

(688396)

## IDM

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( )	( )
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wangcong@gtjas.com	zhangtianwen@gtjas.com
S0880517010002	S0880118090094

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## IDM

### BCD/MEMS

- **62.60** 2020-2022  
5.22 7.17 9.25 EPS 0.43 0.59 0.76  
2020 7.42 PB

2020.06.08

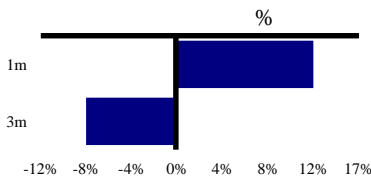
(688396)

62.60

42.54

2020.06.07

www.crmicro.com



52

32.38-50.99

51,725

EBIT

	2018A	2019A	2020E	2021E	2022E
	6,271	5,743	6,440	7,406	8,888
	4,690	4,431	4,755	5,378	6,320
	85	66	74	85	102
	126	112	126	144	173
	374	377	423	486	583
<b>EBIT</b>	<b>546</b>	<b>274</b>	<b>502</b>	<b>645</b>	<b>865</b>
	0	0	0	0	0
	11	0	0	0	0
	0	31	47	-40	-48
	<b>586</b>	<b>478</b>	<b>685</b>	<b>956</b>	<b>1,244</b>
	53	-6	72	100	128
	108	112	130	179	231
	<b>429</b>	<b>401</b>	<b>522</b>	<b>717</b>	<b>925</b>

	1,538	2,438	6,984	7,310	7,760
	27	44	44	44	44
	0	82	82	82	82
	3,898	3,816	3,966	4,266	4,566
	571	557	557	557	557
	<b>9,992</b>	<b>10,095</b>	<b>15,203</b>	<b>16,412</b>	<b>17,966</b>
	4,654	1,979	2,121	2,384	2,783
	318	1,726	1,726	1,726	1,726
	5,020	6,391	11,356	12,302	13,458
<b>(IC)</b>	<b>7,471</b>	<b>7,897</b>	<b>12,862</b>	<b>13,808</b>	<b>14,964</b>

NOPLAT

	497	277	452	581	778
	953	709	-7	-7	-7
	133	-1,192	63	64	99
	-533	-611	-308	-508	-557
	<b>1,050</b>	<b>-816</b>	<b>200</b>	<b>130</b>	<b>314</b>
	1,482	576	631	889	1,113
	-575	-41	-308	-508	-557
	-627	-180	4,223	-56	-105
	<b>281</b>	<b>356</b>	<b>4,546</b>	<b>325</b>	<b>450</b>

EBIT

	6.7%	-8.4%	12.1%	15.0%	20.0%
	8150.3%	-49.9%	83.3%	28.6%	33.9%
	511.0%	-6.7%	30.2%	37.4%	29.0%

EBIT

	25.2%	22.8%	26.2%	27.4%	28.9%
	8.7%	4.8%	7.8%	8.7%	9.7%
	6.8%	7.0%	8.1%	9.7%	10.4%

(ROE)  
(ROA)  
(ROIC)

	10.4%	7.4%	5.1%	6.5%	7.7%
	5.4%	5.1%	4.3%	5.5%	6.4%
	6.7%	3.5%	3.5%	4.2%	5.2%

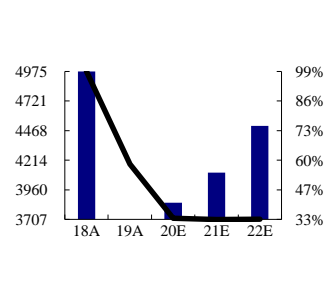
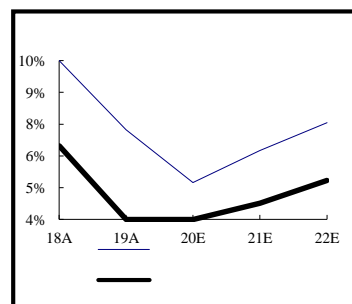
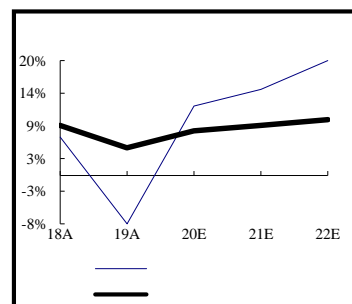
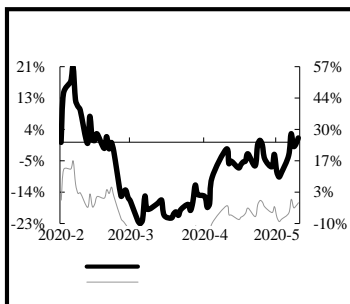
PE

