



2020.09.25

(688396)

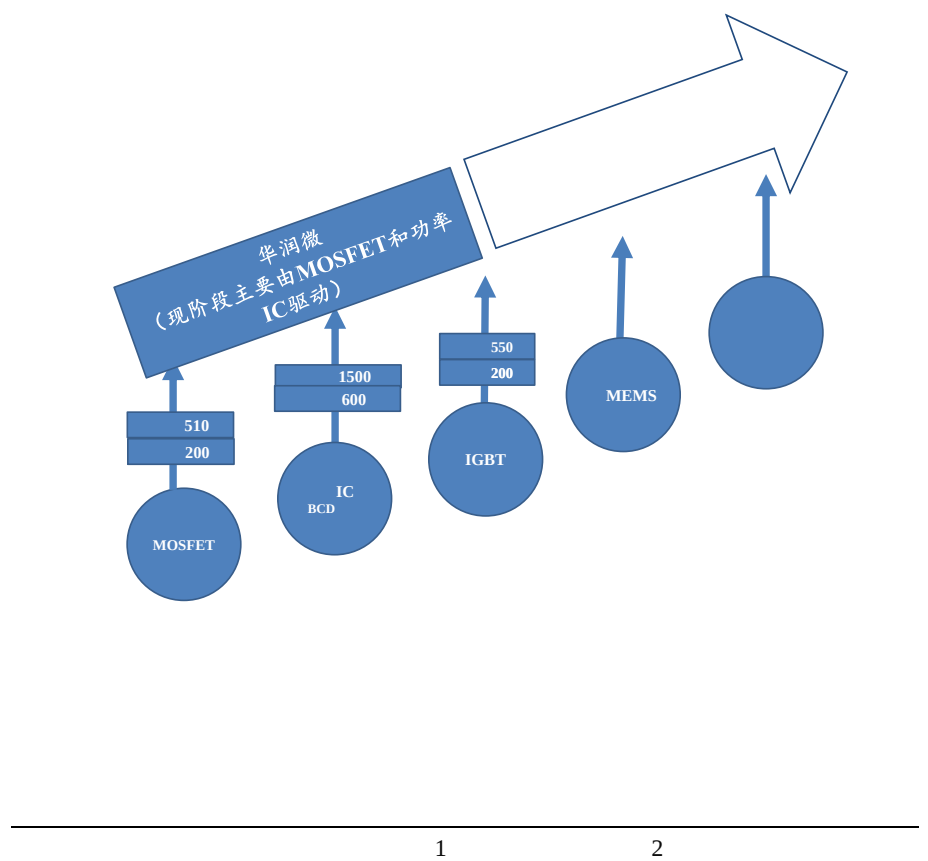
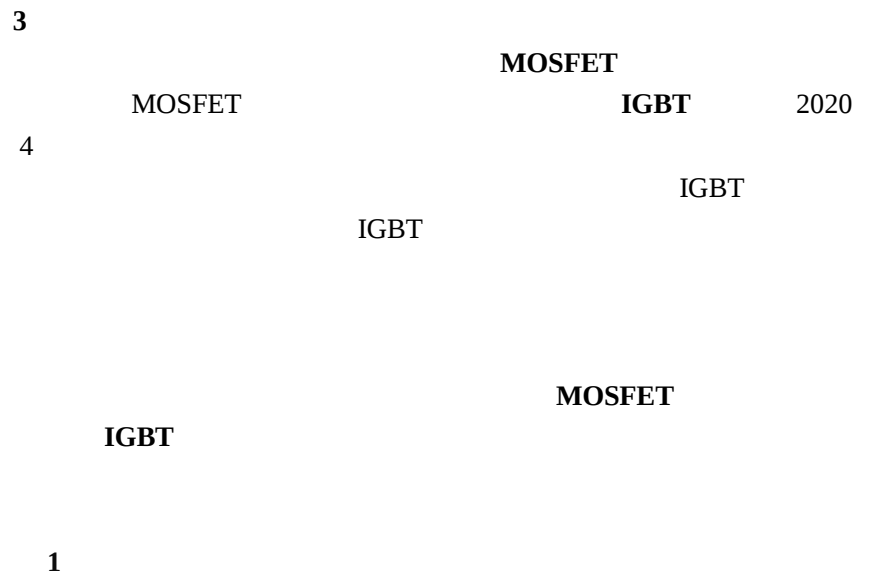
81.07

