

688396 \

IDM

IDM /

		2020	MOSFET	Top10
74%		14%		
	IGBT	SiC		Yole
	IGBT	2020-2026	CAGR	22.26%
2021-2027	CAGR	39.21%		SiC
		12		



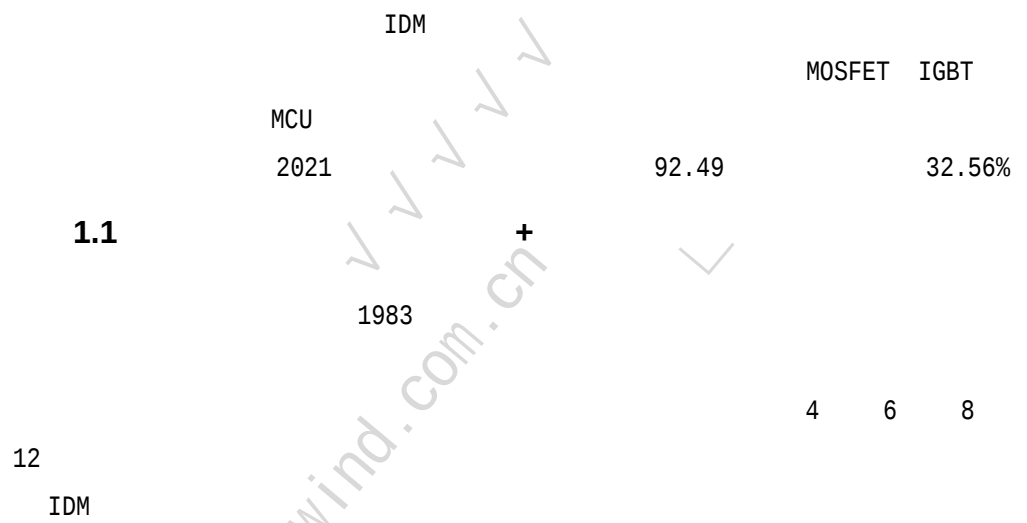
1.	IDM	2
1.1	+	6
1.2		6
1.3		7
2.		8
2.1		8
2.2		18
3.		20
3.1.		20
3.2.	IDM	25
3.3.		28
3.4.		30
4.		32
4.1.		32
4.2.		33
5.		35

1		6
2	2022 Q1	7
3		7
4	&	8
5		8
6		8
7		8
8		9
9		9
10		9
11	2019	10
12	MOSFET	10
13	P N MOSFET	10
14	MOSFET	11
15	MOSFET	11
16	MOSFET /	11
17	MOSFET	11
18	MOSFET 2020	12
19	MOSFET 2020	12
20	2021	12
21	2021	12
22	MOSFET	13

23	60V	MOSFET	.....	13
24		IGBT	.....	13
25		MOSFET	2020-2026	14
26	2020-2026	MOSFET	.....	14
27	Si	MOSFET/IGBT/SiC MOSFET	.....	15
28		IGBT	.....	15
29		IGBT	.....	15
30	2020	IGBT	.....	16
31	2020-2026	IGBT	.....	16
32	Si	SiC GaN	.....	17
33	Si	SiC	.....	17
34		SiC	.....	17
35	2027	SiC	.....	17
36	2021-2027	SiC	.....	17
37		+IDM	.....	18
38			.....	18
39			.....	18
40			.....	19
41			.....	19
42			.....	19
43	2020		.....	19
44			.....	20
45			.....	21
46			.....	21
47		6 8	.....	22
48			.....	22
49			.....	22
50			.....	23
51			.....	23
52			.....	23
53			.....	24
54			.....	24
55			.....	24
56		IPM	.....	25
57		Copper Clip	.....	25
58			.....	25
59			.....	25
60			.....	25
61			.....	26
62			.....	26
63			.....	26
64		MOSFET	.....	



1. IDM



1.1

1

1.2



30

" 2009

2 2022 Q1

1.3

					2008		MOSFET		
MOS	IGBT	SiC	SBD	SiC	MOSFET	MEMS	MCU		
					4	6	8	12	
						IDM			

3

		2021		92.49
32.56%	2018			
	2019			
		2021		35.33%
2016				

8

		2019	464	2024	522
	2019-2024	2.38%			2019
177	2024	206	2019-2024		

11 2019

2019		MOSFET	
5	/	/	/
25%/12%/9%/6%/5%	3.09%		
2020		MOSFET	
		5%	
	MOSFET		

24.41%	2021	35.33%
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2026

7

1.33%

7.45%

38.31%

MOSFET

25	MOSFET	2020-2026
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Yole

26	2020-2026	MOSFET

27 Si MOSFET/IGBT/SiC MOSFET

	Si MOSFET	IGBT	SiC MOSFET
	20-650V	>650V	>650V
	(>20kHz)	(5-20kHz)	(>50kHz)
V _{gs} /V _{ge}	0-15V(20V)	-10-15V(10-20V)	-5-20V(25-30V)
	<3kW	>3kW	>4kW
	-	() UPS EV/HEV	PFC- EV/HEV DC/DC EV