PB

EV/EBITDA

P/S

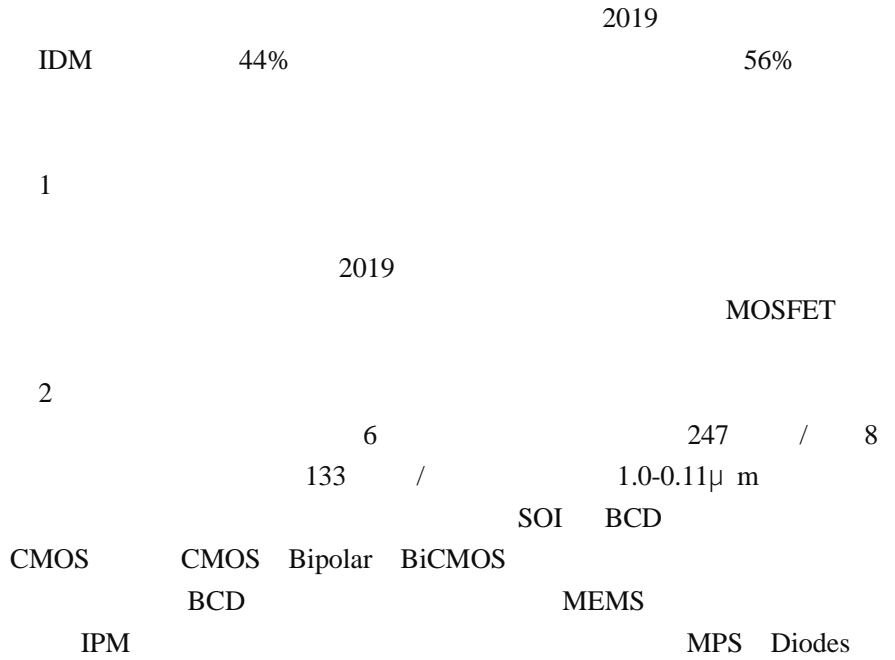
	91.9	86.9	86.9	86.9	86.9
	35.0	51.8	51.8	51.8	51.8
	581.6	641.6	861.6	808.8	737.9
	3.5	1.4	1.2	1.2	1.2
	8.5%	10.6%	4.8%	6.9%	6.3%
	49.8%	36.7%	25.3%	25.0%	25.1%
	99.1%	58.0%	33.9%	33.4%	33.5%
	118.35	126.82	97.38	70.87	54.96
	0.00	0.00	4.95	4.61	4.25
	0.61		88.41	71.27	52.55
	5.53	6.04	7.57	6.86	5.72
	0.0%	0.0%	0.0%	0.0%	0.0%





