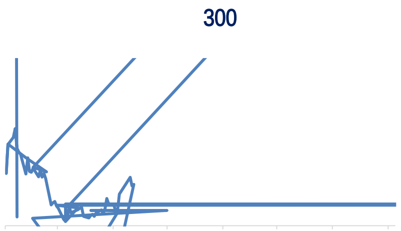
688396
/

IDM

12 /

%

)



主要观点：

◆

1
2
3

◆

1 + IDM MOSFET IGBT SBD IC 3 6 2 8 MEMS/ 8 12

IGBT SIC

2 MOSFET MOSFET **200** **8.7%** PC + PMIC MOSFET 8 **+**

3 SIC 6 SiC 650V/1200V SIC 2021 SIC MOS 10

◆

IDM 2020/2021/2022 67.4 /76.3 /85.9 9.8 /10.9 /12.9 680 69X/62X/52X “ ”

◆

:

	2019	2020E	2021E	2022E
	5743	6743	7631	8595
(%)	-8.4%	17.4%	13.2%	12.6%
	401	985	1094	1292
(%)	-7%	146%	11%	18%
(%)	22.8%	29.1%	27.7%	28.7%
ROE(%)	8.0%	15.7%	14.9%	15.1%
( )	0.33	0.81		

1 يج IDM

ضر يج H

1
2
3
4

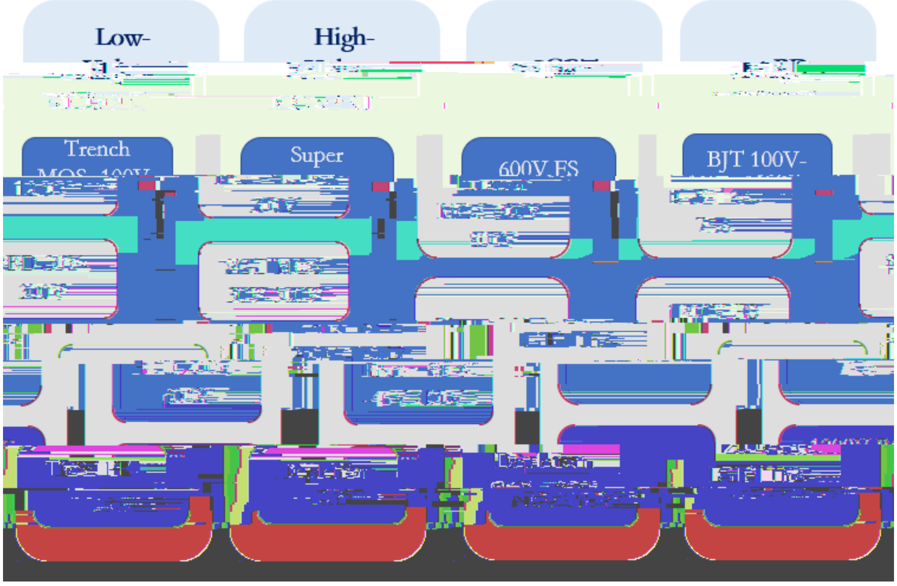
1 IDM

4

	2019 1-6		2018		2017		2016	
	102,793.73	90.16%	241,885.78	90.14%	206,857.89	88.44%	108,118.07	81.19%
	6,193.05	5.43%	13,764.40	5.13%	9,694.05	4.14%	8,535.64	6.41%
	4,190.38	3.68%	9,937.33	3.70%	12,750.40	5.45%	11,638.61	8.74%
IC	829.34	0.73%	2,761.23	1.03%	4,603.45	1.97%	4,880.93	3.67%
	114,006.51	100.00%	268,348.74	100.00%	233,905.79	100.00%	133,173.25	100.00%

