



2020 05 26

	40.6
	493.67
	96.28
	121,593
	23,714
12 /	55.00/31.77
S1070518060001	
021-31829706	
✉ zoulalanlan@cgws.com	
S1070119070022	
021-31829735	
✉ guowang@cgws.com	

IDM

688396

	2018A	2019A	2020E	2021E	2022E
	6271	5743	6543	7515	8667
(+/-%)	6.7%	-8.4%	13.9%	14.8%	15.3%
	429	401	472	601	702
(+/-%)	511.0%	-6.7%	17.8%	27.3%	16.8%
EPS	0.35	0.33	0.39	0.49	0.58
PE	115	123	105	82	70

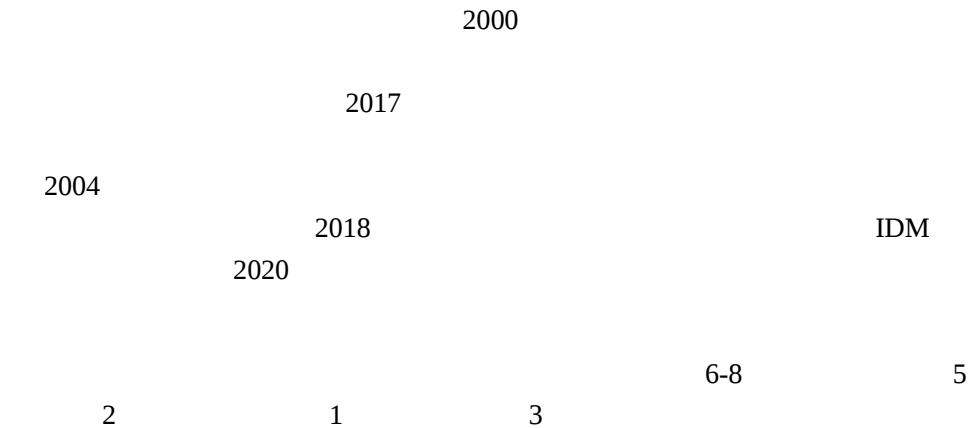
■ IDM		IDM	
MOSFET			
		2019	
		2019	
2020 Q1			
■ BCD			
		MOSFET	
-100V 1500V		MOSFET	
2018 MOSFET			
IGBT		Trench-FS	
600V-6500V IGBT			
6		247	8 133
BCD		5-700V	
BCD	BCD	SOI	BCD
GaN		SiC	
■			
		400	
		36%	



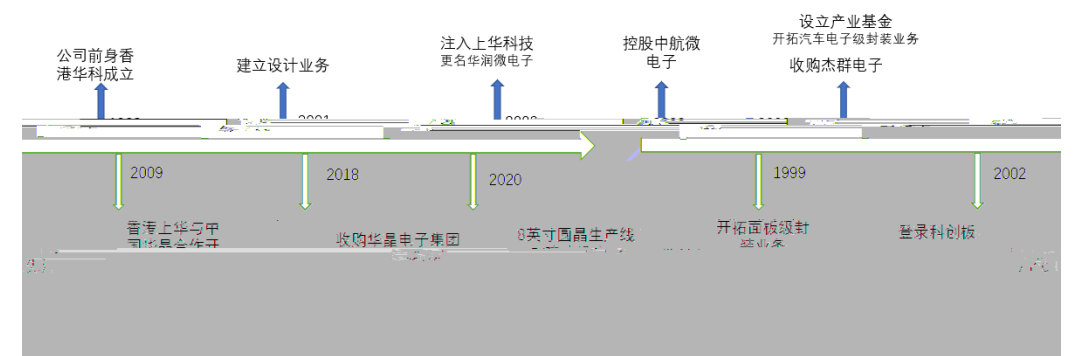


1. IDM

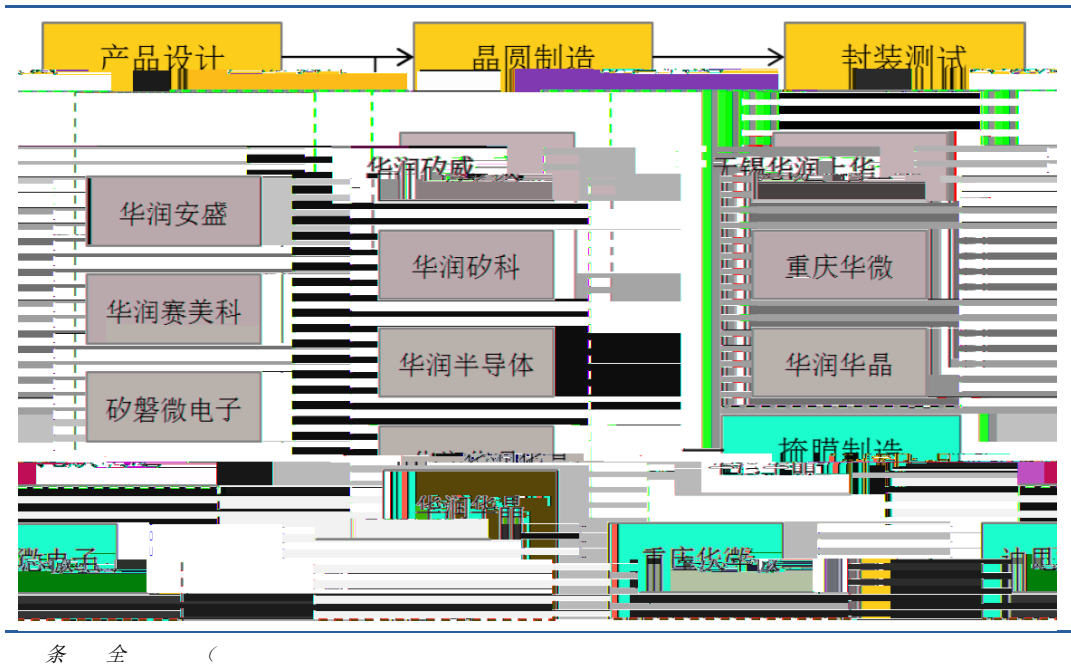
1.1 IDM



1



2



2019													
90%													
2016													
2016-2019													
13.32	23.39	26.83	25.16										
42.78%	43.81%	2017											
		2018	2019										
2016-2019													
25.19%	19.59%	34.02%	29.48%	2017									
				-1.80%	2018								
1													
34.30%	2												
2019													
2016-2019													
9.91%	16.33%	18.57%	17.76%										
2016	9.91%	2018	18.57%	8									
2019													
43%													