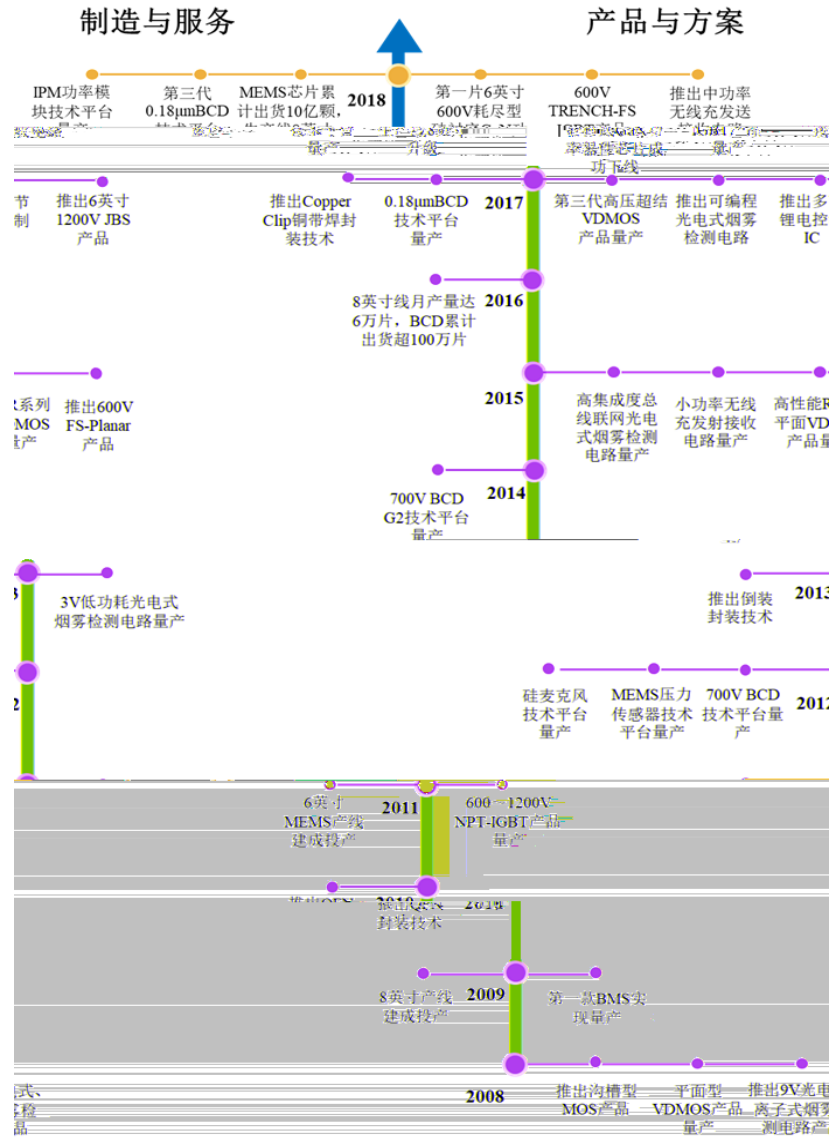
# 1. IDM

## 1.1.



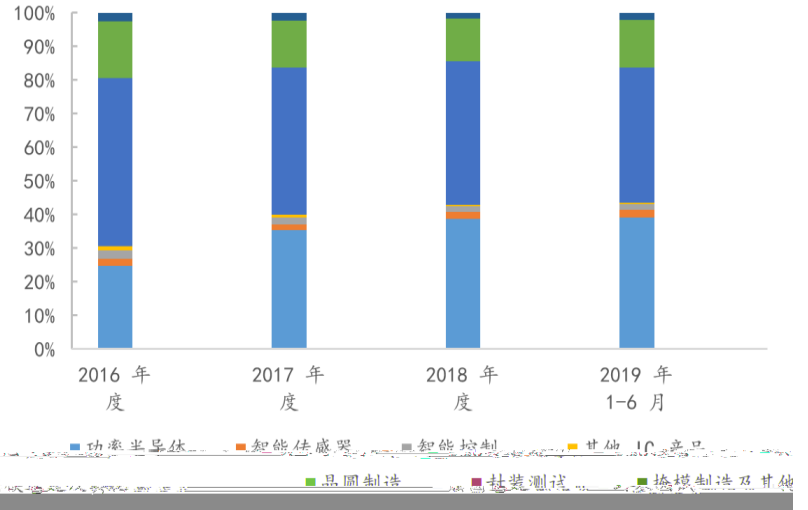
1



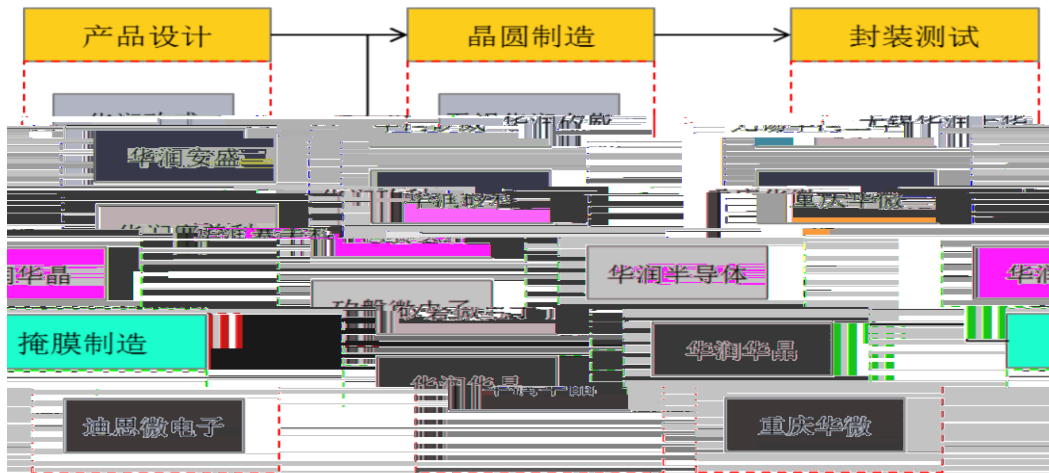


2019H1	40.35%	39.13%
2019	14.06%	39.81%

3



4



			2019	2,578
PCT		399	291	
	1,401		1,228	
173	MOSFET	IGBT	FRD	MEMS
			SBD	
			BCD	

737 1771 2019 1128

**1:**

				%	
2019	1-6	1	7,889.40	2.99%	
		2	MPS International, Ltd	7,222.97	2.74%
		3	Diodes Incorporated	5,665.30	2.15%
		4		5,195.50	1.97%
		5		5,149.24	1.95%
					31,122.41