IC
MOSFET IGBT SBD FRD IC

5



1 MOSFET
2018 21.7
IC MOSFET 16 2018
2018

6

		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

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

7 MOSFET

		2018 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

3 **3 6 2 8** **2 1**

2020 27.3%
6.63%

8

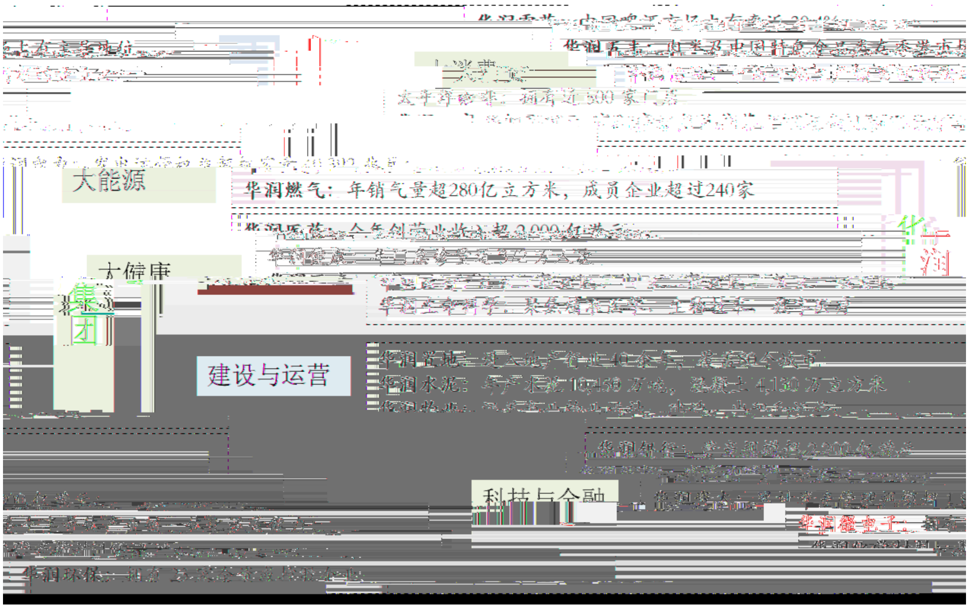
IDM

IDM ;
Fabless
Fabless
MEMS

“ ”

14,000
2019 “ 500 ” 80

11



12

13

Diodes Incorporated

15

2

2.1 IDM

2017

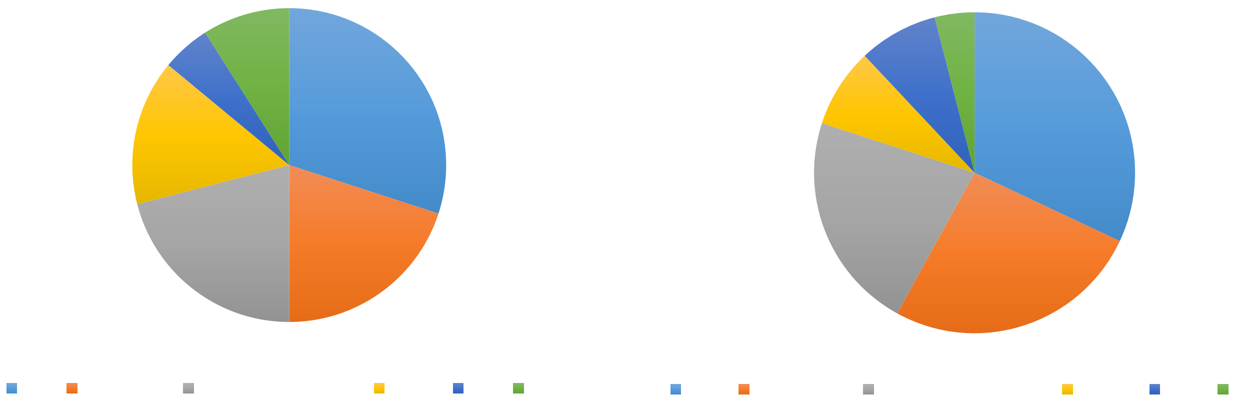
BCD 0.18um
BCD G3 0.11um
BCD 600V SOI MEMS
8 6