IGBT

Omdia

IGBT 2024 66.19 2020-2024
5.16% IGBT 2024 25.76 2020-2024
4.34% 40% 2020
IGBT

IGBT

30% 27% 22%
OBC IGBT
IGBT

IGBT

30 2020 IGBT

Yole	2020-2026	IGBT	54	84
7.64%				
IGBT	5.09	17.00		22.26%
IGBT	0.69	2.33		
	IGBT		IGBT	17
23	IGBT	13	20	

31 2020-2026 IGBT

	2020	2026	CAGR	2020	2026
Industrial motor drives	17.00	23.00	5.17%	31.48%	27.38%
Home appliance	13.00	20.00	7.44%	24.07%	23.81%
EV/HEV	5.09	17.00	22.26%	9.43%	20.24%
DC charging infrastructure	0.69	2.33	22.49%	10	239

2.2

				+IDM
2020		2021	1101	
26%	IC Insights	2		

2021

3.

IDM

IGBT SiC/GaN

MCU

44

3.1.

1983

4

52.41%

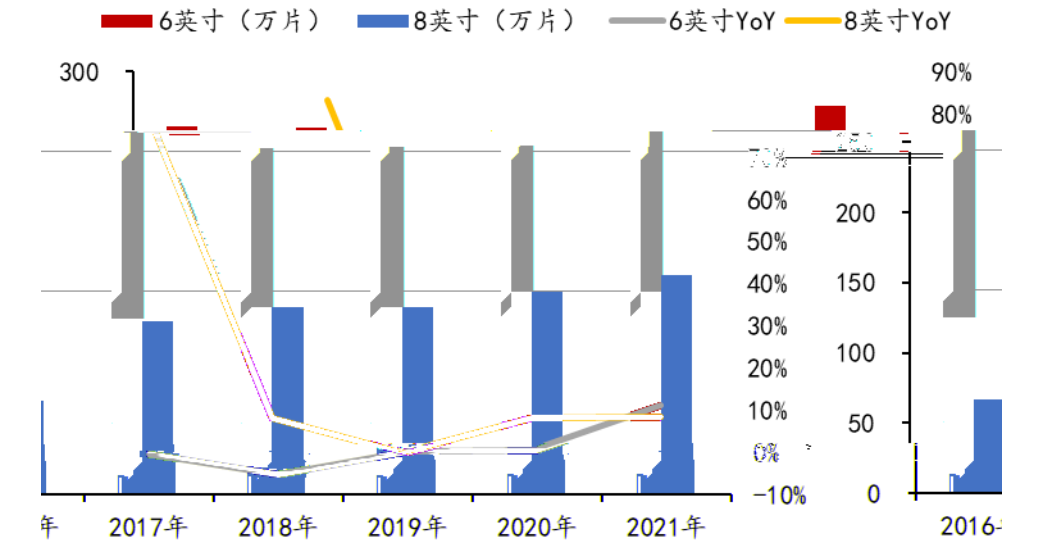
8

12

47

6

8



2021

176.86

2.68%

173.93

1.52%

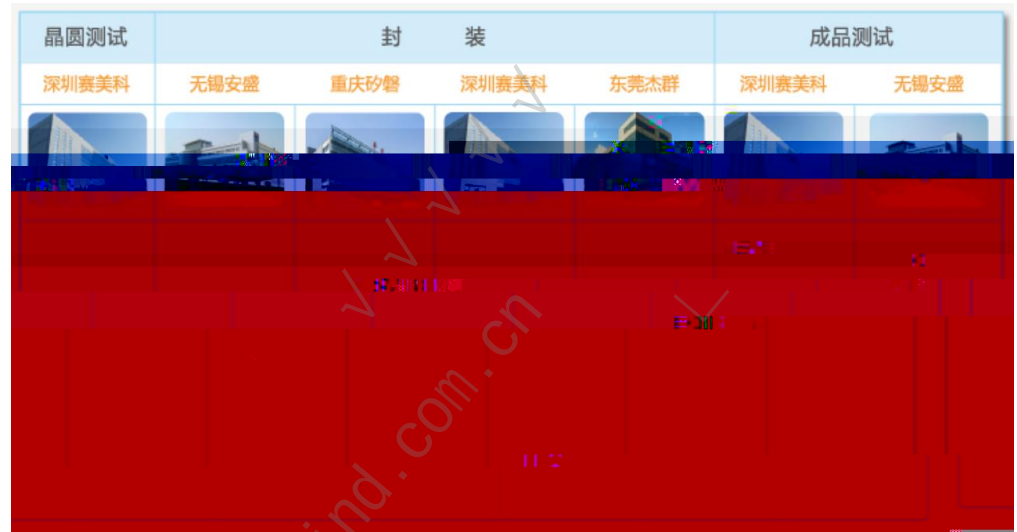
98.34%

2019

48

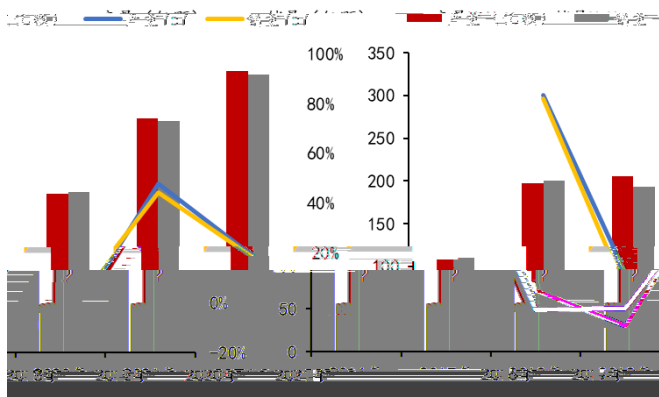
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53

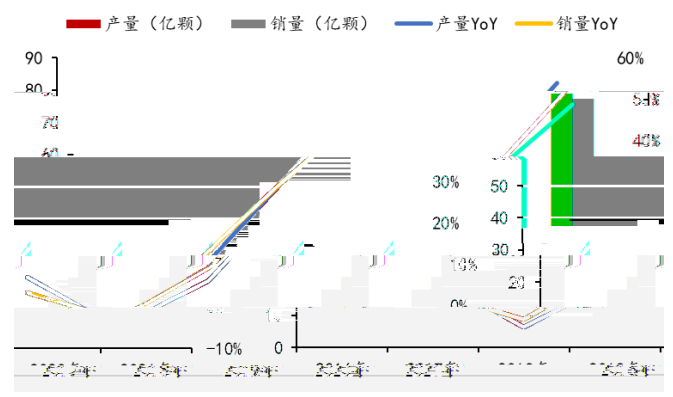


2021 329.99 325.14 20.32% 19.77%
78.90 77.15 54.01% 48.79%

54



55



IPM
Copper-Clip BOND

MOSFET IPM

60

2021

49

12

8

56 **IPM**

3.2. **IDM**

		90%	2019	90.20%
	2019			22.69
6.19%	90			

	AC-DC	AC-DC	
	LED IC	LED	
	BMS IC		
IC	IC	1117	78 100mA-1A
	IC		100W

IDM