wind

wind

2019

6.45

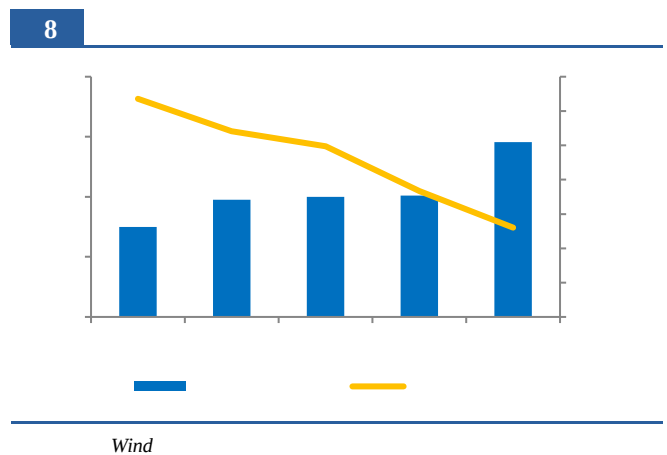
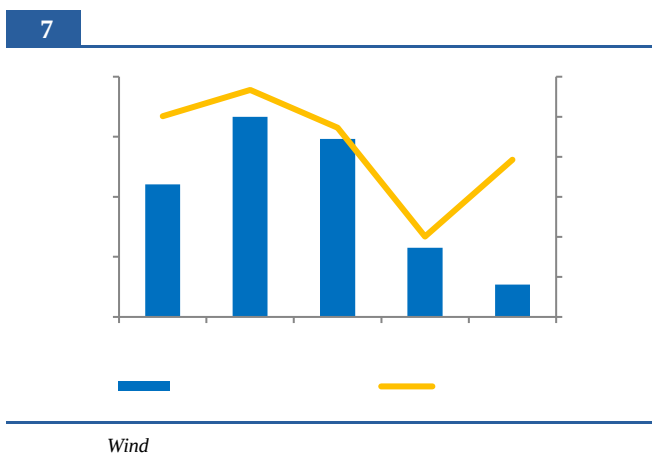
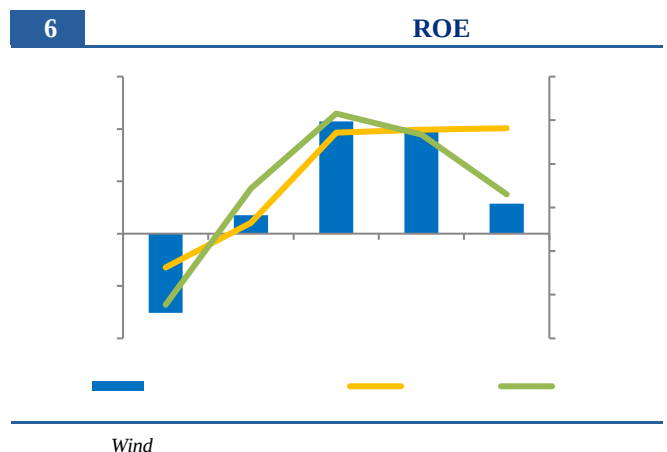
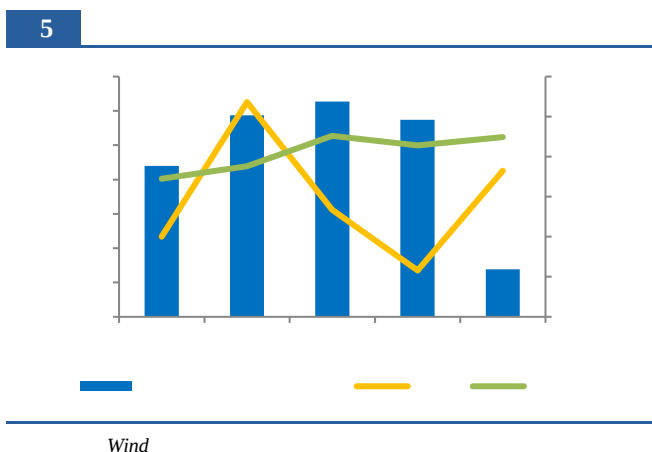
11.32%

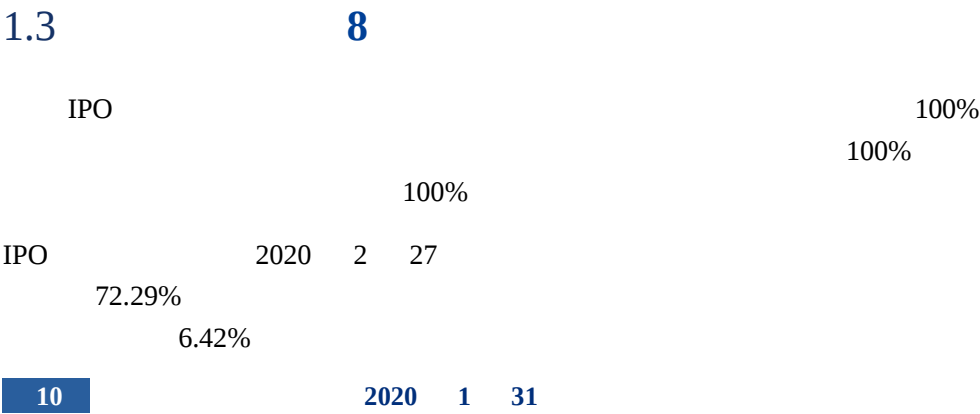
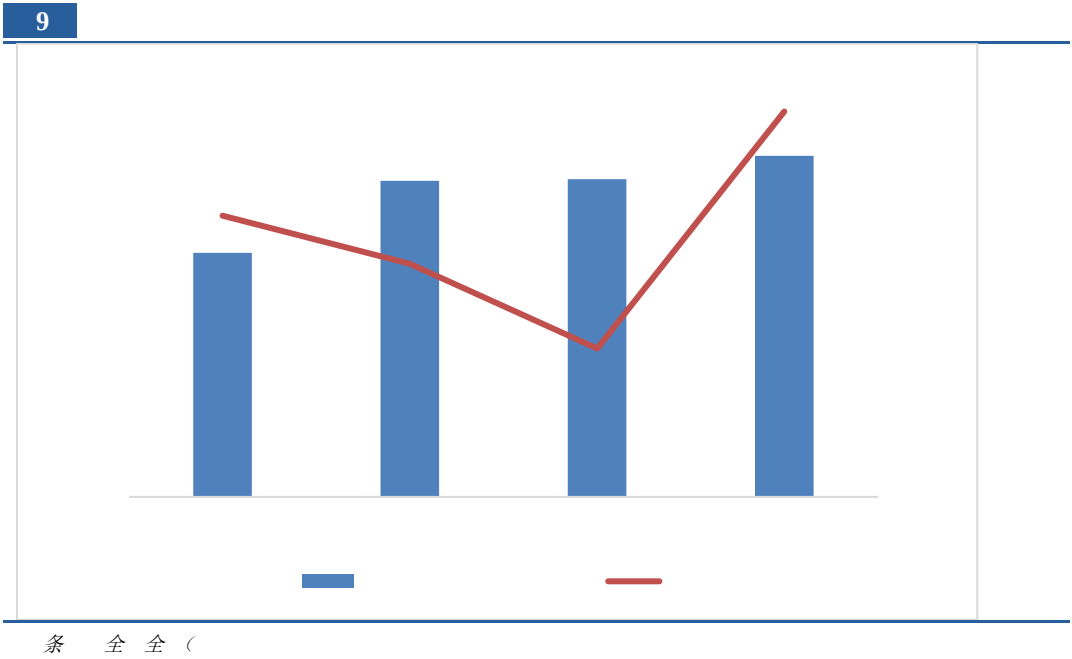
1