81.07

55.19

www.crmicro.com

1.		.....	4
2.	MOS		
		.....	5
2.1.			
	6		
2.2.		.....	6
2.3.		.....	8
2.3.1.		.....	8
2.3.2.	MOSFET	.....	9
2.3.3.	&		
	11		
2.4.			
		.....	12
3.	IGBT	IGBT	
	15		
3.1.			
		.....	15
3.1.1.	IGBT		
		.....	15
3.1.2.		.....	17
3.2.		.....	19
3.2.1.		IGBT	
		.....	19
3.2.2.		+ IGBT	 20
3.2.2.1.	IGBT		
	IGBT	.....	20
3.2.2.2.	IGBT		
		IGBT	 23
3.2.2.3.		+ IGBT	 25
4.		.....	25
5.		.....	26
6.		.....	27



2. MOS

70% MOSFET

MOS
MOSFET

2.1.

MOSFET

6-16 MOSFET
9 MOSFET

MOSFET 10
20 +100%

1

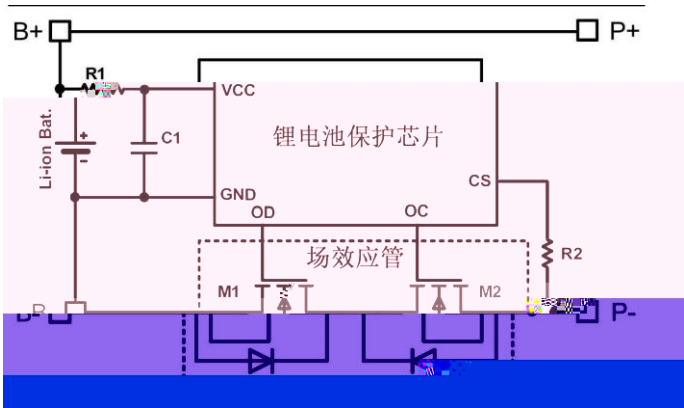
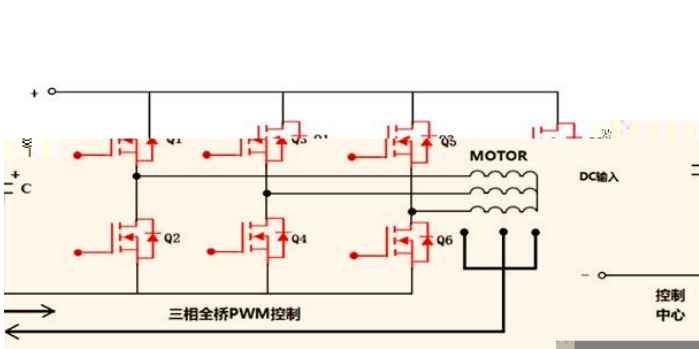
MOS MOSFET

MOS 6
9 12 16

2 MOSFET

MOS PCM MOS PCM
PCM PCM
6-9

2 MOS 3 MOS 9



2.2.

2014-2019 2020

1 2014-2019

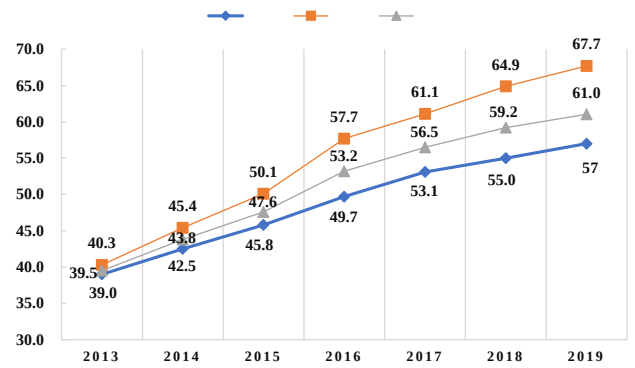
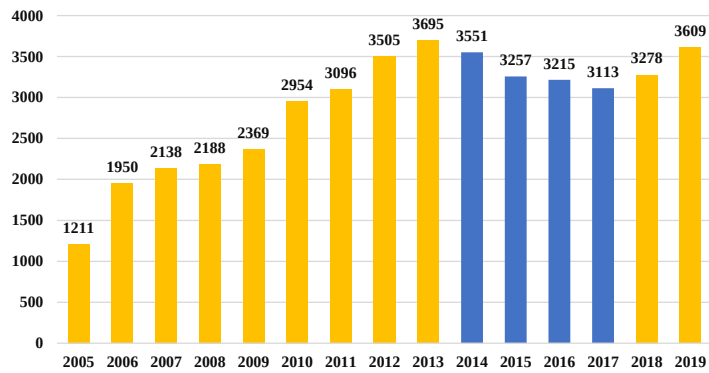
2005-2013	2014-2017	2018-2019	
		6-7	2012-
2013	/		
	2015-2019		3100
-3600	2		
	2016	57.7 /	2019
67.7 /	2016	49.7 /	2019
57 /			

