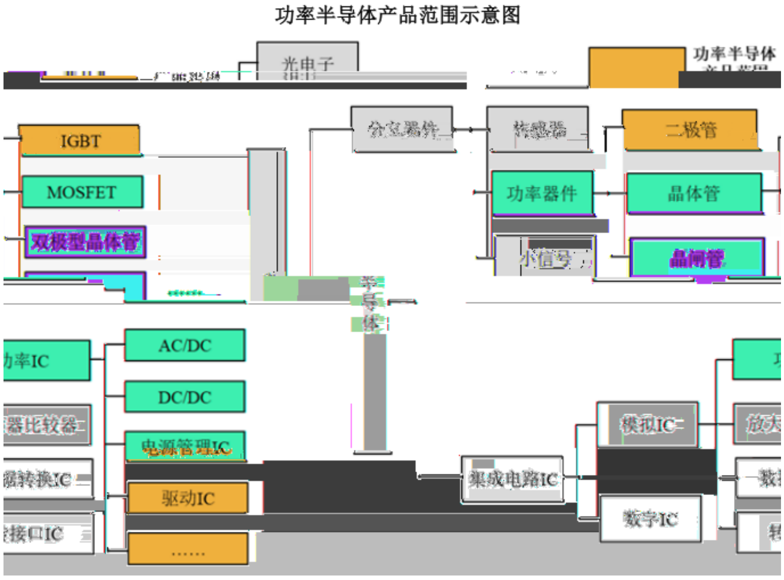
42.66% 8 37.70%

57.34%

400

IC

31



400

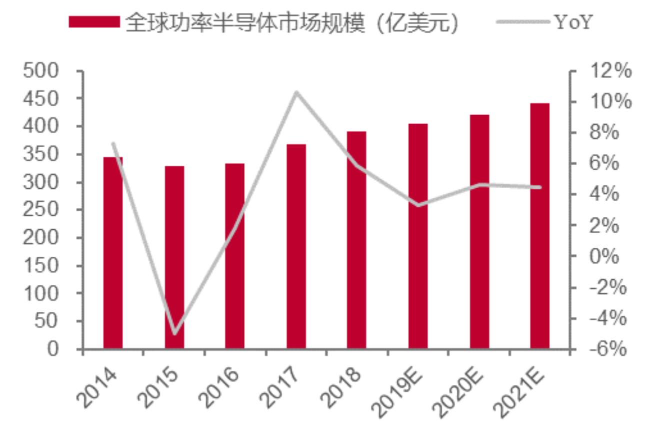
IHS Markit 2018 391

2021 441 4.1%

23% 20%

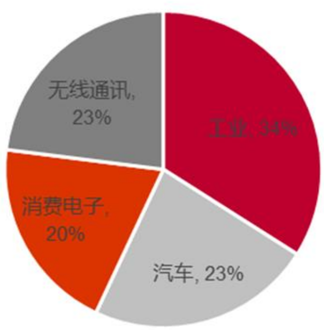
23% 34%

32



IHS

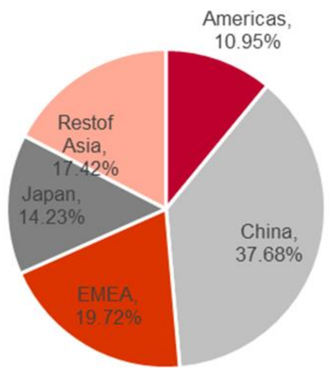
33



IHS

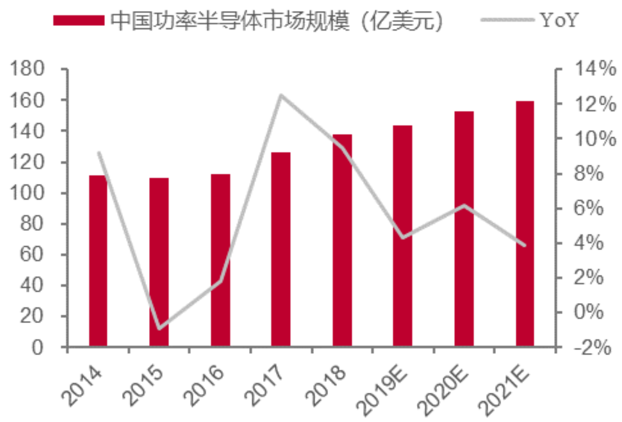
Yole
38% IHS
2021 159
4.8%

34



Yole

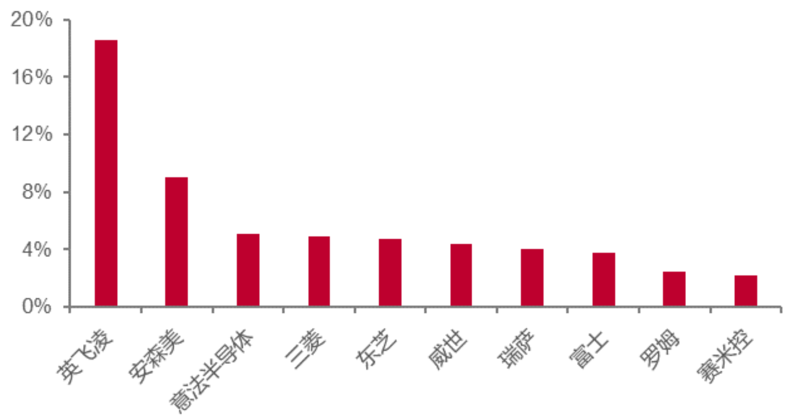
35



IHS

IHS
IC 2017
18.6%

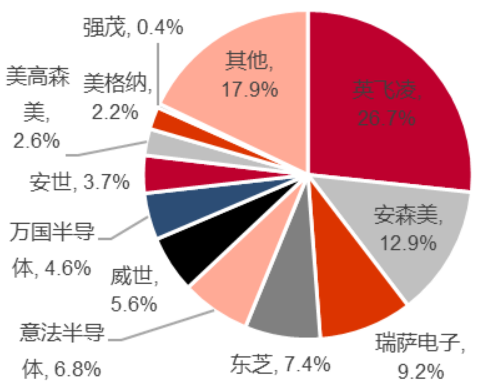
36 2017



IHS

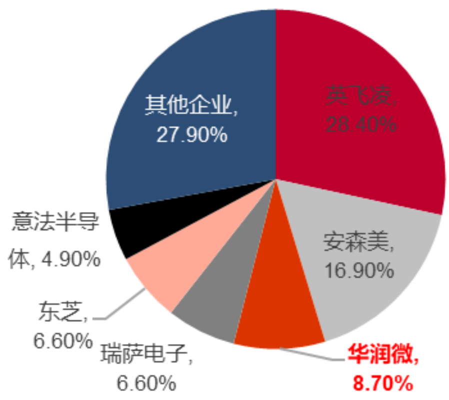