64	MOSFET	2021
MOSFET		MOSFET
	IDM	670+
	IDM	370+
	IDM + Fabless	210+
	IDM	240+
	Fabless	1300+
	Fabless +	360+
	Fabless +	60+
	Fabless	500+
	Fabless	190+
	Fabless	490+
	Fabless	250+
	Fabless	230+
	Fabless	

67

Wind

IGBT SiC

MOSFET

MOSFET

IGBT

8

1200V 40A FS-IGBT

650V 40A FS

30

IGBT IGBT 2019-2021 45% 75% 57%
2022 IGBT

MOSFET

MOSFET

74

20

FCFF		
	6,561.49	7.02%
	18,933.44	20.24%

5.

12

:	2020A	2021A	2022E	2023E	2024E	:	2020A	2021A	2022E	2023E	2024E
	6866	11246	11989	14639	18347		6977	9249	10766	12632	14768
+	1795	1499	2437	2859	3342		5061	5982	6515	7706	9080
	52	37	73	86	101		69	85	99	116	136
	1269	1548	1624	1920	2263		106	131	153	179	210
	932	361	376	389	404		936	1154	1354	1576	1828
	10914	14692	16499	19894	24457		-120	-141	-32	-40	-55
	191	1365	1399	1433	1467		-11	18	-22	-26	-30
	4367	4544	5085	5394	4880		1	0	0	0	0
	402	519	432	346	259		28	112	46	46	46
	274	349	291	233	174		128	184	204	207	211
	385	723	709	696	695		1072	2351	2906	3321	3797
	5618	7500	7917	8101	7475		14	3	15	15	15
	16532	22191	24415	27995	31932		1086	2354	2921	3337	3812
	6	81	0	0	0		26	96	120	137	156



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12

6 12

6

A

300

500