

[Table_Masked] 0 1 0 0 Tm 0 Tr /RelativeColorimetric ri 1 i /

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.	“ IGBT”	17
3.2.	“ ” “ ”	19
3.2.1.	IGBT	

1.

3

	MOSFET	IGBT	2020

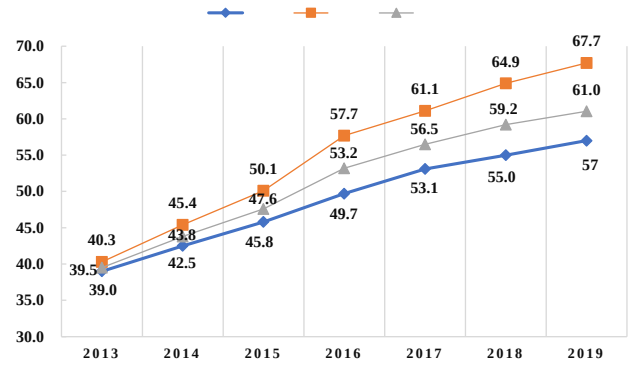
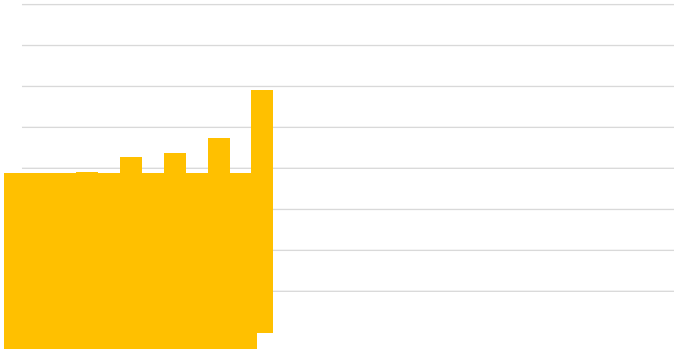
1 2014-2019

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 / /



2020

2.3

7

20%

2019

MOSFET

20Q2

Q2

821.2

120% 7

374.1

22.7%

21.7%

MOSFET

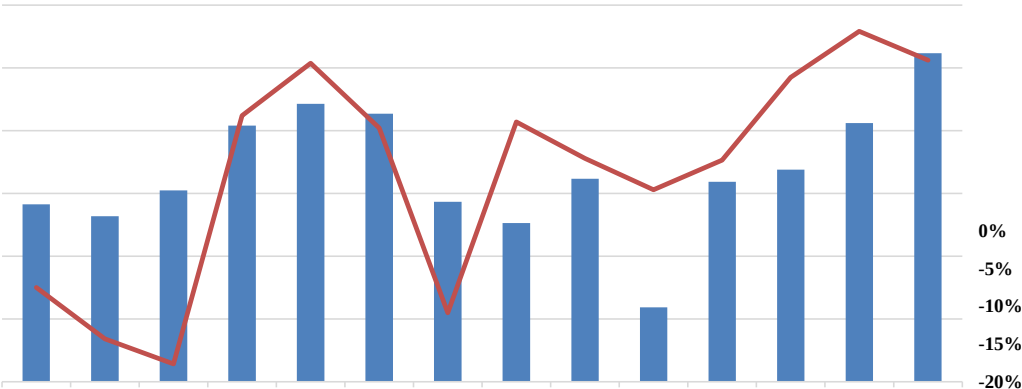
MOSFET

6

7

20%+

2019



wind

2.3.

2.3.1.