MOSFET 2017 MOSFET 65
3.7%
MOSFET 2018 MOSFET
27.92 MOSFET

37 2017 MOSFET



IHS

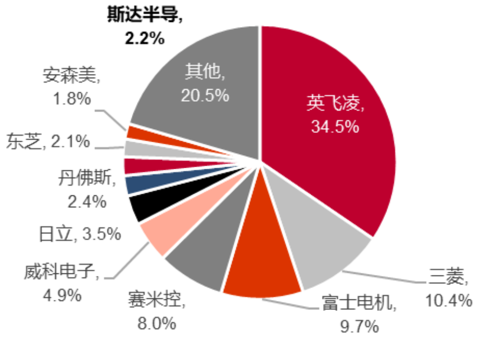
38 2018 MOSFET



IHS

IGBT 2018 IGBT 62.4
IPM IGBT
2.2%

39 2018 IGBT



IHS

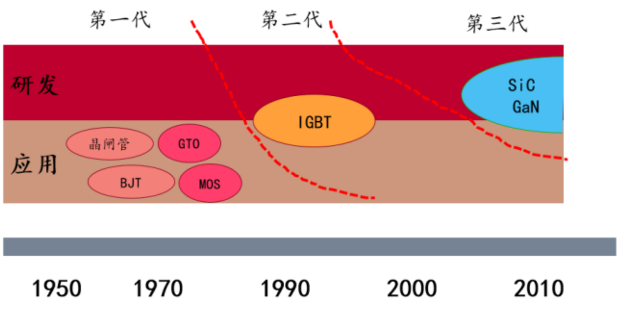
SiC

GaN

40

材质	Si	GaAs	GaN	SiC
禁带结构	间接带隙	直接带隙	间接带隙	直接带隙
禁带宽度（eV）	1.1	1.4	3.4	3.3
电子迁移率（cm²/Vs）	1350	8500	2000	1000
介电常数	11.9	13.1	9	10.1
击穿场强（kV/cm）	0.3	0.4	3.3	2.8
电子饱和漂移速率 (10^7cm/s)	1	1	2.7	2.2
热导率(W/cm·K)	1.5	0.5	1.3	4.9
器件理论最高工作温度	175	350	800	600

