

# DFN2020

PACKAGED SINGLE & DUAL MOSFETS

HIGH THERMAL EFFICIENCY AND SMALL FORM FACTOR



# Industry-Leading Range of High-Performance DFN2020 MOSFETs Reduce System Size

## DFN2020 Dual Flat No-Leads 2mm by 2mm Package

At Diodes Incorporated we lead the way in performance MOSFETs. Our miniature products are of no exception, and the DFN2020 package portfolio provides a compelling size and performance proposition.

## Industry-Leading DFN2020 High-Performance Portfolio

Industries' largest portfolio with over 120 products

- N-Channel 12V to 300V
- P-Channel -12V to -250V

Industries' lowest  $R_{DS(ON)}$

- N-Channel 12V, 24V, 40V, 60V, 65V, 80V, 115V and 300V
- P-Channel 12V, 25V, 40V and 250V

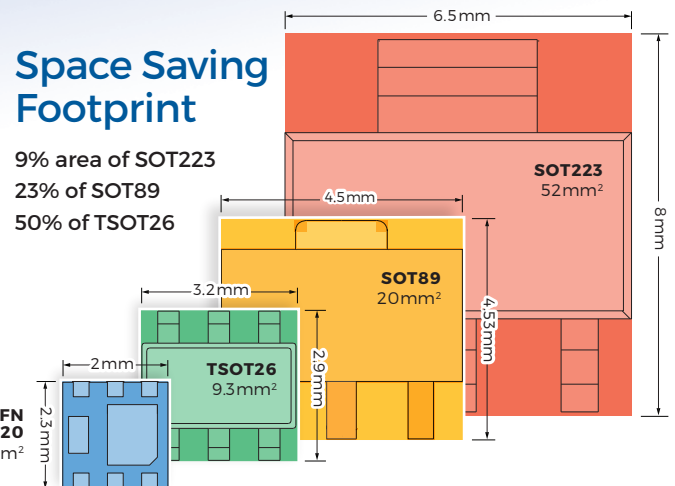
## Ultra-Small Leadless Packaging

- The DFN2020 package occupies just:  
9% of the PCB area occupied by SOT223  
23% of the PCB area occupied by SOT89  
50% of the PCB area occupied by TSOT26

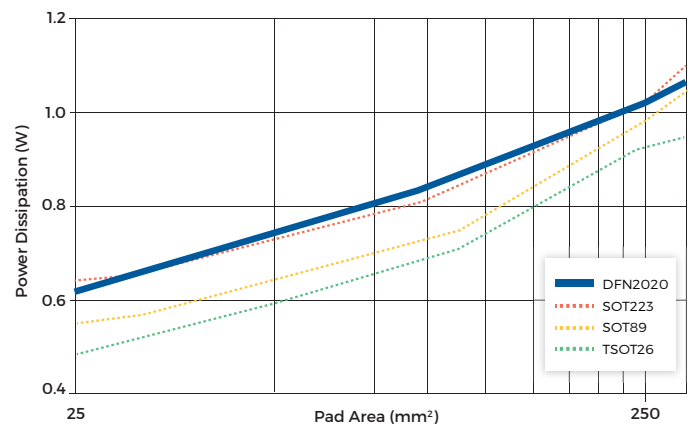
## Thermally-Efficient Package

- Low total thermal resistance ( $R_{\theta JC}$  and  $R_{\theta JA}$ ) enables higher power dissipation than larger legacy leaded packages
- High thermal efficiency from large underside pad maximizes die-to-PCB contact
- Superior power performance
- High power density allows smaller system sizes
- Reduced thermal management BOM cost

Switching to DFN2020 Enables High-Power Dissipation and Reduces Required Space



## Power Dissipation



### Power Dissipation Lab Test

DFN2020 matches SOT223 power dissipation and outperforms SOT89 and TSOT26 packages (PCB pad area 32mm² to 250mm²)