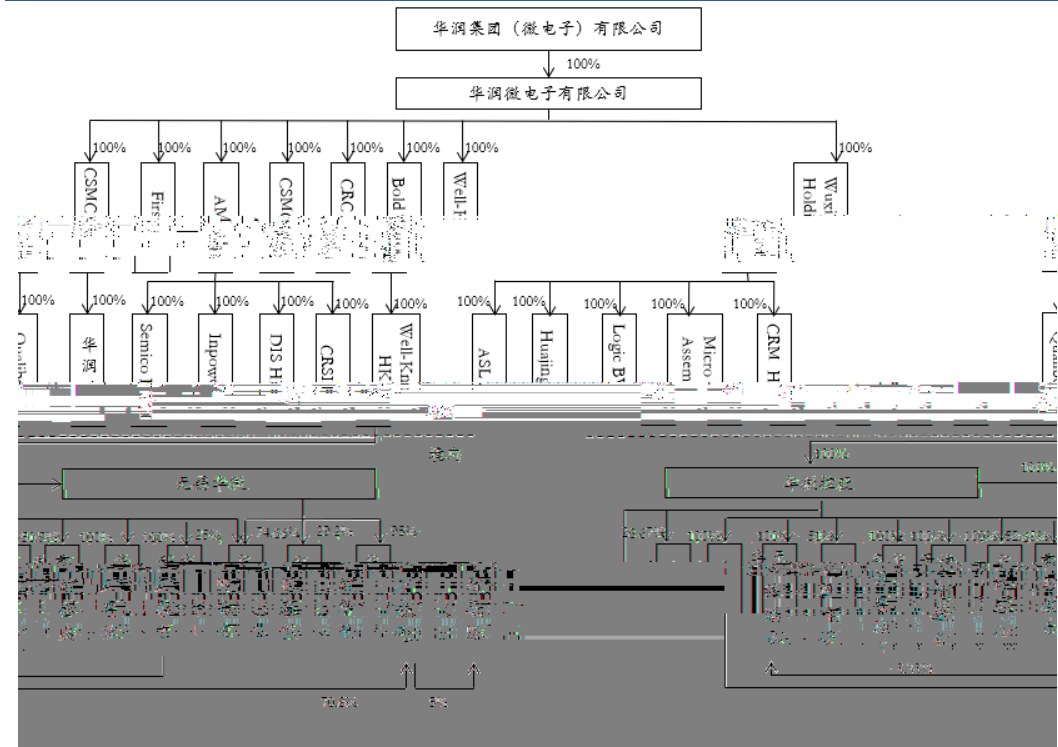
1.2

2017	-2019			58.76	62.71	57.43	
33.63%	6.73%	-8.42%	2017				2018
					2019		
	2019		26.40		16.86%		
2019	Q3	Q4	-13.16%	16.94%	2020	Q1	2019
			13.82			16.53%	
							2017-2019
		13.09	9.15	6.62		22.28%	14.60%
11.53%					1-2		

		2017-2019	2020	Q1		17.62%	25.20%	22.84%
24.92%	2018							
		20.68%		2019				
		24.67%	2020	Q1		24.92%		
		2017-2019	2020	Q1		0.70	4.29	
4.01	1.14	2017			2018	2019	2020Q1	
	512.9%	-6.5%	450.4%			2018		
	2019							43.97%
	2019	Q3	Q4			-33.28%	701.13%	2020 Q1
450.35%				2019				
		2017- 2019	2020	Q1				16.67
14.82	5.76	2.71				28.38%	23.64%	10.04%
19.62%								
		2017- 2019	2020	Q1		97.47	99.92	
100.95	145.57				54.13%	49.76%	36.70%	26.03%



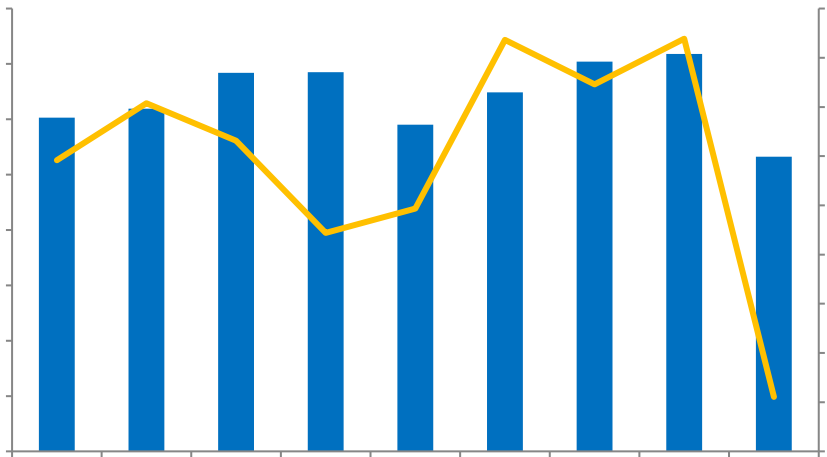




条 全 全 (

	IPO	30		“ 8	
	” “			” “	”
1 8				8	BCD
	BCD		0.13um/0.11um	8	MEMS
			2018 9	2021 5	
	BCD MEMS	16,000		8	11
8	14.5%				
2				“	
	” “			” “	
	” “ MEMS			”	
3					
			50% 20% 30%		