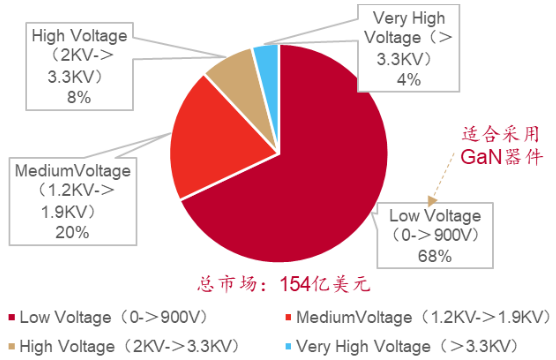
41



GaN GaN

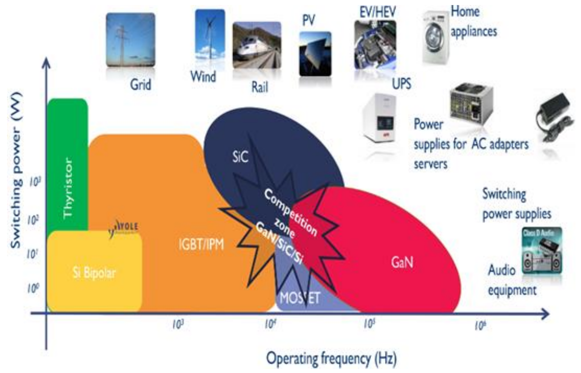
SiC GaN
IGBT MOSFET 0~300V Si
600V SiC 300V~600V GaN
Yole 0~900V GaN
68%
154 GaN 100

42 GaN



Yole

43 GaN



Yole

SiC 70 2001 SiC SBD 2010 SiC
MOSFET SiC IGBT 6 SiC
SiC 6
Si SiC
SiC
SiC SiC
PFC wind
PV EV/HEV UPS
SiC Cree 2022 SiC
24 2017 SiC 700
342

44 SiC

Yole

45 2022 SiC 24

Cree

GaN/SiC
GaN

SiC GaN PD
IDM
650V GaN SiC JBS SiC MOSFET
“
”

GaN/SiC

46 GaN/SiC

		研发人员数量
GaN	GaN) GaN)	35
SiC	SiC) SiC JBS MOSFET	29

2018

2019

2019 565,000
580,000 9.68% 7.28% 2019 1-9
15.56% IC insights 2020
7

-

2020~2021 20%
8.00%/5.00% 2019~2021
-2.48%/29.60%/26.00%
-3.62%/28.46%/25.15%
2020~2021 10%
5% -16.70%/15.50%
/15.50%
-12.93%/13.62%/12.48%
-8.67%/20.25%/18.53%.

-

28.20%/30.48%/31.38%
15.34%/17.61%/18.39%
21.07%/23.74%/24.94%

-

1.90%/1.90%/1.90%
6.50%/6.50%/6.00% 8.50%/8.50%/8.50%

47

	2018	2019E	2020E	2021E
	268,349	**258,646**	**332,247**	**415,804**
YoY	14.73%	-3.62%	28.46%	25.15%
	42.79%	45.16%	48.28%	50.94%
(%)	34.02%	28.20%	30.48%	31.38%
	357,191	**310,991**	**352,886**	**397,422**
YoY	1.48%	-12.93%	13.47%	12.62%
	56.96%	54.30%	51.28%	48.69%
(%)	18.57%	15.34%	17.61%	18.39%
	1,540	**3,080**	**3,080**	**3,080**
YoY	-8.19%	100.00%	0.00%	0.00%
	28.46%	27.00%	27.00%	27.00%
	627,080	**572,717**	**68,8214**	**816,306**
YoY	6.73%	-8.67%	20.17%	18.61%
	25.20%	21.07%	23.74%	24.94%

2019~2021 57.27 68.82 81.63 -8.67%/20.17%/18.61% 3.63 4.81 5.97 -15.46%/32.54%/24.07% IDM

A PE PB EV/EBITA " "