**1.2.**

**2016-2018** 2016

2018 43.97 58.76 62.71

19.4% -3.03 0.70

4.29 2017

**2019**

**2020Q1** 2019

57.43 8.42% 4.01

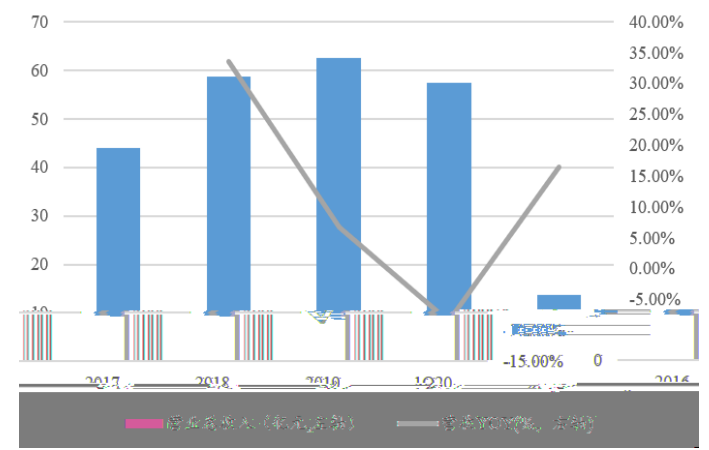
6.68% 2019 2018 4

2020Q1 13.82

16.53% 1.14 450.35%

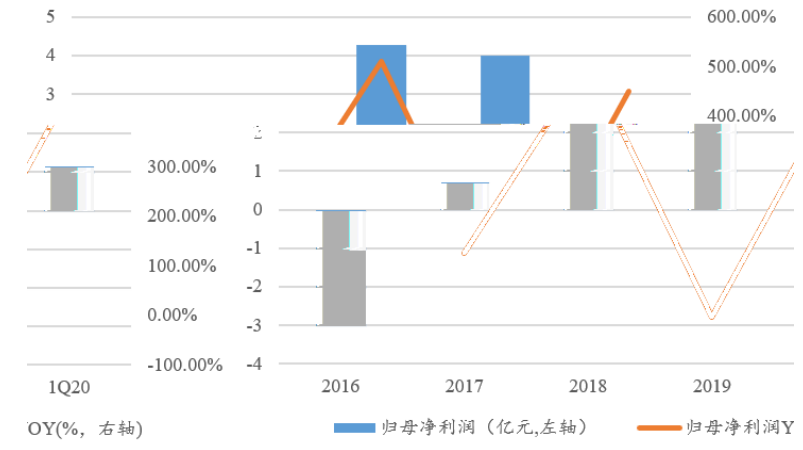
2019

5 2020Q1



wind

6 2020

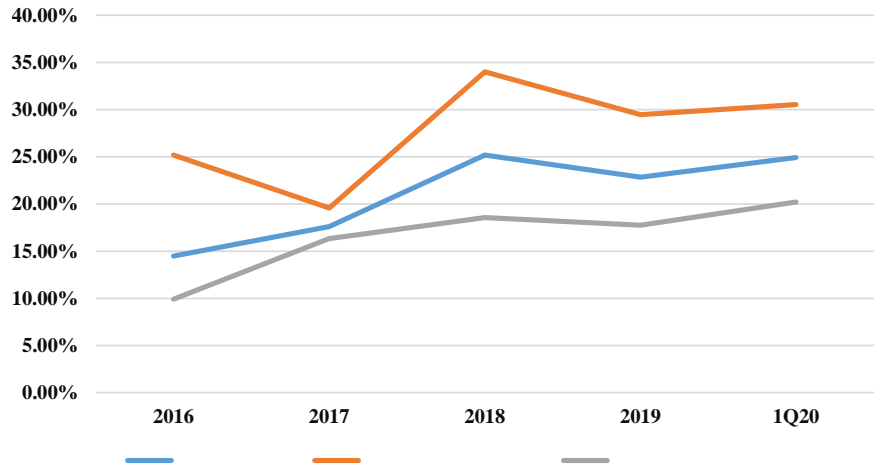


wind

20Q1	2016	-2019	14.49%
17.62%	25.20%	22.84%	2020
			24.92%
			2019

2020Q1

7 20Q1



wind

1.3.