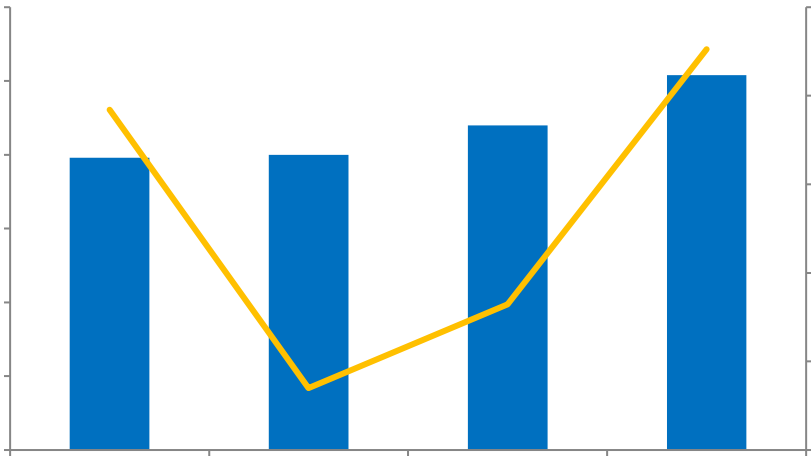




IDC

2019 Q4		7.5%	253.5	2019 Q2 Q3	
2019-2024		886	5.6%	IDC	
2019-2024		CAGR	5.6%	2020	
2019-2024		CAGR	5.6%	2020	
2019-2024		CAGR	5.6%	2020	

14

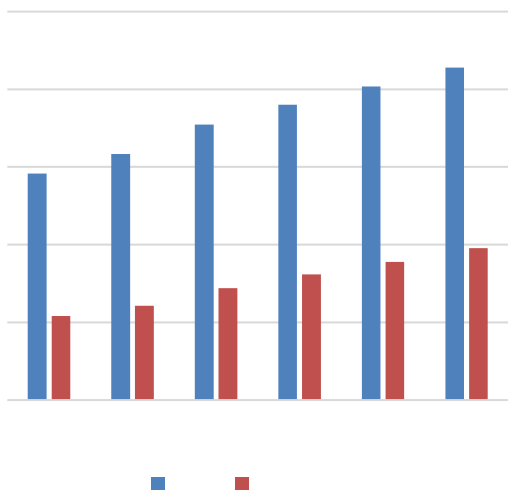


条 IDC

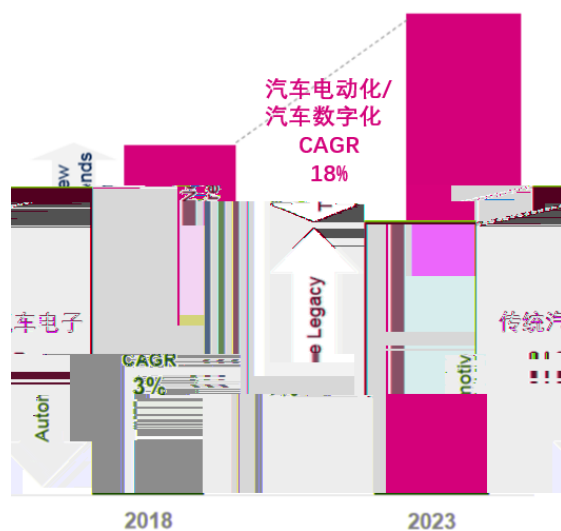
2018	9783	15833	6073
2022	21399	7.82%	12.66%
		10%	