4 2014-2019

5 2 /

3 / /

2005-2019



2020

2.3

7

20%

2019

MOSFET

20Q2

Q2

821.2

120% 7

374.1

22.7%

21.7%

MOSFET

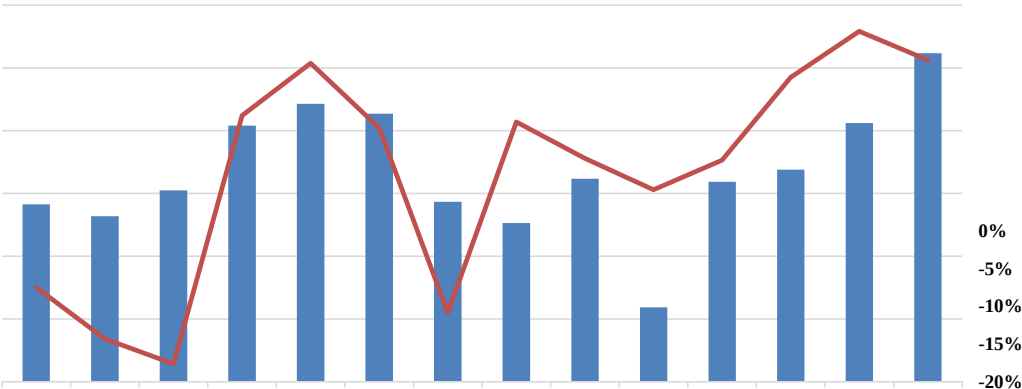
MOSFET

6

7

20%+

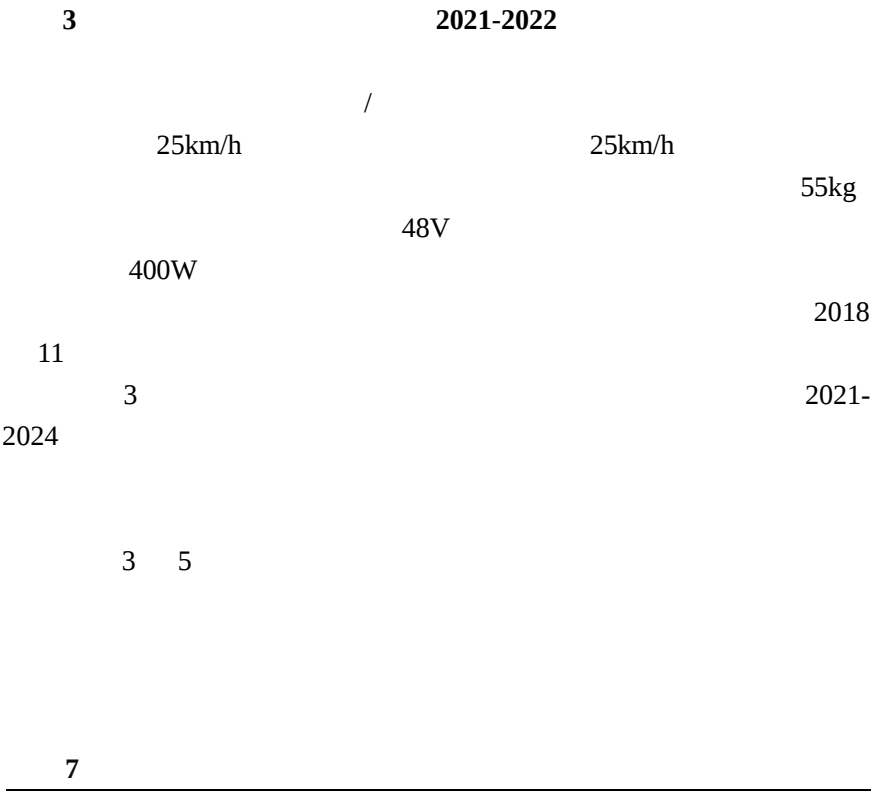
2019

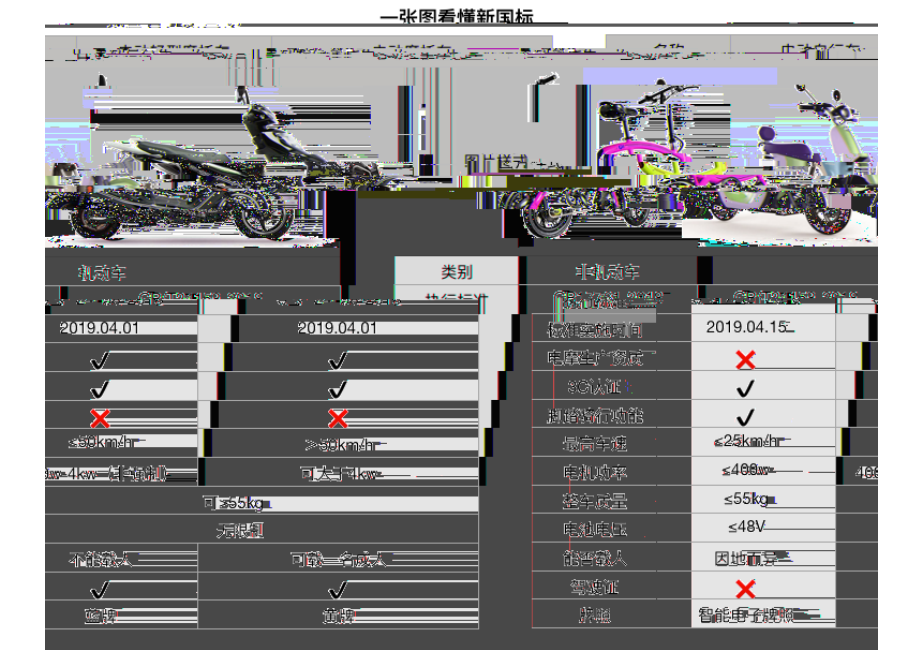


wind

2.3.

2.3.1.