3	2021-2022
25km/h	/
400W	48V
11	55kg
3	2018
2024	2021-
3	5
7	

1

20194

55kg20AH

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

48V+24AH

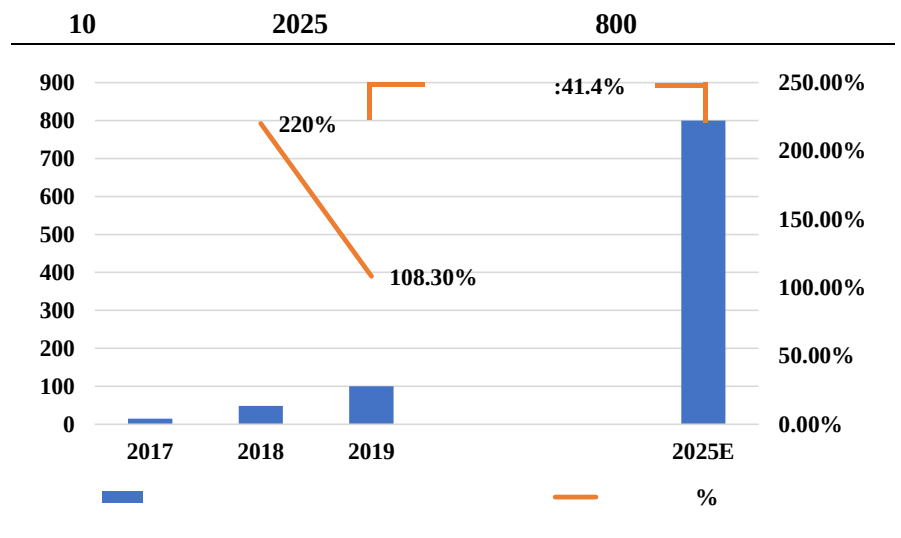
2

20206 TEMC /P /MCID 56/1gr5>P /M

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

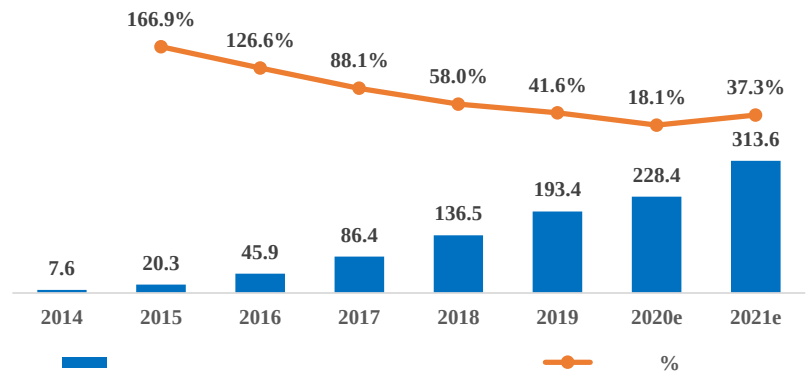
313.6 37%

399 2019
 1 2020 5 120

2019 60
 KA

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

2.8	57				
	1.54	2020-2022			
	37.5%	75%	15%	25%	
35%				25%	
40%	60%				
		2	/	2020-	
2022				2.2	/
	616				
2					
		1.7			
70				1.2	
2020-2022		37.5%		55%	
		13%	15%	22%	

%	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%	60%	50%
	993	866.4	932
3			

3. IGBT IGBT

2020 4

$$\begin{array}{ccccc} & & + & & \text{IGBT} \\ & + & & & \\ \text{IGBT} & & & \text{IGBT} & + \end{array}$$

IGBT

IGBT

IGBT Insulated Gate Bipolar Transistor,
MOSFET

BJT

MOSFET

BJT

IGBT

1

IGBT

+

IGBT

IGBT

+

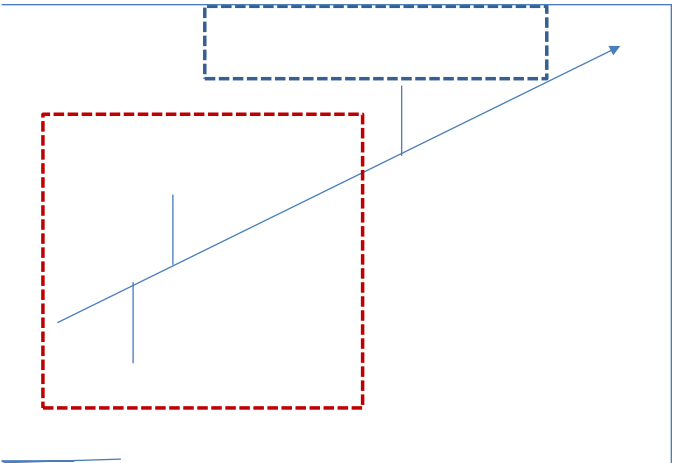
+

IGBT

IGBT

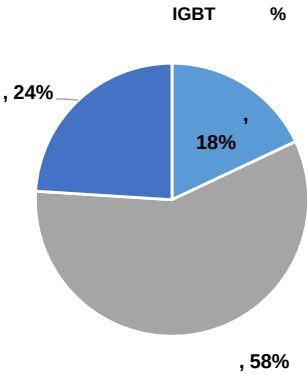
1

15



16

18%



17

IGBT

18

Year	IGBT	IGBT	IGBT	IGBT
2000	22	200	10%	11%
2020	21	IGBT	22.4	

The chart displays two data series: IHS and IGBT. The IHS series shows a significant increase from 2019 to 2020, with the 2020 value being approximately 1128 and the 2019 value being approximately 800. The IGBT series shows a slight increase from 2019 to 2020, with the 2020 value being approximately 1000 and the 2019 value being approximately 900. The chart is titled 'IHS' and 'IGBT'.

Year	IHS	IGBT
2019	800	900
2020	1128	1000

IGBT

CPU

IGBT

IGBT

3

		IGBT

IGBT

	IGBT	%	7.78	9.17	10.80	12.72	14.97	17.60	20.69
		%	0%	0.5%	20%	30%	40%	50%	60%

CAGR=40%		IGBT					
	2020-2025	1%	10%	20%	30%	40%	50%
	IGBT			2021		0.16	
2025	3.68						

5	IGBT	

		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
	%		1.48%	-10.87%	9.75%	13.46%	9.80%
	%	16.33%	18.57%	17.76%	20.00 %	22.00%	22.00%
	%		14.73%	-6.25%	28.20%	22.92%	34.20%
	%	19.59%	34.02%	29.48%	35.00%	37.00%	40.00%
	%		-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%

5.

A IDM

SBD JBS DFN/QFN SGT MOS

“ ”

“ ”

“ ”

1.					
			300	15%	
	12		300	5%	15%
		12	300	-5%	5%
	300		300	5%	
2.					
	12				
300					