35% 10%~25%
 /
 18%
 3%

15



16



strategy analytics ST

2018

4,767

2017

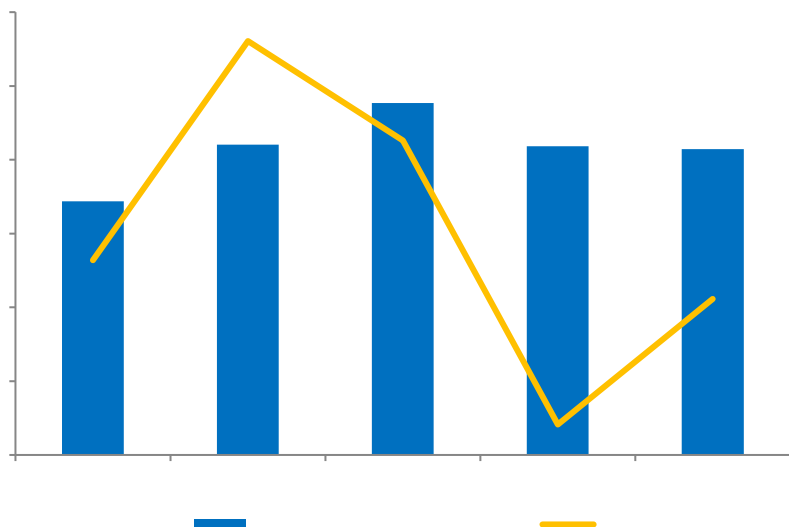
13.7% 2019

2020

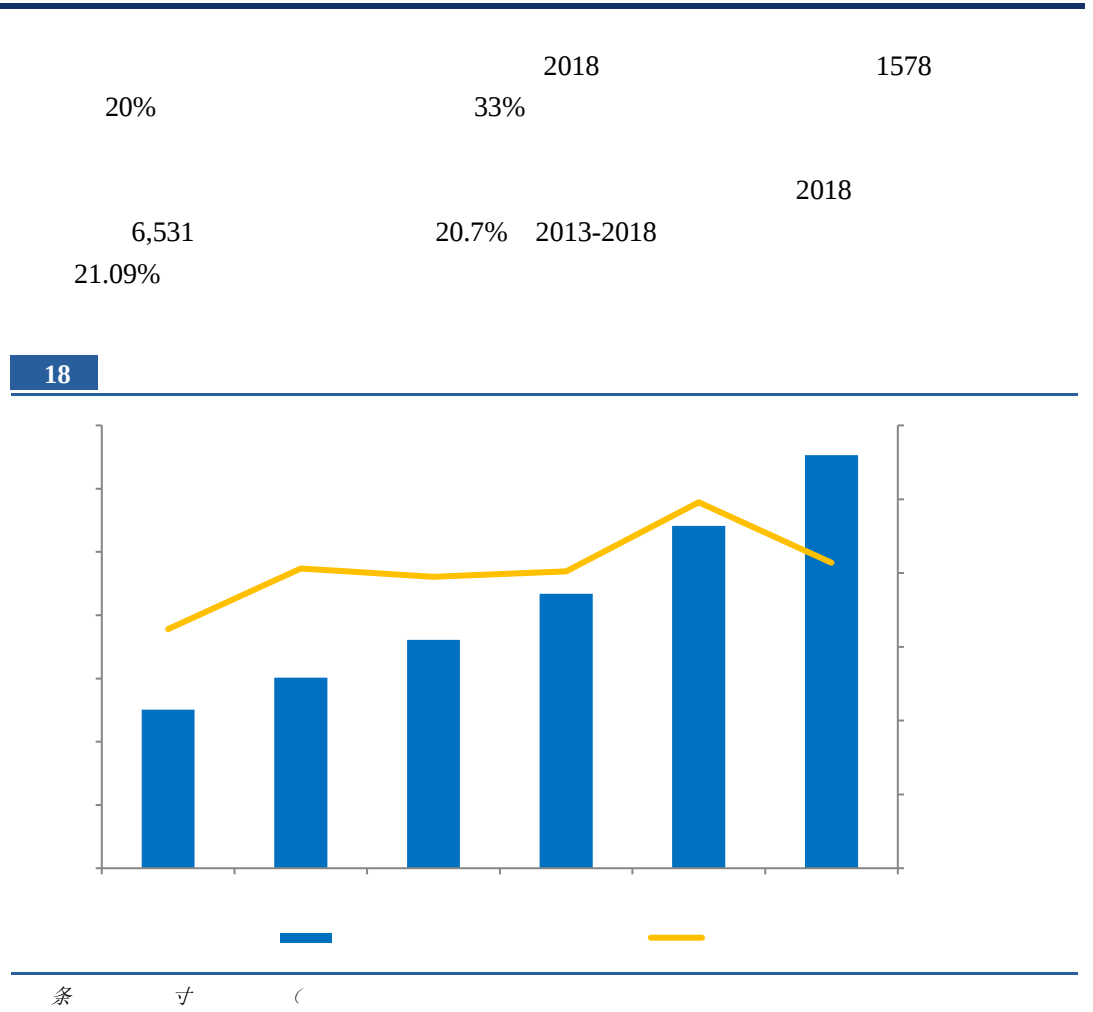
0.9%

5G

17



条 Gartner

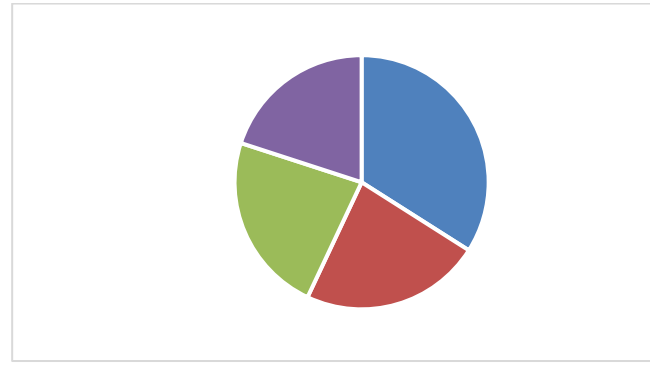
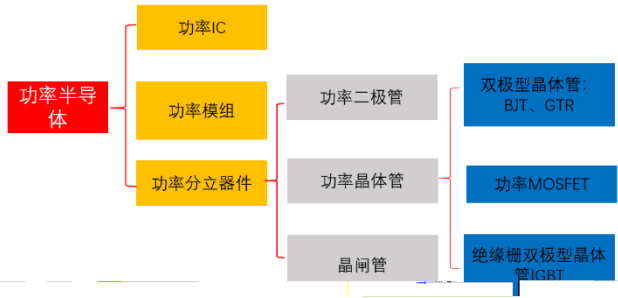


2.2

IC

()

34% 23% 20% 23%



5G

1

2

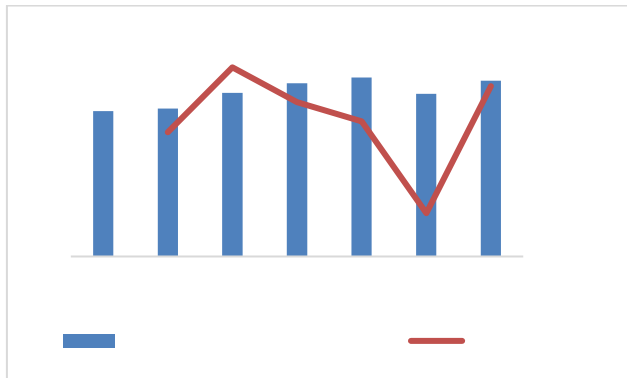
	71	MHEV	/	HEV/PHEV
BEV	27%	330%	393%	90 305 350
2018				200
2030	2800			2025 1000
80	60	2020	70	2018 2022