2.3.2. MOSFET

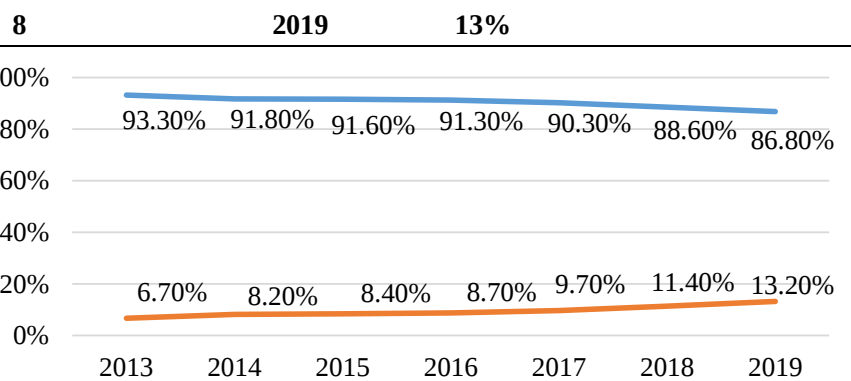
2019 13% 2020

1

2

VRLA

2019 13%



ZDC

1

20194

55kg20AH

1/3
48V+12AH48V+15AH
48V+20AH

48V+24AH

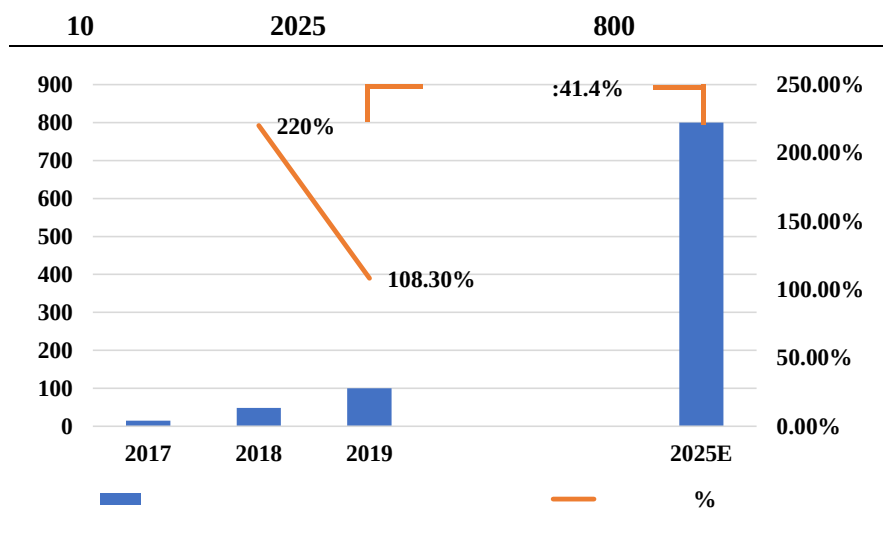
2

202060100TmTtEMC /P <6BDC 219.05 585.82 TD4m EM61 10.56 Tf 1-0.5.56 Tf 1 0 0 1 0 0 T

2.3.3.

&

					2020		
			2020	2			320
		37.27	2020	4			
	Q8	2020	6				
		400	300	100		2020	
						2019	100
		2025	800				
	2019	2019	8				
1950		360					
	2019	100		2025	800	2020-	
2022				150	200	250	