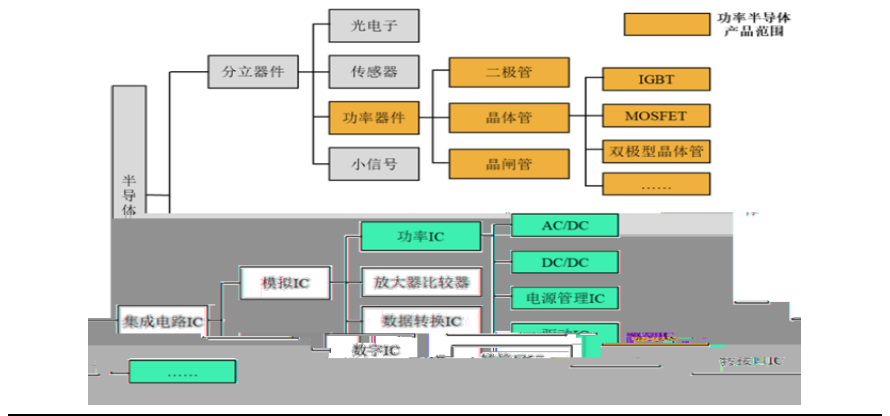
CRH (Micro)	100%
CRH	75%
	2.92%

IPO

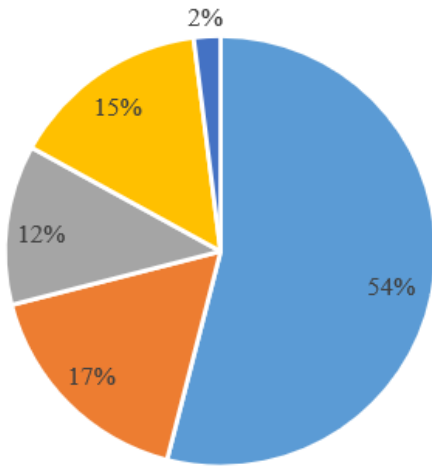


IC

10



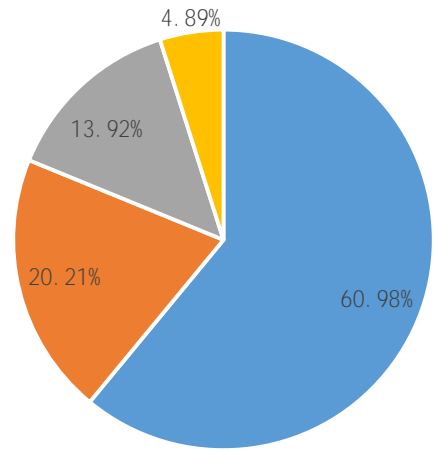
11 IC MOSFET IGBT 2017



■ 功率IC ■ IGBT ■ MOSFET ■ 功率二极管 ■ 其他

QY Research

12 IC MOSFET IGBT 2018



■ IC ■ MOSFET ■ IGBT ■ 功率二极管

IHS

Year	Revenue (亿元)	Market Share (%)
2019	459	6.6%
2020	463	6.9%
2021	459	6.6%

		<b>2021</b>	<b>160</b>		
				Omdia 2019	2018
			166	8%	40%
	2020			149	
	6%			2021	2022
		167			
<b>13</b>	<b>2020</b>	<b>14</b>		<b>2017-2022</b>	
<b>2021</b>					

Omdia 2020

Omdia 2019

IC

IC

GaN SiC

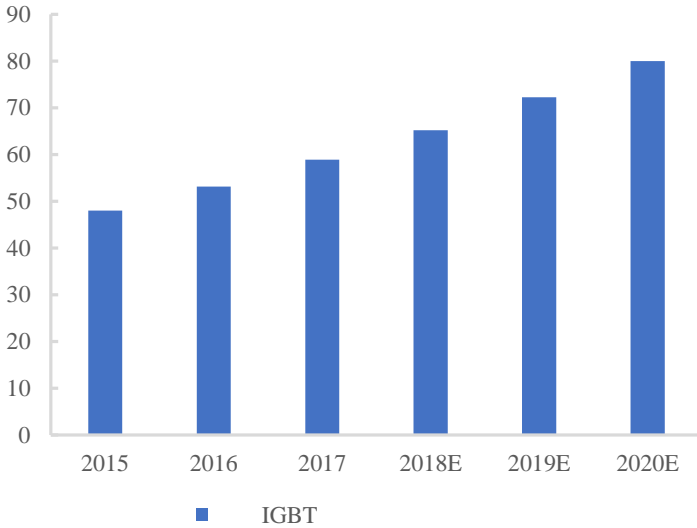
IC

IGBT

IGBT

IGBT 2015 2020 CAGR 15%  
IGBT 2015 2020 CAGR 15%  
IGBT 2015 2020 CAGR 15%  
IGBT 2015 2020 CAGR 15%

**15 IGBT 2020 80**



**16 IGBT**



IHS 2017 10  
60  
19 9 5.3

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IHS

2.1.2.