/

20 MOSFET

MOSFET 30% 20% 21% 15% 5% MOSFET 32% 26% 22% 8% 8%

21 MOSFET %



MOSFET 2018 MOSFET 183 MOSFET 16 MOSFET 8.7% 52 28.4% 31 16.9% MOSFET

22 MOSFET 8.7%

2.3

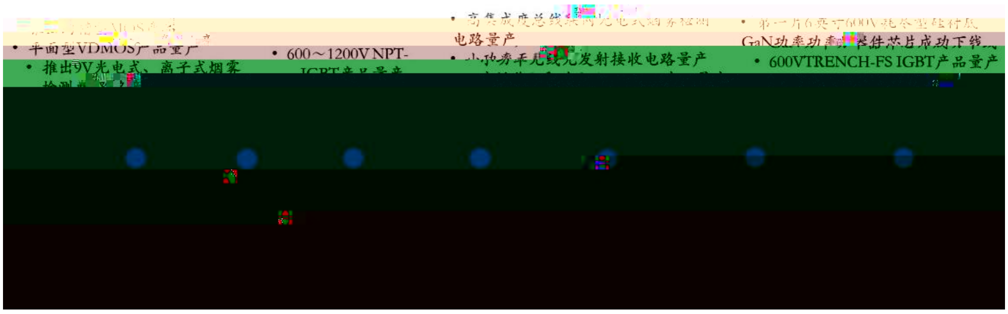
MOSFET

MEMS MCU

23

RMB	2018	2020
MOSFET	16	220
IGBT	6000	160
IC	2.59	580
	4.81	300

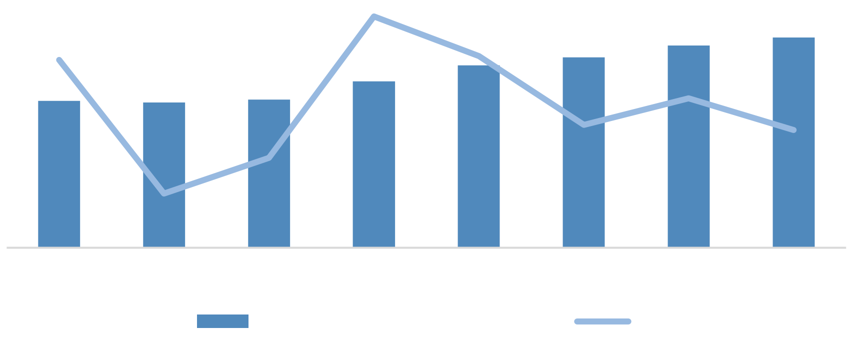
24



2.3.1

MOSFET IGBT IC

25



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

IC

IC IHSMarkit
2018 **IC** **84.3** **IC**
IC
AC-DC

LED IC LED LED

BMS IC

IC
IC

IC

IC BCD CMOS

26 IC

AC-DC	AC-DC	
LED IC	LED	

) MOSFET( ) - IGBT
MOSFET
BJT

“ CPU ”