	5	2020-2025		3000	
	2018		136.5	2017	58%;
2019		193.4	2018	41.6%;	
2020		228.4	2019	18.1%	2021

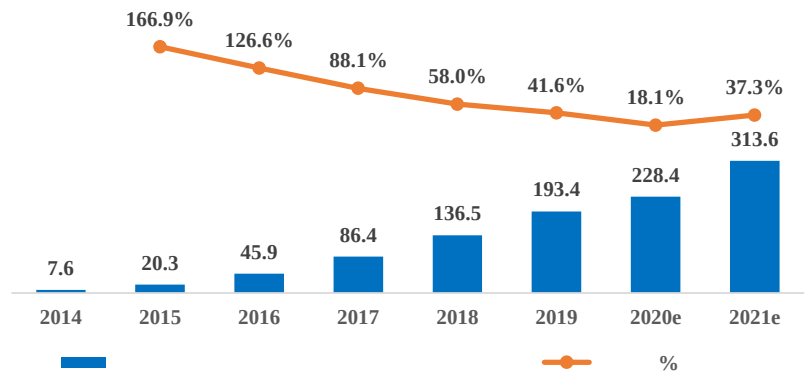
313.6 37%

399 2020 2019
1 5 120

2019 KA 60

11 2014-2021

2014-2021



2.4.

2020-2022

1 2
3 4
8
12.5 % 2020-2022
37.5%
2020-2022

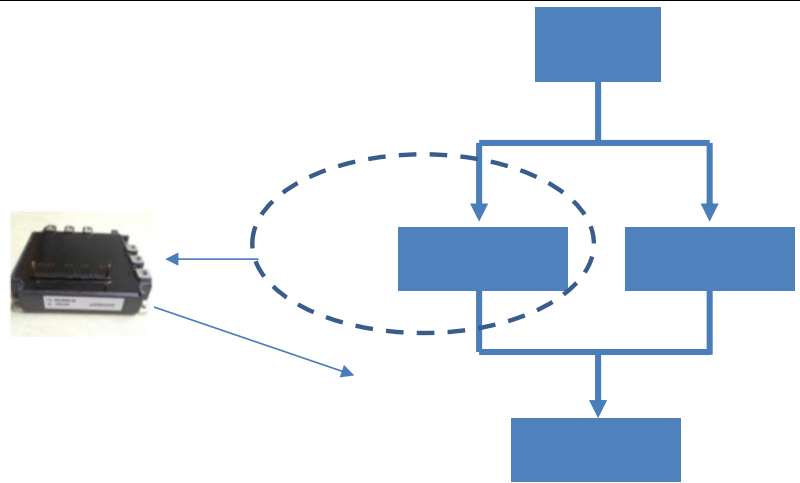
1

2021-2022

%	75%	60%	40%
	2257.5	2763.6	2480.8
2			
a	780	900	1320
b	544	544	544
%	25%	40%	50%
	331	577.6	932
%	75% 31.55 105.72 31.215 14.71	60%	50%
	993	866.4	932
3			