# DFN2020 Package MOSFET Portfolio

Type	V <sub>DSS</sub>	V <sub>GSS</sub>	I <sub>D</sub>	P <sub>D</sub>	R <sub>DS(ON)</sub> Max.(mΩ) @ V <sub>GS</sub> =				V <sub>GS(TH)</sub> Min. to Max.	C <sub>iss</sub> Typ.	Q <sub>C</sub> Typ. @ V <sub>GS</sub> = 4.5V	ESD Diode	Automotive version available			
	V	±V	A	W	10V	4.5V	2.5V	1.8V	V	pF	nC		Part Number			
N-Channel	12	8	22	2.2	-	3	4	-	0.3 to 1	2551	27	Y	-	DMN1003UFDE		
			15	2.1	-	4.8	7	-	0.3 to 1	-	26	Y	-	DMN1004UFDF		
			12.2	1.7	-	8	12.5	-	0.3 to 1	-	13.6	N	Y	-	DMN1008UFDF	
			11	2.17	-	10	12	14	0.35 to 0.8	2480	27.3	Y	-	-	DMN1019UFDE	
	20	8	10.5	2.03	-	11	13	30	0.5 to 1.1	2453	14.3	Y	Y	DMN2013UFDE		
			7.1	1.67	-	22	26	36	0.5 to 1	647	7.1	Y	-	DMN2024UFDF		
			11.6	1.8	-	9	15	30	0.4 to 1.2	-	19.3	N	-	DMN2015UFDF		
	24	12	11.7	1.97	-	9.5	11	20	0.4 to 1	2248	24	Y	-	DMN2011UFDE		
			14.1	1.8	6	7.2	12.5	-	0.55 to 1.45	-	29.6	N	-	DMT2004UFDF		
	30	12	10.4	2.03	-	19	25	40	0.4 to 1	-	15	Y	-	DMN3020UFDF		
			7	2.1	28	32	50	-	0.6 to 1.4	-	6.1	N	-	DMN3042LFDF		
			19	2.2	4	7.25	-	-	1 to 2.5	1024	7.3	N	-	DMT34M8LFDE		
			14.1	2.1	7	10	-	-	1 to 3	-	8.4	N	Y	-	DMT3006LFDF	
			13	1.7	6.9	10.5	-	-	1.15 to 2.5	-	8.1	N	-	-	DMT35M4LFDF	
			10	2.02	12	16	-	-	1.4 to 2	-	11.3	N	Y	-	DMN3016LFDF	
	40	20	8.4	1.8	17	28	-	-	1 to 2.5	-	3.6	N	Y	-	DMT3020LFDF	
			11.8	2	9.5	15.5	-	-	1 to 3	1179	8.3	N	-	DMT4008LFDF		
	60	20	11.6	2.35	11.5	18	-	-	1 to 3	1030	6.8	N	Y	-	DMTH4008LFDFW	
			8	2.03	20	28	-	-	1.4 to 2.4	1060	8.8	N	Y	-	DMN4020LFDE	
	80	20	9.5	1.9	14	21	-	-	1.2 to 2.3	785	7.3	N	-	DMT6012LFDF		
			9.4	2.3	18	27.5	-	-	1 to 3	-	7.5	N	Y	-	DMTH6016LFDFW	
	100	20	6.5	2.03	38	47	-	-	1 to 3	1287	10.4	N	Y	-	DMN6040SFDE	
			8.1	1.76	18	23	-	-	1 to 2.3	891	7.5	Y	-	DMT6017LFDF		
	115	20	7.5	2.2	25	38	-	-	1.2 to 2.5	641	5.4	N	-	DMT8030LFDF		
			4	1.8	62	110	-	-	1 to 3	-	2.5	N	Y	-	DMT10H072LFDF	
	300	20	2.2	1.6	225	290	-	-	1 to 2.5	384	3.7	N	-	DMN10H220LFDF		
			6	1.6	32	46	-	-	1.3 to 2.5	683	6.3	N	-	DMT10H032LFDF		
	Dual N+N	12	8	4.3	1.8	65	70	-	-	0.6 to 2.2	252	-	N	-	DMT12H065LFDF	
0.55				1.98	4000	4000	-	-	1 to 2.8	187	-	N	-	DMN30H4D0LFDE		