**MOSFET**

**MOSFET**

**IC IGBT**

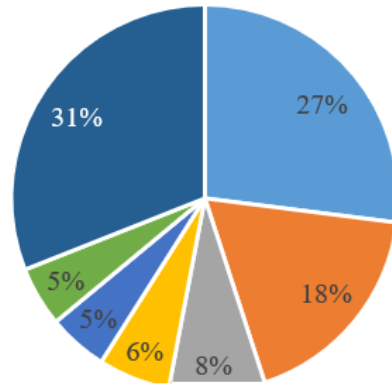
	<b>MOSFET</b>	<b>20-40V N/P-Ch Trench MOSFET</b>
		<b>60-200V Trench MOSFET</b>
		<b>400-700V Planar MOSFET</b>

VDMOS MOS  
IHS Markit

MOSFET

MOSFET

18 2019 MOSFET



长润微 ■ 东芝 ■ 意法半导体 ■ 瑞萨 ■ 其他 ■ 英飞凌 ■ 安森美 ■ 4

Omdia 2019

MOS  
2019

MOS  
1.7 5A-43A

MOS

MOS

MOS  
MOS

30V  
MOS

MOS

2019 MOSFET  
4 /

IC

IC  
IC

LED IC  
BCD

IC

IC

SOC IC

QI

IC  
100

IC

2-7

IC  
5-8

10

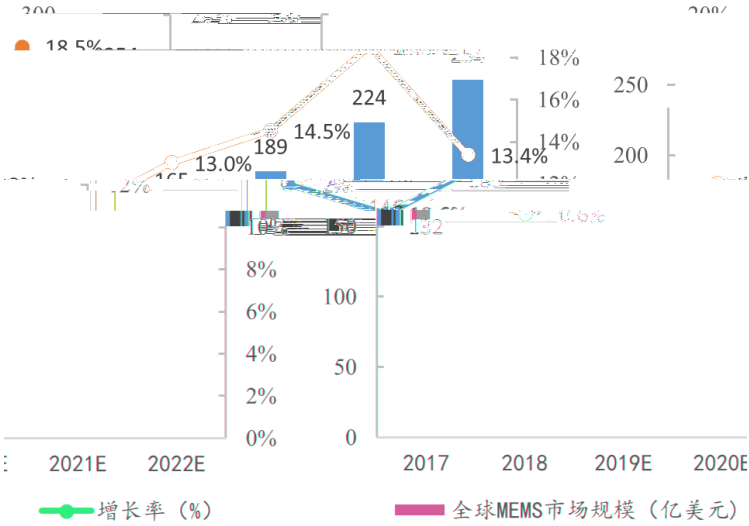
14-16 AFE

	2019	BMS IC	2-10
		64%	
<b>IGBT</b>			
<b>Trench-FS IGBT</b>	8	<b>IGBT</b>	,
		IGBT	16
<b>IGBT</b>		<b>IGBT</b>	
			8 IGBT
		Trench-FS	
<b>600V-6500V IGBT</b>		Trench-FS IGBT	
			IGBT
	2019	IGBT	45%
	6000		
<b>SBD</b>			
<b>SBD</b>		FRD	SBD 8
Trench			FRD
<b>IC</b>			
		<b>MOSFET</b>	<b>IGBT</b>
		<b>IC</b>	
<b>MEMS</b>			<b>MEMS</b>
		2018	<b>MEMS</b>
	146	10.8%	
<b>MEMS</b>			
	Yole Development	2018-2022	<b>MEMS</b>
		14.85%	<b>MEMS</b>
	60%		

2.2.