3. IGBT IGBT

2020 4
 + IGBT IGBT
 + IGBT +
 IGBT
 IGBT



IGBT

IGBT Insulated Gate Bipolar Transistor,
MOSFET

MOSFET BJT

BJT

IGBT

1

IGBT

2

IGBT

IGBT

IGBT IGBT

PET

IGBT

IGBT

IGBT

IGBT IGBT

IGBT

IPM

IGBT

IGBT

1 IGBT

IGBT

2

IPM

IPM

Intelligent Power Module

IGBT

3 IGBT

IGBT

FRD

+

IGBT

IGBT

+

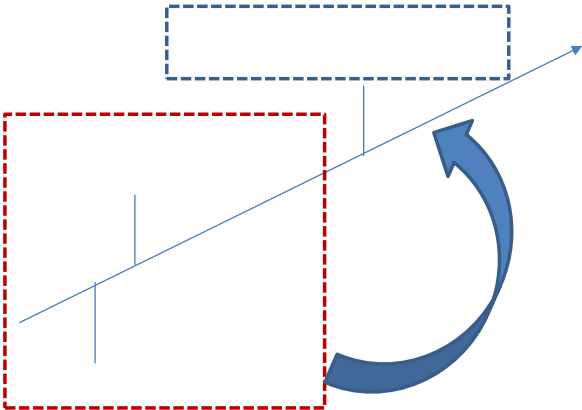
+

IGBT

IGBT

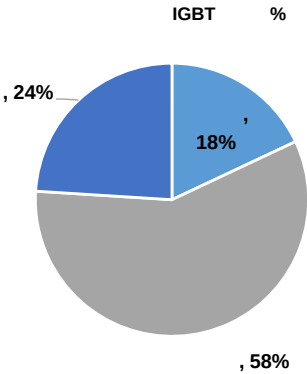
1

15



16

18%



17

IGBT

18

IGBT16.4

IGBTIGBTIGBT60.2

201716.4IGBT

IGBTIGBTIGBT

IGBTIGBT

IGBT

IGBT16.4500

14IGBT

12048MOSFET

2.51.718SiC+

12500IGBT

2025-2027

2

			IGBT	/
IGBT +		2.5	IGBT120	600
		1.7	48IGBT18MOSFETSiC	48
		16.3	500	500

3.2.2.IGBT

3.2.2.1.IGBTIGBT

		IGBT		IGBT	
IGBT		200		IGBT	
22		10%		11%	
21	IGBT	2020	22.4		

IHS					
1128		IGBT		2020	
800				1000	
		2019			
22			6		

IGBT

CPU

IGBT

IGBT

3

		IGBT

IGBT

50%

Yole

2020

IGBT

203

11%

IGBT

2020 - _

22.4

IGBT

15%

IGBT

2020-2025

9.17 10.80

12.72 14.97 17.60 20.69

2020-2025

CAGR=18%

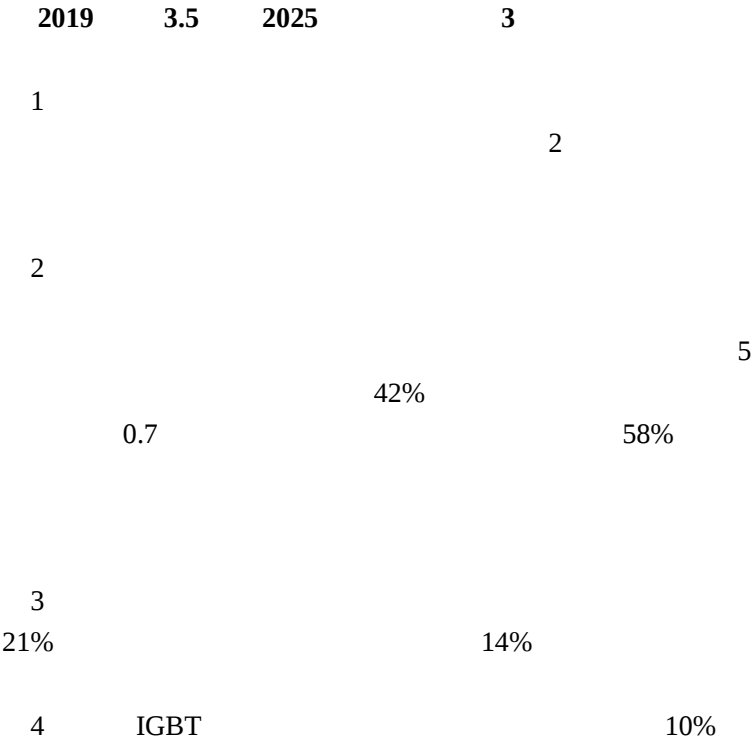
IGBT

I

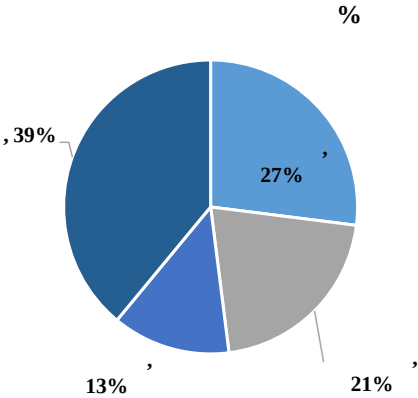
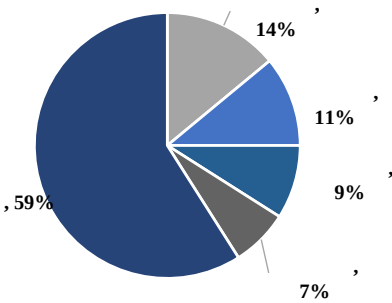
IGBT	%	7.78	9.17	10.80	12.72	14.97	17.60	20.69
	%	0%	0.5%	20%	30%	40%	50%	60%
IGBT		0.00	0.05	2.16	3.82	5.99	8.80	12.41

Yole

3.2.2.2. IGBT IGBT



22 14% 23 21%



2020 IGBT 1.12
2021 1.58 2025 6.13 2020-2025

CAGR=40%

2020-2025

IGBT

2025