20		8	8	5.6	1.4	-	29	34	44	0.4 to 1	914	10.5	N	-	DMN1029UFDB	
			10	6	1.4	-	25	31	-	0.5 to 1	-	5.9	Y	-	DMN2025UFDB	
			12	4.6	1.14	-	35	43	56	0.4 to 1	369	3.6	N	Y	DMN2053UFDB	
			12	4.7	1.4	-	40	65	-	0.35 to 1.4	713	8	Y	-	DMN2041UFDB	
30		20	5	1.36	-	40	75	-	0.5 to 1.5	-	5.3	N	Y	DMN3055LFDB		
			6.2	1.7	30	42	-	-	1 to 2	-	5	N	Y	DMN3032LFDB		
100		20	6	1.6	32	46	-	-	1.3 to 2.5	683	6.3	N	-	DMT10H032LFDF		
			12.8	2.1	-	8.5	12	18.5	0.3 to 1	2475	28	Y	-	DMP1005UFDF		
P-Channel		12	8	11	2	-	11	19	30	0.3 to 1	-	26	N	Y	DMP1009UFDF	
				12.6	2.11	-	15	30	40	0.3 to 0.9	-	19.5	N	-	DMP1012UFDF	
				9.1	2.03	-	16	21.5	26	0.38 to 0.8	2953	25.3	Y	-	DMP1022UFDEQ	
				9.5	2.1	-	15.3	19	26.5	0.35 to 0.8	2712	28.6	Y	-	DMP1022UFDF	
		20	8	9	2.1	-	16	22	40	0.35 to 1	2950	34	Y	-	DMP2021UFDF	
				7.6	2.1	-	27	32	50	0.4 to 1	2000	27	N	-	DMP2023UFDF	
				6.9	2.03	-	29	39	60	0.4 to 1	-	20.5	Y	-	DMP2035UFDF	
				3.2	1.39	-	90	120	-	0.3 to 1	-	6.8	Y	-	DMP2090UFDB	
		25	8	6.1	1.8	-	32	53	-	0.6 to 1.5	-	8.6	N	-	DMP2040UFDF	
				6.7	2	-	27	34	40	0.4 to 1	2580	28.2	Y	-	DMP2039UFDE	
		30	20	6.8	2.03	25	38	-	-	1.2 to 2.4	-	10.9	N	Y	-	DMP3028LFDE
				8.6	2	19	45	-	-	1 to 3	-	9.2	Y	-	DMP3026SFDF	
		40	20	6	2.1	33	50	-	-	1 to 2.2	1382	11.2	N	Y	-	DMP4047LFDE
				3.5	1.97	110	130	-	-	1 to 3	-	8.2	N	Y	-	DMP6110SFDF
250		40	0.26	1.4	14000	18000	-	-	0.5 to 2.5	-	-	N	-	DMP25H18DLFDE		
			3.9	1.4	-	59	81	115	0.4 to 1	1028	13	Y	-	DMP1055UFDB		
Dual P+P		12	8	3.8	1.4	-	75	137	-	0.35 to 1.4	642	8.8	Y	-	DMP2075UFDB	
				4.5	1.54	-	50	100	150	0.4 to 1	752	9.1	N	-	DMP2065UFDB	
	20	12	3.1	1.14	-	75	110	168	0.45 to 1	443	6	N	Y	DMP2110UFDB		
			8.8	5.6, 3.8	1.4	-	29, 61	34, 81	44, 115	0.4, 0.4 to 1.1	914, 915	10.5, 10.7	N	-	DMC1229UFDB	
Comp. Pair N+P	12, 12	8, 8	5.1, 3.9	1.36	-	34, 59	40, 81	50, 115	0.4, 0.4 to 1.1	1003, 1028	12.2, 13	Y	-	DMC1030UFDB		
			10.8	6, 3.5	1.4	-	25, 75	35, 140	-	0.5, 0.35 to 1.14	486, 642	5.9, 8.8	Y	Y	DMC2025UFDB	
	20, 20	12, 12	4.6, 3.1	1.1	-	35, 75	43, 110	56, 168	0.4, 0.5 to 1	369, 440	3.6, 5.9	N	Y	DMC2053UFDB		
	60, 20	20, 12	0.3, 2.9	0.89	-	4150, 72	4100, 72	-	1, 0.6 to 2.5, 1.25	41, 443	0.4, 7.3	Y	Y	DMC67D8UFDBQ		

