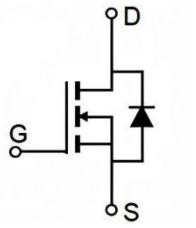
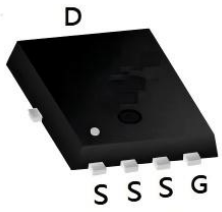
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	100	V
$R_{DS(on)}$	12	mΩ
I_D	50	A





PDFN5x6

Features

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low RDS(ON)

Applications

- DC-DC converters
- Power management functions
- Synchronous-rectification applications

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	50	A
	T_C=100℃		29	
Pulsed Drain Current [1]		I_{DM}	184	A
Single Pulse Avalanche Energy [2]		E_{AS}	80	mJ
Total Power Dissipation	T_C=25℃	P_D	71.4	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-Ambient [3]	$R_{\theta JA}$	--	52	℃/W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	--	1.75	℃/W

Electrical Characteristics(T_J=25℃,unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100	--	--	V
Gate-body Leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	--	--	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V,T_J=25℃	--	--	1	uA
		V_{DS}=100V,V_{GS}=0V,T_J=100℃	--	--	100	
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.7	2.5	V
Drain-Source On-Resistance[3]	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	--	12	17	mΩ
		V_{GS}=4.5V, I_D=10A	--	14.5	20	
Dynamic Parameters						
Gate resistance	R_g	V_{DS} =0V, f=1MHz	--	1.8	--	Ω
Forward Transconductance	g_{fs}	V_{DS}=10V, I_D=20A	--	54	--	S
Input Capacitance	C_{iss}	V_{DS}=50V, V_{GS}=0V f=1MHz	--	1208	--	pF
Output Capacitance	C_{oss}		--	144	--	
Reverse Transfer Capacitance	C_{rss}		--	11.3	--	
Gate Charge Characteristics						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=50V I_D=20A	--	22.7	--	nC
Gate-Source Charge	Q_{gs}		--	3	--	
Gate-Drain Charge	Q_{gd}		--	5	--	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=50V, I_D=20A V_{GS}=10V, R_G=3Ω	--	9.2	--	ns
Rise Time	t_r		--	3.6	--	
Turn-Off Delay Time	$t_{d(off)}$		--	25.6	--	
Fall Time	t_f		--	4.4	--	

Diode Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Diode continuous forward current	I_S	V_G=V_D=0V , Force Current	--	--	50	A
Diode Forward Voltage[4]	V_{SD}	V_{GS}=0V , I_S=20A ,T_J=25℃	--	--	1.2	V
Reverse Recovery Time	t_{rr}	dI/dt=100A/μs, I_F=20A	--	30	--	ns
Reverse Recovery Charge	Q_{rr}		--	42	--	nC

Note:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C
2. The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH，I_{AS}=40A.
3. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
4. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.

