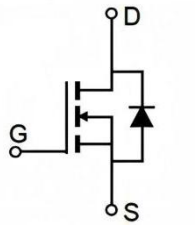
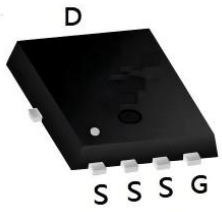
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	30	V
$R_{DS(on)}$	3	mΩ
I_D	120	A





PDFN5x6

Features

- Super Low Gate Charge
- 100% EAS Guaranteed
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

Applications

- Motor/Body Load Control
- Load Switch
- PWM Application
- DC-DC converters

Absolute Maximum Ratings (Ta=25℃,unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C=25℃	I_D	120	A
	T_C=100℃		75	
Pulsed Drain Current [2]		I_{DM}	384	A
Single Pulse Avalanche Energy [3]		E_{AS}	198	mJ
Avalanche Current		I_{AS}	53.8	A
Total Power Dissipation	T_C=25℃	P_D	62.5	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 [1]	$R_{\theta JA}$	--	62	℃/W
Thermal Resistance Junction-Ambient [1] (t ≤10s)	$R_{\theta JA}$	--	25	℃/W
Thermal Resistance from Junction-to-Case [1]	$R_{\theta JC}$	--	2.4	℃/W

Electrical Characteristics(Ta=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	30	--	--	V
Gate-body Leakage current		I_{GSS}	V_{DS}=0V, V_{GS}=±20V	--	--	±100	nA
Zero Gate Voltage Drain Current	T_J=25℃	I_{DSS}	V_{DS}=24V, V_{GS}=0V	--	--	1	uA
	T_J=85℃			--	--	30	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.4	1.7	2.5	V
Drain-Source On-Resistance		$R_{DS(on)}$	V_{GS}=10V, I_D=20A	--	3.0	3.8	mΩ
			V_{GS}=4.5V, I_D=15A	--	4.0	5.5	
Dynamic Parameters							
Gate resistance		R_g	V_{DS} =0V, f=1MHz	--	1	2	Ω
Forward Transconductance		g_{fs}	V_{DS}=5V, I_D=10A	--	24.6	--	S
Input Capacitance		C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1MHz	--	2485	2971	pF
Output Capacitance		C_{oss}		--	850	--	
Reverse Transfer Capacitance		C_{rss}		--	85	--	
Gate Charge Characteristics							
Total Gate Charge		Q_g	V_{GS}=15V,V_{DS}=15V, I_D=20A	--	20.6	28.8	nC
Total Gate Charge		Q_g	V_{GS}=15V,V_{DS}=4.5V, I_D=20A	--	9.8	--	
Gate-Source Charge		Q_{gs}		--	3.8	--	
Gate-Drain Charge		Q_{gd}		--	3.7	--	
Turn-On Delay Time		$t_{d(on)}$	V_{DD}=15V, R_L=15Ω , I_D=1A, V_{GEN}=10V, R_G=6Ω	--	12.4	23	ns
Rise Time		t_r		--	9.5	18	
Turn-Off Delay Time		$t_{d(off)}$		--	27.2	49	
Fall Time		t_f		--	35.2	64	
Source-Drain Diode Ratings And Characteristics							
Diode Forward Voltage		V_{SD}	V_{GS}=0V, I_S=20A	--	0.8	1.1	V
Body Diode Reverse Recovery Time		t_{rr}	I_F=20A, dI/dt=100A/μs	--	35.6	--	ns
Body Diode Reverse Recovery Charge		Q_{rr}		--	26	--	nC