3.68

IGBT

1% 10% 20% 30% 40% 50%

2021

0.16



		IGBT	0.84	1.12	1.58	2.19	3.04	4.21	6.13
		%	0%	0.5%	20%	33.04			

9.75% 10.58% 8%

2 2020H2 2021 MOSFET

MOSFET IGBT

IDM 2020-2022

28.20% 22.92% 34.20%

28.20% 19.79% 32%

2020/2021/2022 17%/18%/22%

2020/2021/2022 27.20%/29.50% /31.90%

2020-2022 8.27 11.02 14.97

106% 33% 36% EPS 0.68 0.91 1.23

0.68 0.88 1.18

7

		2017	2018	2019	2020E	2021E	2022E
		3519.76	3571.91	3183.52	3493.91	3964.24	4352.74
	%	59.90%	56.96%	55.44%	52.00%	50.00%	45.00%
	%		1.48%	-10.87%	9.75%	13.46%	9.80%
	%	16.33%	18.57%	17.76%	20.00 %	22.00%	22.00%
		2339.06	2683.49	2515.66	3225.15	3964.24	5320.01
	%	39.81%	42.79%	43.80%	48.00%	50.00%	55.00%
	%		14.73%	-6.25%	28.20%	22.92%	34.20%
	%	19.59%	34.02%	29.48%	35.00%	37.00%	40.00%
		16.77	15.40	43.60	0.00	0.00	0.00
	%	0.29%	0.25%	0.76%	-	-	-
	%		-8.17%	183.12%	-	-	-
	%	14.00%	28.46%	10.04%	-	-	-
		5875.59	6270.80	5742.78	6719.05	7928.48	9672.75
%			6.73%	-8.42%	17.00%	18.00%	22.00%
%		17.62%	25.21%	22.84%	27.20%	29.50%	31.90%

wind

5.

A IDM

DFN/QFN SGT MOS

SBD JBS

PB PS
IDM
IGBT
29%

PB		2020	PB	7.25	2020
9.33	PB	81.07			
PS		2020	PS	14.27	2020 18.35
	PS	101.40			

81.07

8 2020 9 23

			P/S 2020E)				PB		
				2020E	2021E	2022E	2020E	2021E	2022E
300623.SZ		36.45	20.56	4.80	5.32	6.10	7.59	6.85	5.98
300373.SZ		41.78	7.98	6.05	6.80	7.80	6.91	6.14	5.36
			14.27	-			7.25	6.50	5.67

wind

wind

6.