3

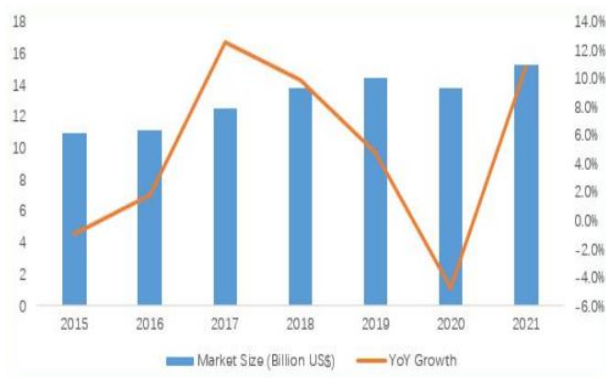
0.79	10.67
5G	
PA	Massive MIMO
MOSFET	

4

5G	4G	4G	3
2018	391	5.9%	2019
403	3.3%		2019
145		36%	
2020			367
9.1%			
397	2021	8.1%	



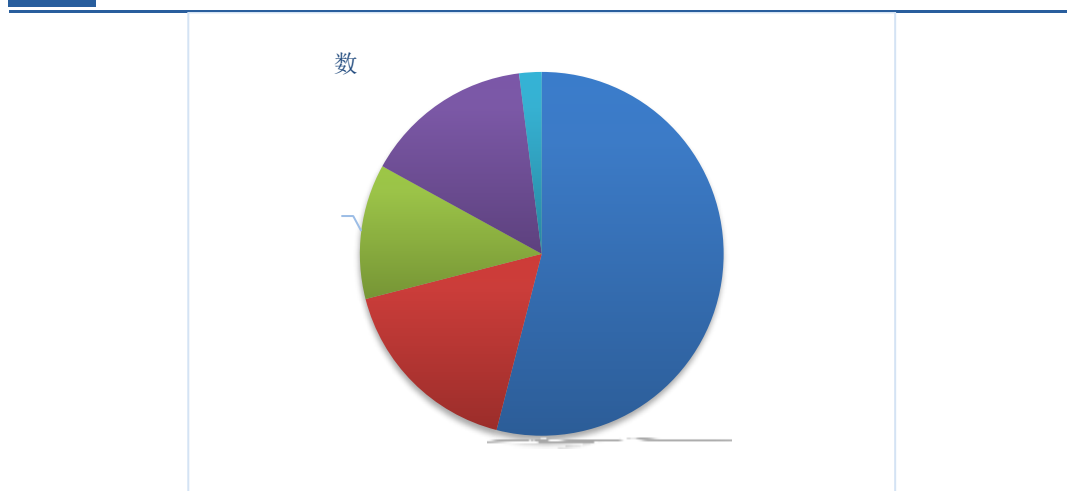
QYresearch



QYresearch

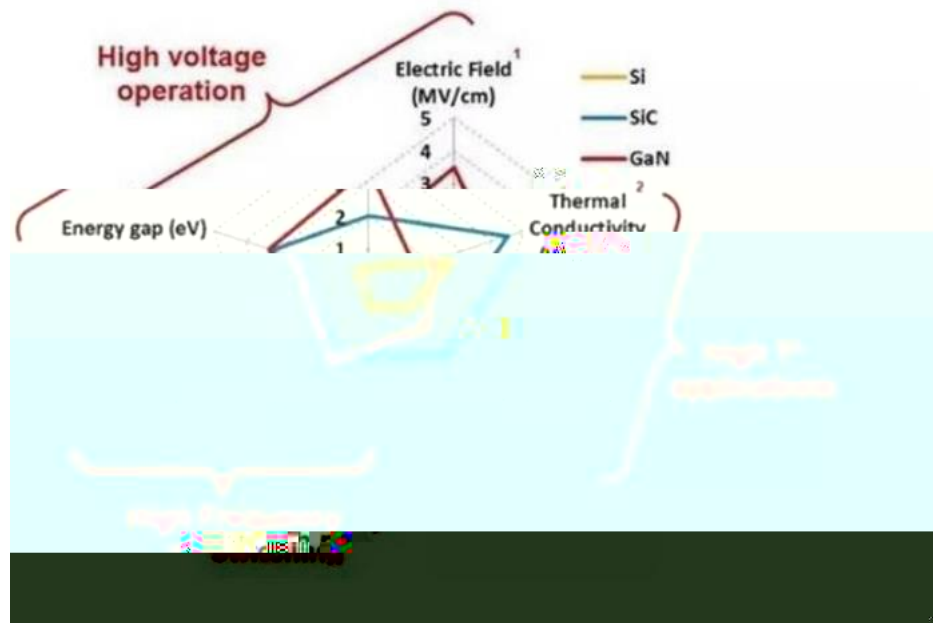
		IC		54% MOSFET	
IGBT	/	17%	12%	15%	
		IC MOSFET IGBT			
2018		60.98%	20.21%	13.92%	