The above selection represents some of the products from our extensive range. See diodes.com for our full portfolio.

## Suggested DFN2020 Alternatives to Popular SOT223 MOSFETs

Type	V <sub>DSS</sub> (V)	Diodes Incorporated DFN2020	Infineon SOT223	Nexperia SOT223	ON Semi SOT223	Vishay SOT223	
N-Channel	30	DMN3020UFDF	-	-	FDT439N	-	
		DMN3025LFDF	-	-	NDT451AN	-	
	60	DMT6012LFDF	-	BSP318S	BUK7880-55A	HUFA75307T3ST	-
		DMT6013LFDF	-	-	-	NDT3055L	-
		DMN6040SFDE	IRLL2705TRPBF	-	BUK98150-55A	STN3NF06	-
			IRLLO24NTRPBF	-	-	STN4NF06L	-
			IRLLO14NTRPBF	-	-	STN3NF06L	-
			BSP320S	-	-	-	-
	100	DMT10H032LFDF	-	-	-	FDT86102LZ	-
		DMT10H072LFDF	-	-	BUK9875-100A	-	-
		DMN10H170SFDE	-	-	PHT6NQ10T	-	-
			IRFL4310TRPBF	-	BUK98180-100A	IRFM120A	-
	DMN10H220LFDF	-	BSP372N	PMT280ENEA	FQT7N10L	IRFL110, SiHFL110	
P-Channel	20	DMP2035UFDF	-	-	NTF6P02	-	
		-	-	-	FDT434P	-	
	30	DMP3028LFDE	-	-	-	NDT456P	-
			-	-	-	NDT452AP	-
			-	-	-	NTF5P03	-
	60	DMP6250SFDF	-	-	-	NVF2955	IRFL9014, SiHFL9014
			-	-	-	NTF2955	IRFL9110, SiHFL9110
			-	-	-	NDT2955	-

### CORPORATE HEADQUARTERS AND AMERICAS SALES OFFICE

4949 Hedgcoxe Road  
Suite 200  
Plano, Texas 75024, USA  
Tel: (+1) 972-987-3900  
E: [inquiries@diodes.com](mailto:inquiries@diodes.com)

### SILICON VALLEY OFFICE

1545 Barber Lane  
Milpitas,  
California 95035, USA  
Tel: (+1) 408-232-9100

### EUROPE SALES OFFICE

Kustermann-Park  
Balanstrasse 59, 8th Floor  
D-81541 Munchen, Germany  
Tel: (+49) 89-45-49-49-0  
E: [inquiries-europe@diodes.com](mailto:inquiries-europe@diodes.com)

### ASIA SALES OFFICES

E: [inquiries-asia@diodes.com](mailto:inquiries-asia@diodes.com)

### DIODES-CHINA

**SHANGHAI OFFICE**  
Room 3001-3002,  
International Corporate City,  
No. 3000 Zhongshan North  
Road, Shanghai 200063, China  
Tel: (+86) 21-5241-4882

### SHENZHEN OFFICE

16th Floor Skyworth  
Semiconductor Design Building  
East Wing, No.8 Gaoxin South  
4th Road, Nanshan District,  
Shenzhen 518057, China  
Tel: (+86) 755-8828-4988

### DIODES-JAPAN

1F T-Square Hamamatsucho  
Building, 2-13-10,  
Hamamatsucho, Minato-Ku,  
Tokyo 105-0013, Japan  
Tel: (+81) 3-6459-0569

### DIODES-KOREA

1601 ho, ParkView Tower  
Jeongja 1 dong,  
Bundang-gu, Seongnam-si,  
Gyeonggi-do 463-811, Korea  
Tel: (+82) 31-786-0434

### DIODES-SINGAPORE

3 Fraser St  
#06-27 DUO Tower  
Singapore 189352  
Tel: (+886) 2-8914-6000

### DIODES-TAIWAN

7F, No. 50, Min-Chuan Road  
Hsin-Tien District  
New Taipei City 23141,  
Taiwan, R.O.C.  
Tel: (+886) 2-8914-6000

For further information please visit [www.diodes.com/contact-us](http://www.diodes.com/contact-us)

The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries.  
© 2024 Copyright Diodes Incorporated. All Rights Reserved.  
All other trademarks are the property of their respective owners.

February 2024

[diodes.com](http://diodes.com)