48 Wind

	( )	EPS 2019E	EPS 2020E	PE 2019E	PE 2020E	PB（LF）	EV/EBITA	
300373.SZ	145	0.48	0.64	64.17	47.76	5.80	38.30	30.78
300623.SZ	119	0.70	0.81	55.74	48.17	5.44	47.08	39.02
603290.SH	148	0.79	1.10	117.48	84.66	15.65	105.84	92.80
600745.SH	1,663	1.13	2.79	130.57	52.93	8.14	312.78	147.92
				91.99	58.38	8.76	63.74	
688396.SH	**511**	**0.30**	**0.40**	**140.69**	**106.15**	**5.36**	**31.88**	**42.01**

2020 2 27 EV/EBITA

IDM

利润表（百万元）

	2018	2019	2020	2021
营业收入	**6271**	**5727**	**6882**	**8163**
营业成本	4690	4521	5248	6127
毛利	1581	1206	1634	2036
%营业收入	25%	21%	24%	25%
税金及附加	85	77	93	110
%营业收入	1%	1%	1%	1%
销售费用	126	109	131	155
%营业收入	2%	2%	2%	2%
管理费用	374	372	447	490
%营业收入	6%	7%	7%	6%
研发费用	450	487	585	694
%营业收入	7%	9%	9%	9%
财务费用	0	0	0	0
%营业收入	0%	0%	0%	0%
资产减值损失	72	0	0	0
信用减值损失	0	0	0	0
其他收益	91	305	240	180
投资收益	11	0	0	0
净敞口套期收益	0	0	0	0
公允价值变动收益	0	0	0	0
资产处置收益	9	0	0	0
营业利润	**586**	**467**	**618**	**767**
%营业收入	9%	8%	9%	9%
营业外收支	5	0	0	0
利润总额	**591**	**467**	**618**	**767**
%营业收入	9%	8%	9%	9%
所得税费用	53	-11	-15	-18
净利润	538	478	633	786
归属于母公司的净利润	**429**	**363**	**481**	**597**
少数股东损益	108	115	152	189
EPS /	0.37	0.31	0.41	0.51

现金流量表（百万元）

	2018	2019	2020	2021
经营活动现金流净额	**1482**	**976**	**309**	**530**
投资	0	0	0	0
资本性支出	-52	-52	-20	-20
其他	-523	0	0	0
投资活动现金流净额	**-575**	**-52**	**-20**	**-20**
债权融资	0	0	0	0
股权融资	85	0	4313	0
银行贷款增加（减少）	-253	0	0	0
筹资成本	-128	0	0	0
其他	-331	-347	0	0
筹资活动现金流净额	**-627**	**-347**	**4313**	**0**
现金净流量	**281**	**577**	**4602**	**510**

资产负债表（百万元）

	2018	2019	2020	2021
货币资金	1538	2114	6716	7226
交易性金融资产	0	0	0	0
应收账款及应收票据	1108	1054	1299	1527
存货	1181	816	1005	1182
预付账款	68	67	77	90
其他流动资产	1211	929	1173	1387
流动资产合计	5106	4980	10270	11412
可供出售金融资产	0	0	0	0
持有至到期投资	0	0	0	0
长期股权投资	0	0	0	0
投资性房地产	3	3	3	3
固定资产合计	3898	3898	3898	3898
无形资产	294	294	294	294
商誉	17	17	17	17
递延所得税资产	15	15	15	15
其他非流动资产	659	711	731	750
资产总计	**9992**	**9918**	**15228**	**16390**
短期借款	0	0	0	0
应付票据及应付账款	800	727	875	1018
预收账款	116	145	162	190
应付职工薪酬	443	349	426	503
应交税费	58	50	60	72
其他流动负债	3237	3179	3289	3406
流动负债合计	4654	4449	4813	5189
长期借款	0	0	0	0
应付债券	0	0	0	0
递延所得税负债	17	17	17	17
其他非流动负债	301	301	301	301
负债合计	**4972**	**4768**	**5131**	**5508**
归属于母公司的所有者权益	4197	4214	9008	9605
少数股东权益	872	986	1138	1327
股东权益	**5069**	**5200**	**10146**	**10931**
负债及股东权益	**10041**	**9968**	**15277**	**16439**

基本指标

EPS	0.37	0.31	0.41	0.51
BVPS	3.58	3.60	7.69	8.20
PE	0.00	135.61	102.32	82.47
PEG	0.00	—	3.14	3.43
PB	0.00	11.68	5.47	5.13
EV/EBITDA	0.61	230.70	123.75	78.87
ROE	10%	9%	5%	6%

Wind

		6~12 15%
		6~12 5%~15%
		6~12 -10%~+5%
		6~12 10%
		6~12 10%
		6~12 -10%~+10%
		6~12 10%
6~12 A 300 500		

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