23 2017

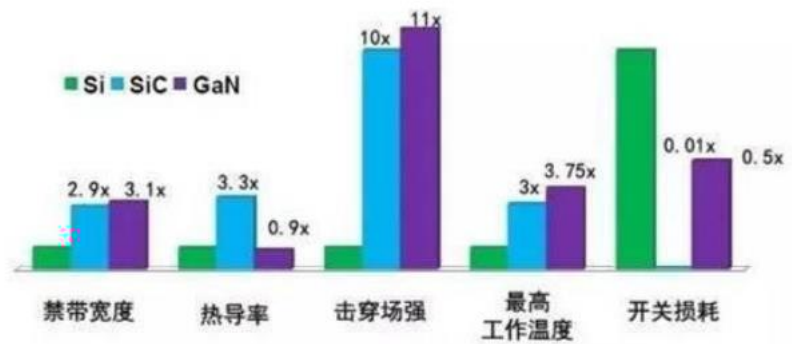


条 Yole IHS Gartnet (

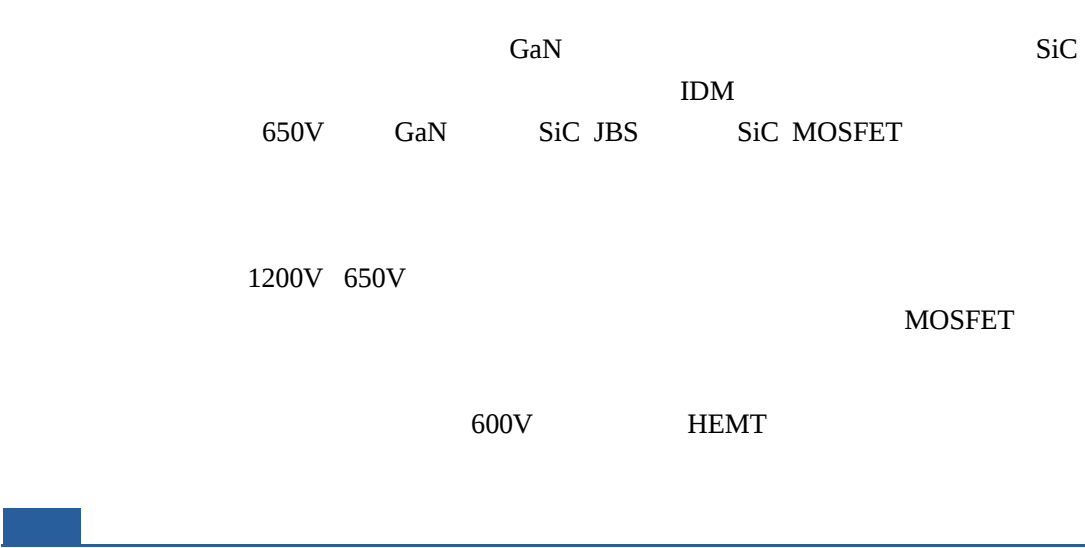
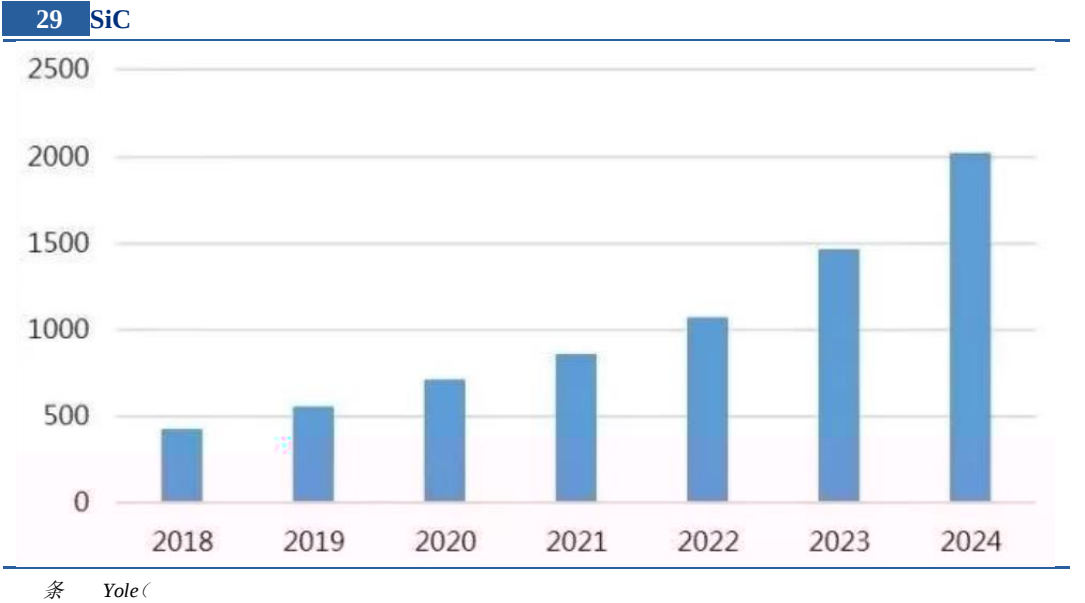
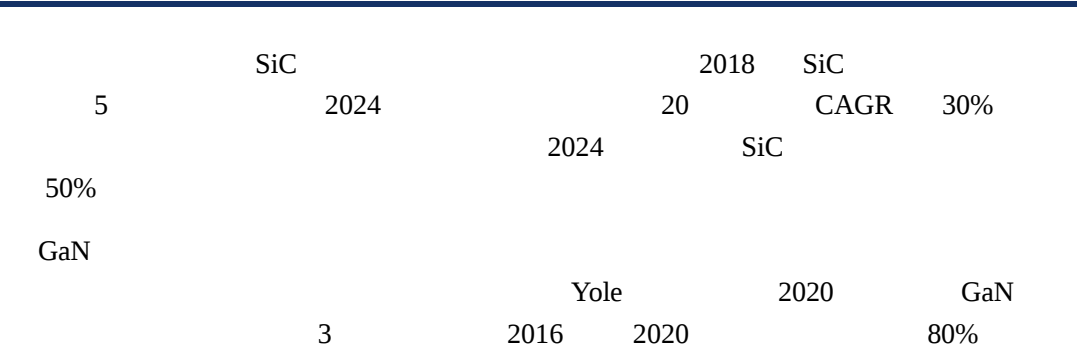
IC		IC	
2016	79.65	2018	84.3
		CAGR	2.88%
MOSFET			
		2016	21.10
2018	27.92	CAGR	15.03%
IGBT Insulated Gate Bipolar Transistor			
MOSFET		MOSFET	
		BJT	
IGBT		2016	15.40
CAGR	11.74%	2018	19.32



条	(								
Si	SiC	3	3	10					
3			SiC		600v-10kv				
1kw-500kw		10khz-10Mhz							
			Si						
GaN									

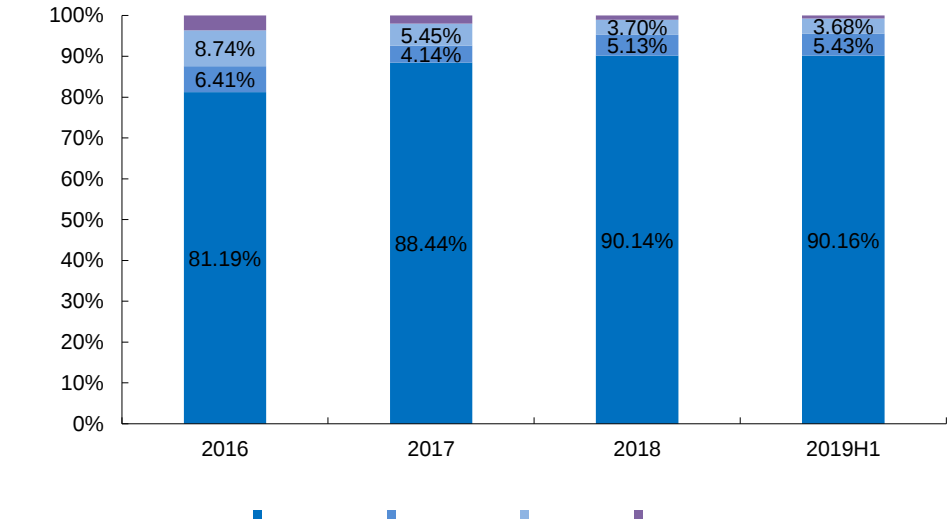


- 禁带宽度: SiC材料 ~ Si材料 $\times 2.9$; GaN材料 ~ Si材料 $\times 3.1$
- 热导率: SiC材料 ~ Si材料 $\times 3.3$; GaN材料 ~ Si材料 $\times 0.9$
- 击穿场强: SiC材料 ~ Si材料 $\times 10$; GaN材料 ~ Si材料 $\times 11$
- 最高工作温度: SiC材料 ~ Si材料 $\times 3$; GaN材料 ~ Si材料 $\times 3.75$
- 开关损耗: SiC材料 ~ Si材料 $\times 0.01$; GaN材料 ~ Si材料 $\times 0.5$



3.