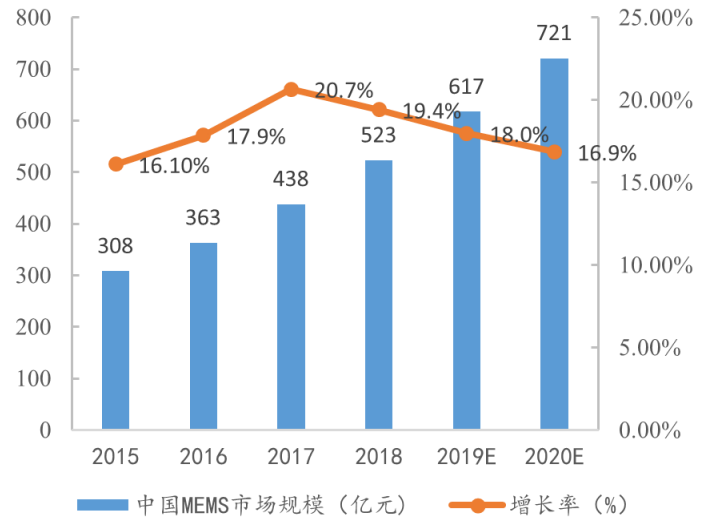
2018 MEMS 523  
 19.5% 2018-2020 17.41%

**19 MEMS**



Yole

**20 MEMS**



**IDM**

MEMS  
 MEMS  
 IDM Yole Development 2017  
 IDM  
 MEMS  
 MEMS  
 IC

3:

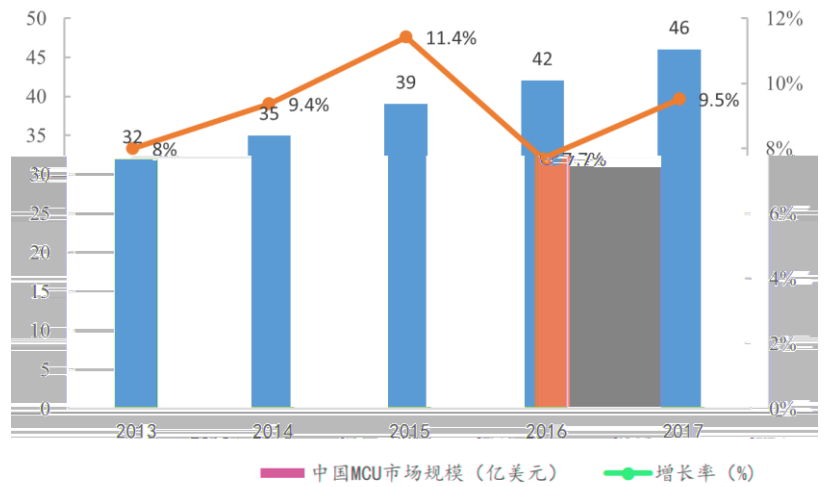
	MEMS		

**2.3.**

**MCU**

MCU CPU RAM ROM  
 4 8 16 32  
 32 CPU IP MCU  
 MCU  
 Gartner 2014  
 37.5 2020 250 3,000  
 MCU  
 60%-70% MCU  
 IHS Markit 2017 MCU  
 46 5 9.5%

**21 MCU**



IHS Markit

**32 CPU IP MCU**

MCU MCU MCU  
 OTP MTP Flash CMOS  
 4 8 16 32 CPU

**4: MCU**

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

3.

**BCD/MEMS**

			2019	31.84
	8.09		14.19%	2.97%
		23.75		14.75%
152.7		14.75%	4.29	19.98%
2019				
71.29%	24.82%			
	<b>22</b>			

wind

			<b>BCD</b>
<b>MEMS</b>		<b>IPM</b>	
6	247	/	8

CMOS Bipolar BiCMOS  
BCD MEMS  
1 8 60  
1 8 3 6 8  
73 6 247  
MOS SBD  
MOS MOS IGBT GaN  
2019 " 0.18 BCD  
"  
MEMS 6 8  
23.1 8 BCD/MEMS  
1.6 / 2018 9 2021 5  
2020 7 BCD  
0.13um/0.11um MEMS 6 8  
12  
90nm

5:

			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

2.4

		81.59%	79.57%	82.42%	-
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2016	-2018	8	2019
2017	8	2017	83.11%
99.01%		8	52.41%
2016	-2018	6	
		6	
		6	
2016	-2018	2019	