27 IGBT

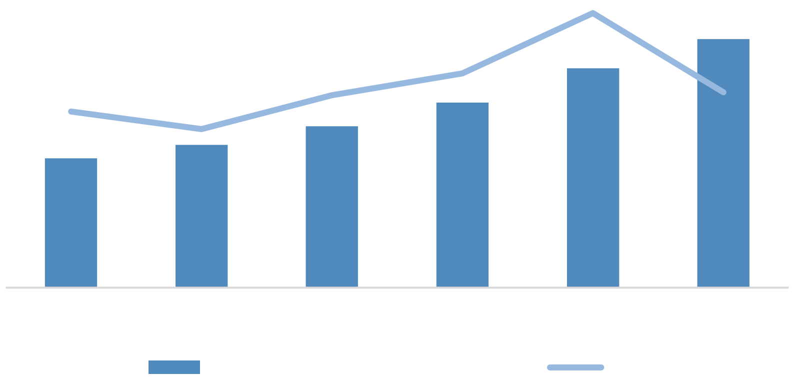
2019 6000 IGBT IPM
IGBT
UPS
IGBT 49.90%

IGBT 2020 4 22

2019 11

IGBT

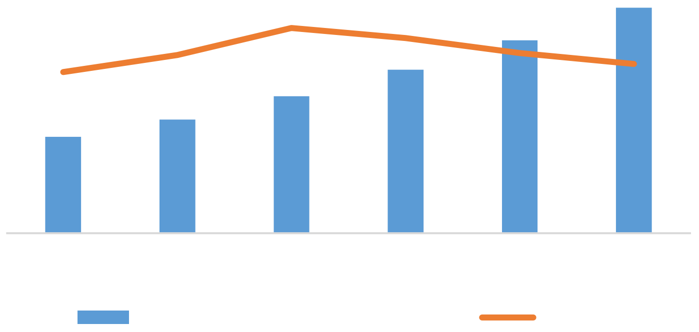
28 2017-2022 MEMS



Yole

MEMS 60%
2018 MEMS 523
19.5% 2018-2020 17.41%

29 2015-2020 MEMS



MEMS

ESD UL
MEMS

30

en-US

32 2013-2017 MCU

IHS

MCU MCU MCU

33

	MCU	MCU PC MCU	
	MCU	MCU MCU	
	MCU	8 16 32 CPU	

2018 9900 MCU 3.7% OTP MTP Flash CMOS 4 8 16 32 CPU

IC MOSFET IGBT MCU FRD

2.4

2018
27%

2.4.2

12 2018 **12**
90nm

12

IPO **8** **8**
8 23 MEMS
8

35

3

3.1

Si **Ge**

GaAs **InSb**
LED

Si 600V
/ **SiC**
SIC **GaN**
/

36

SIC/GaN SiC GaN

5G

IHS **5-10** **SIC** **40%** IHSMarkit 2018
3.9
2027 **ŋ**

37 SIC

IHS

GaN **2017-2023** **22%** **Yole** 2017 4 2023 13 22% 80% 2018-2025 8% GaN

SIC/GaN

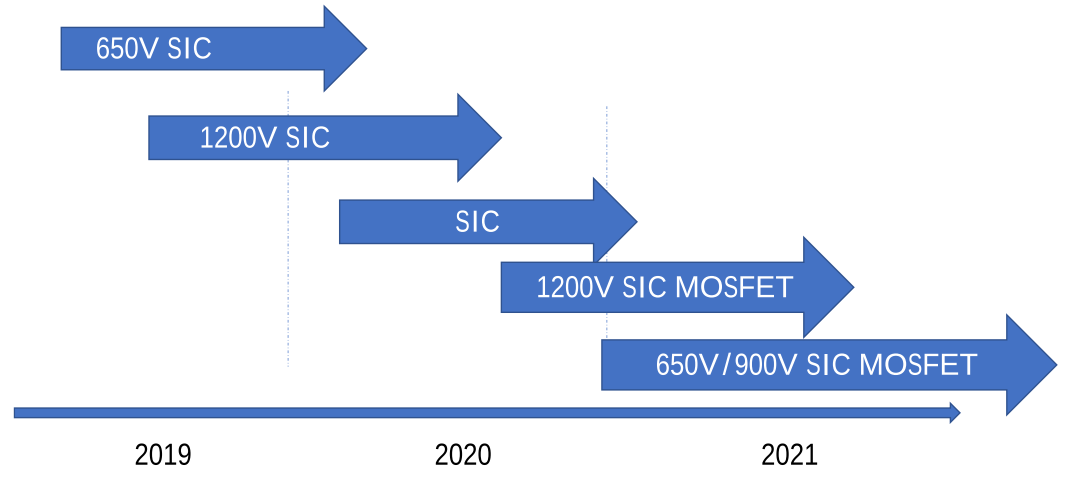
3.2 IDM

IDM

BCD MEMS

38 ضخ Џ ħuضخ

41 SIC



4

4.1

1

2

8 26%/21%/24%

3

35%-40%

2020/2021/2022 67.4 /76.3 /85.9

9.8 /10.9 /12.9 680 69X/62X/52X

“ ”

42

	2016	2017	2018	2019	2020E	2021E	2022E
1	**3032**	**3520**	**3572**	**3184**	**3485**	**3634**	**3600**
1-1	2188	2563	2674	2320	2552	2654	2601
1-2	729	820	786	755	815	856	873
1-3	114	136	112	109	118	124	126
2 ج	**1332**	**2339**	**2683**	**2516**	**3208**	**3941**	**4931**
[redacted]	1081	2069	2419	2245			

44 PB

Wind

PB **PE** IDM PB 6-8 PE PE 60-80 PE PB PE PB CIS PMIC MOSFET +