3.1 MOSFET



IC

MOSFET IGBT SBD FRD

2018

MOSFET

8.7%

6

33

2018

MOSFET

条

IHS(

IGBT

600V-1200V

Trench-FS

IGBT



SBD

FRD

1

SBD

SBD

条 全 (

	IC	IC	IC	
1	AC-DC			
2	LED	IC	LED	LED
3	BMS IC			
4		IC		IC
5		IC		
	WPC	QI		
6		IC		
7		IC	BCD	CMOS

35

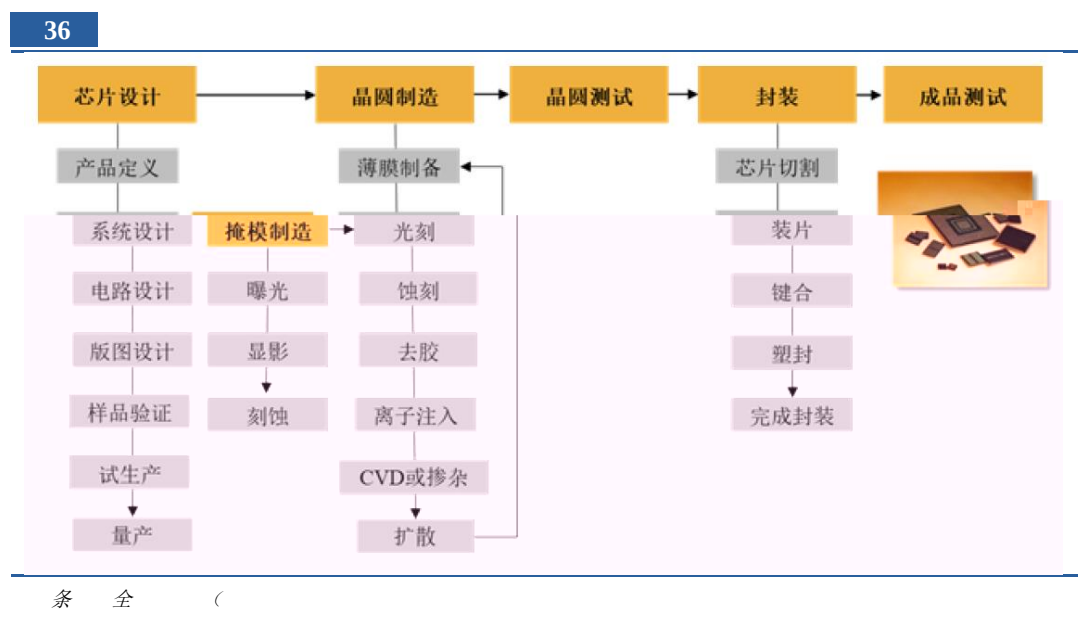
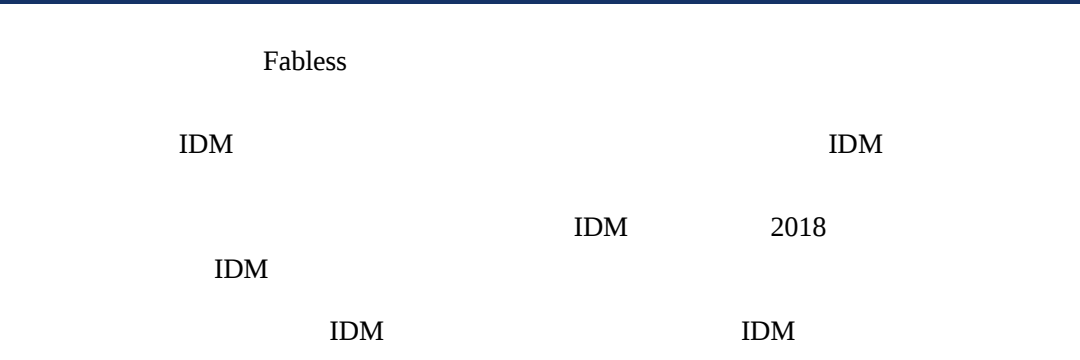
IC



条 全 (

3.2

BCD



条 全 (				
	2018		35.72	1.48%
		26.74	4.3%	75%
	7.86	4.2%	22%	
1.12	17.9%	3%		
	2016-2018	2019H1	7.85%	16.06% 19.49%
15.24%	2016-2018			
2019				
2016-2018	2019H1	14.27%	16.75%	15.28% 15.51%
15%				

2018

	半				
半	半				
半	半				
半	半				
半	半				
半	半				

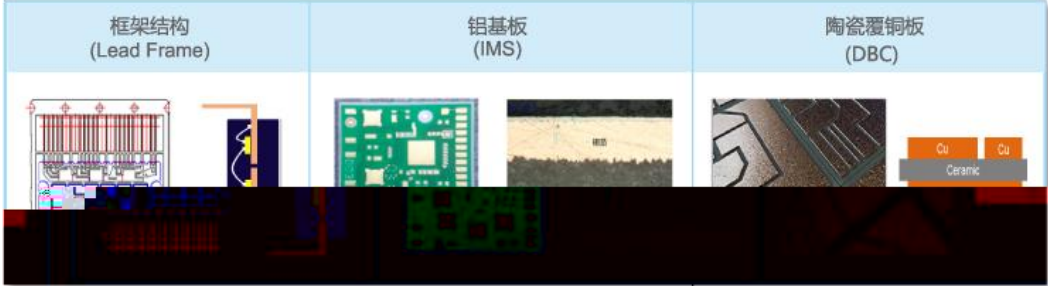
BCD			CMOS/ANALOG	BICMOS	RF/Mixed-Signal	CMOS
	MEMS		BCD	MEMS		
BCD	BIPOLAR-CMOS-DMOS					1986
	ST		BCD		CMOS	DMOS
			LED			

[illegible]

The diagram illustrates the evolution of semiconductor technology through four stages:

- BIPOLAR:** Shows a cross-section of a bipolar transistor with layers labeled B (Base), E (Emitter), and C (Collector). It is associated with the label "Analog".
- CMOS:** Shows a cross-section of a CMOS transistor with layers labeled S (Source), G (Gate), and D (Drain). It is associated with the label "Digital".
- DMOS:** Shows a cross-section of a DMOS transistor with layers labeled D (Drain), S (Source), G (Gate), and C (Channel). It is associated with the label "Power".
- BCD:** Shows a cross-section of a BCD (Bipolar-CMOS-Diode) transistor, which is a merged technology combining elements of the previous three. It is associated with the label "Merged in one process platform".

BCD	4	BCD	0.13	BCD
BCD			CMOS	
	BCD	IDM		



条 全 (

4.

IDM		2020-2022			4.73	6.01	7.02
EPS	0.39	0.49	0.58	PE	104.60X	82.16X	70.34X
“ ”							