Typical Characteristics

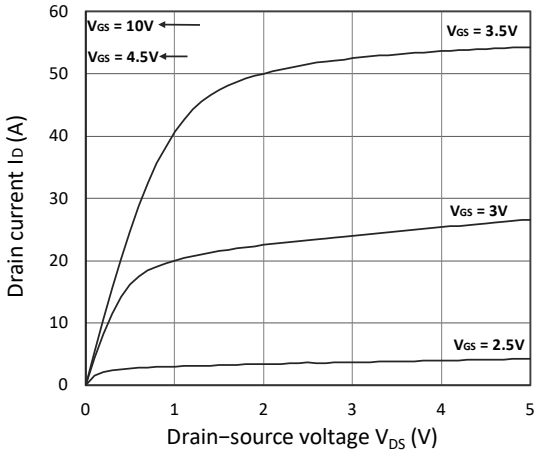


Figure 1. Output Characteristics

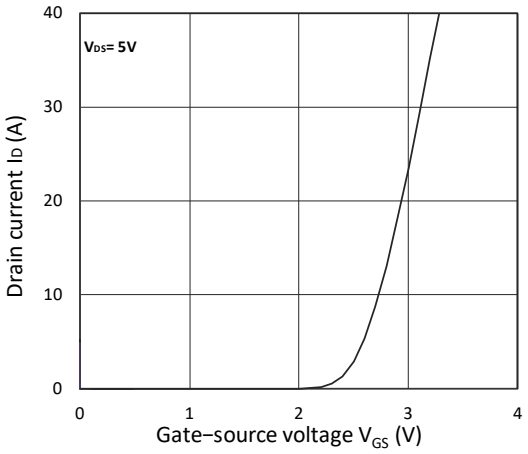


Figure 2. Transfer Characteristics

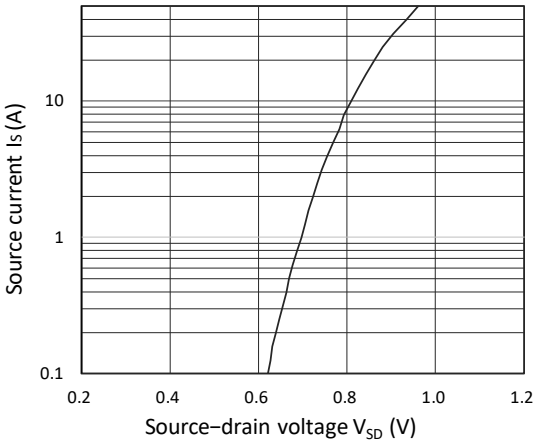


Figure 3. Forward Characteristics of Reverse

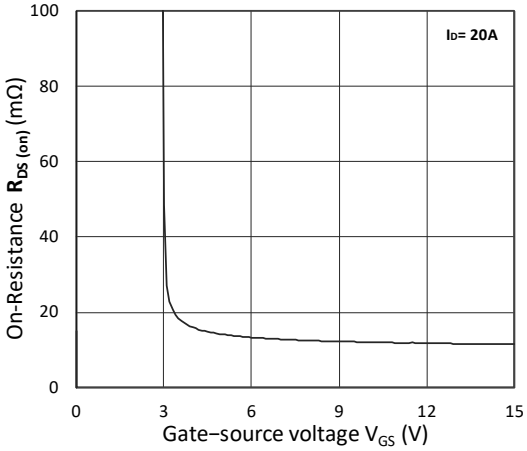


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

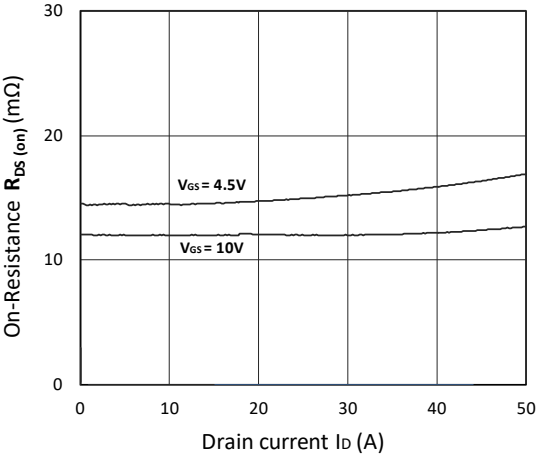


Figure 5. $R_{DS(ON)}$ vs. I_D

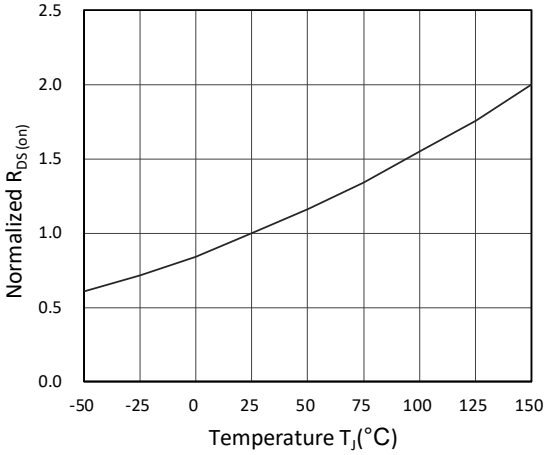


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

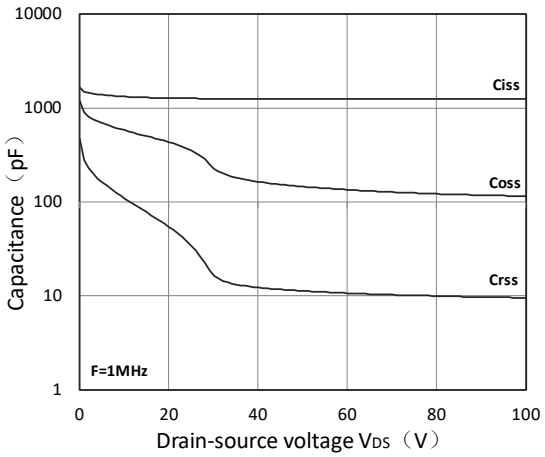


Figure 7. Capacitance Characteristics

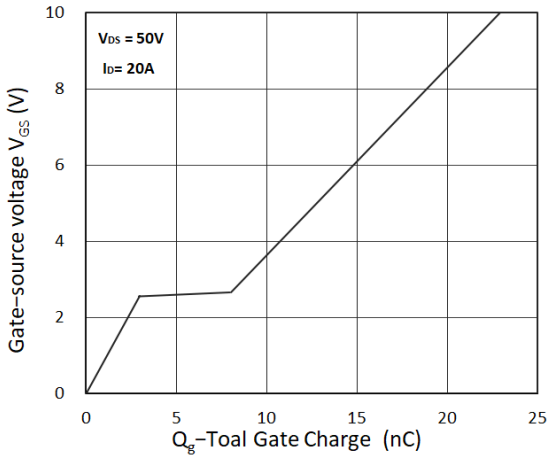