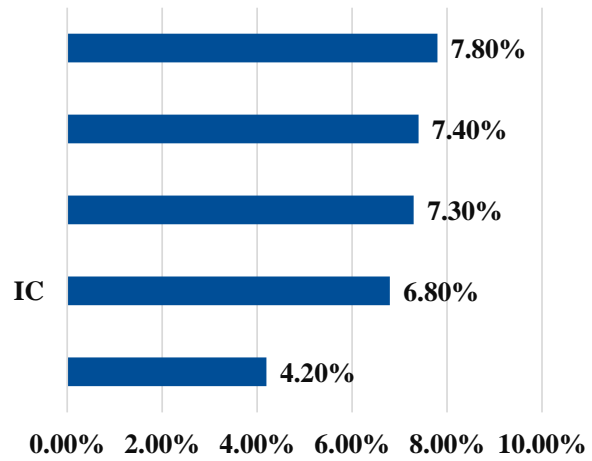
**IC MEMS**

0.35-90nm

0.35um-90nm

IC

23



IC Insights

MPS Diodes IC

IC

BCD Bipolar-CMOS-DMOS

Bipolar

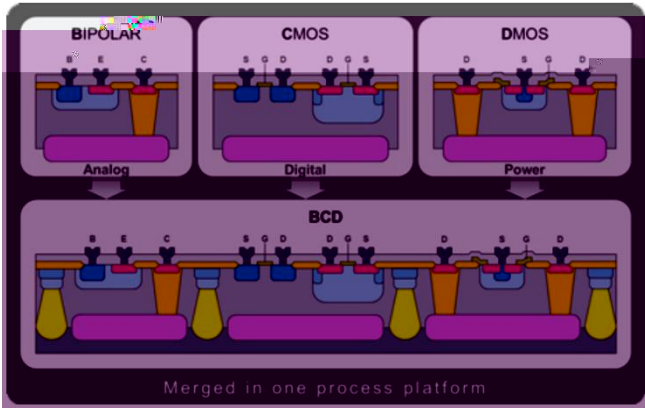
CMOS

DMOS

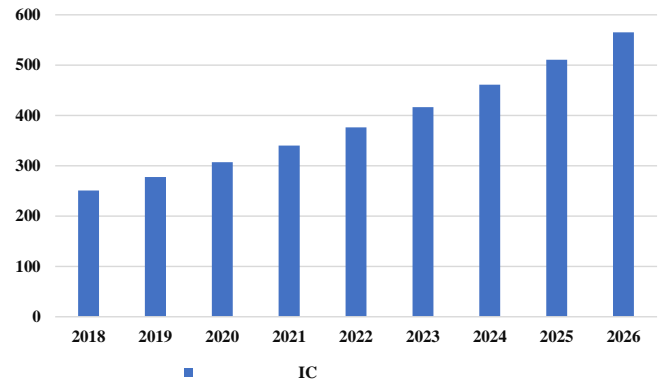
Transparency Market Research  
IC

		IC	2026
565	2018-2026	CAGR	10.69%
	MEMS	MCU	2.2 2.3

24 BCD



25 IC



Transparency Market Research

4.

BCD/MEMS

		30	15	8	BCD
		8	MEMS		
BCD	MEMS	16,000			6
			SiC	GaN	

IC MEMS

3

6

5 15

2019

67,320.13

7:

			%
1	8	150,000	50%
2		60,000	20%
3		30,000	10%
4		60,000	20%
		300,000	100%

8

BCD MEMS

16,000 2019 8 MEMS 3

6 8

MEMS

BCD

BCD 0.11um BCD 0.11um

e-flash 5V I/O

PMIC sub-PMIC

BMS

BCD MEMS 16,000

1

SiC GaN

Yole Development 2022 GaN

11 SiC 4.5

IDM

650V GaN SiC JBS SiC

MOSFET

6 SiC JBS

JBS 1200V 650V

MOSFET

2020 SiC

GaN 6

GaN 650V

GaN MOCVD GaN MOCVD



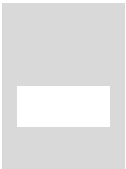
2020

IDM

2020/2021/2022	22.88%/19.79%/32.00%
2020/2021/2022	5.20%/10.58%/ 8.00%
2020/2021/2022	52%/50%/45%
2020/2021/2022	0
2020/2021/2022	12.14%/15.00%/20.00%
2020/2021/2022	26.16%/27.38%/28.89%

8

	2017	2018	2019	2020E	2021E	2022E
	3519.76	3571.91	3183.52	3348.92	3703.13	3999.38
%	59.90%	56.96%	55.44%	52.00%	50.00%	45.00%
%		1.48%	-10.87%	5.20%	10.58%	8.00%
%	16.33%	18.57%	17.76 %	18.00%	17.76%	17.76%



**IDM**

**50%**

<b>PB</b>	2020	<b>PB</b>	4.95	2020	7.42
<b>PB</b>	62.60				
<b>PS</b>	2020	<b>PS</b>	9.80	2020	14.70
<b>PS</b>	77.86				

62.60

**9**

**2020 6 6**

			<b>P/S</b> 2020E				<b>PB</b>		
				2020E	2021E	2022E	2020E	2021E	2022E
<b>300623.SZ</b>		25.07	14.16	4.79	5.39	6.59	5.23	4.65	3.81
<b>300373.SZ</b>		28.36	5.43	6.08	6.78	7.71	4.67	4.18	3.68
			9.80	-			4.95	4.42	3.74

wind

wind

**7.**

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1.			300	15%
	12	12		
	300			