Figure 8. Gate Charge Characteristics

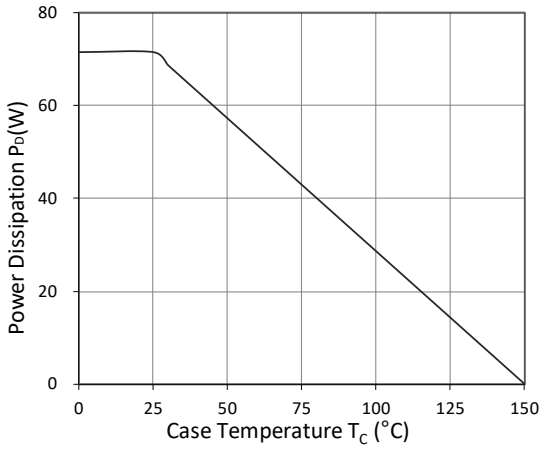


Figure 9. Power Dissipation

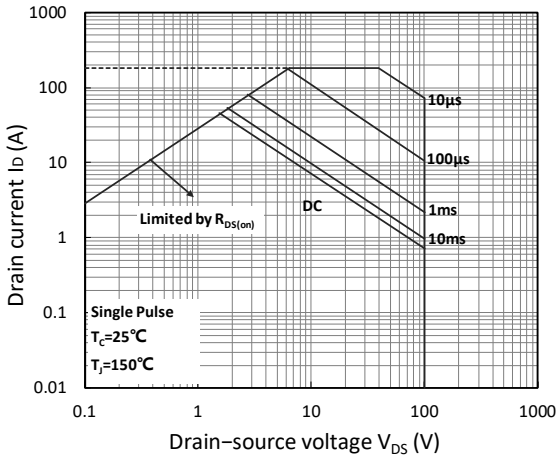


Figure10. Safe Operating Area

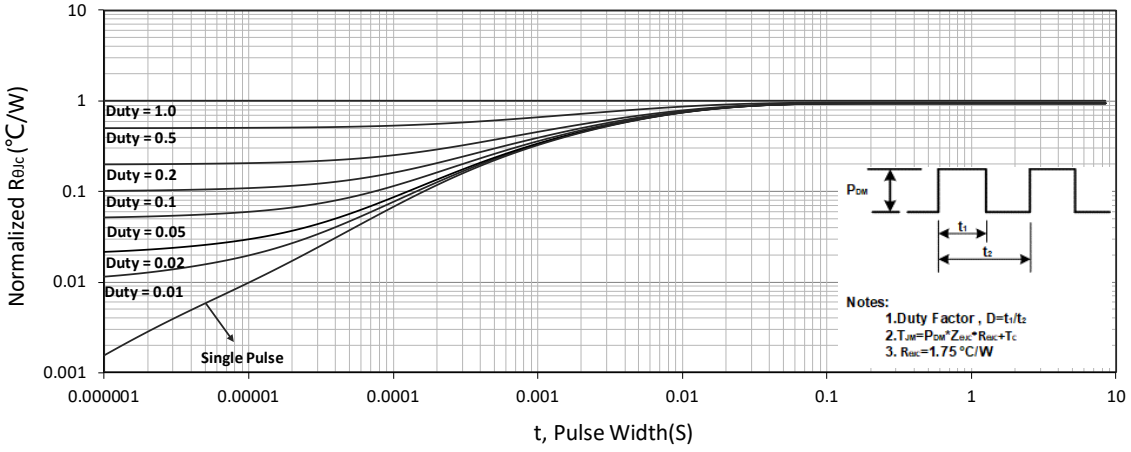
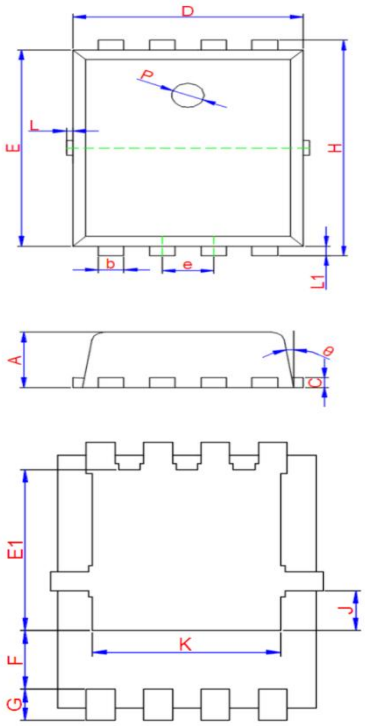


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Outline

PDFN5x6



Symbol	Dimensions in mm		
	Min.	Typ.	Max.
A	0.800	1.050	1.200
b	0.250	0.350	0.490
c		0.254TYP.	
D	4.800	5.000	5.100
e		1.270TYP.	
E	5.650	5.800	5.900
E1		3.400TYP.	
F		1.300TYP.	
G		0.600TYP.	
H	5.950	6.080	6.200
J		0.950TYP.	
K		4.000TYP	
L	-	-	0.150
L1	0.100	0.140	0.180
P		1.180TYP.	
θ	6°	10°	14°

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