Typical Characteristics

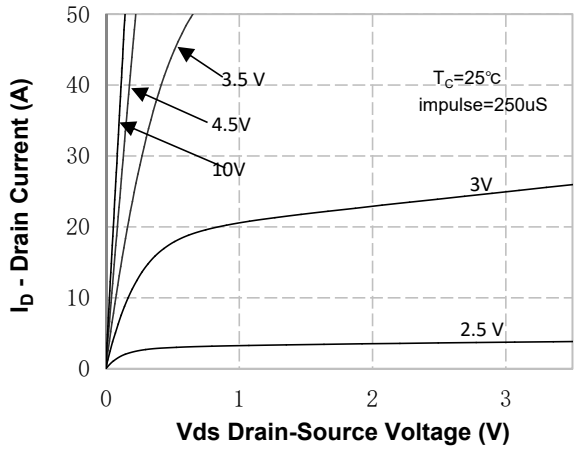


Figure 1. On-Region Characteristics

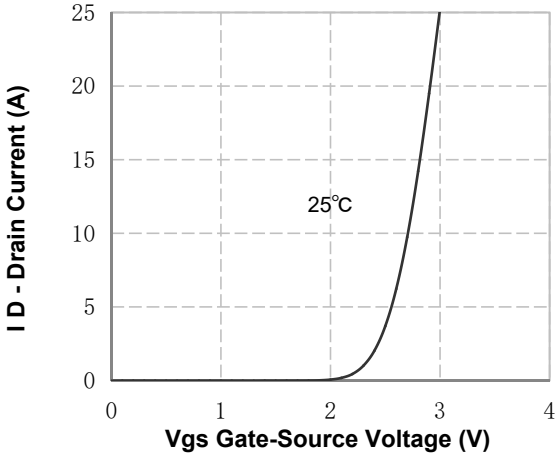


Figure 2. Transfer Characteristics

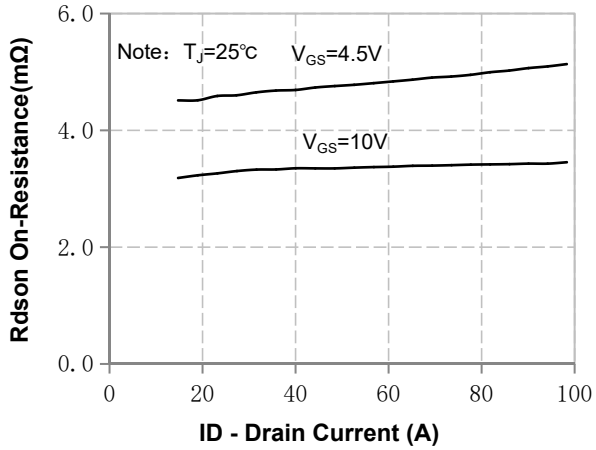


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

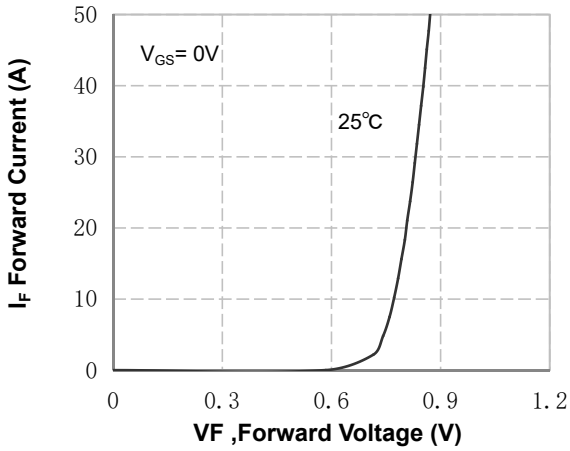


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

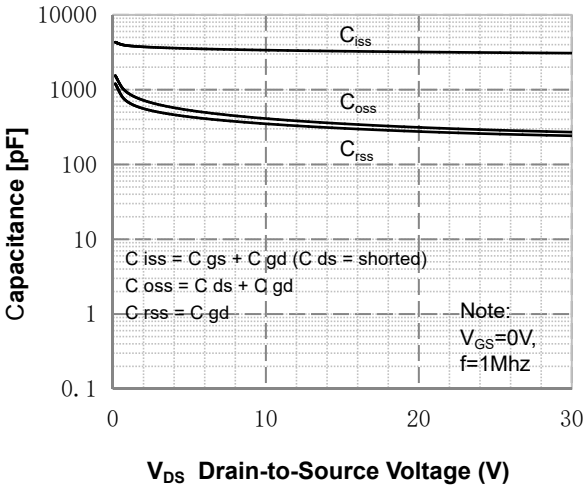


Figure 5. Capacitance Characteristics

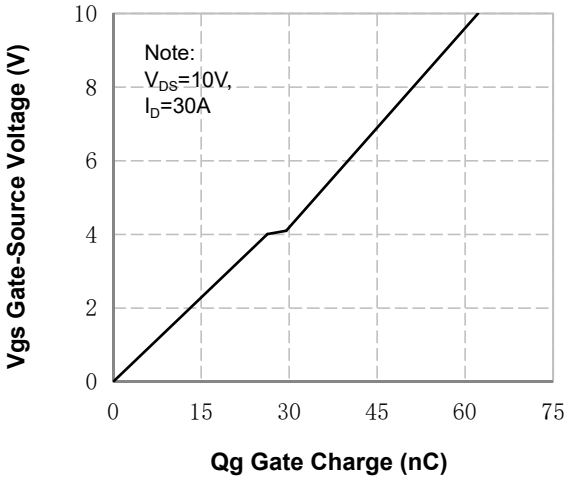


Figure 6. Gate Charge Characteristics

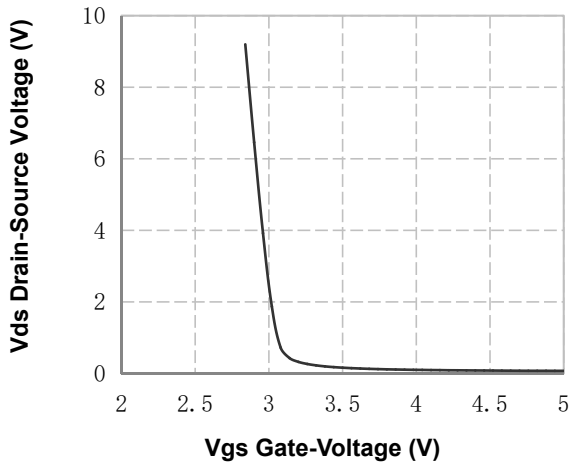


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

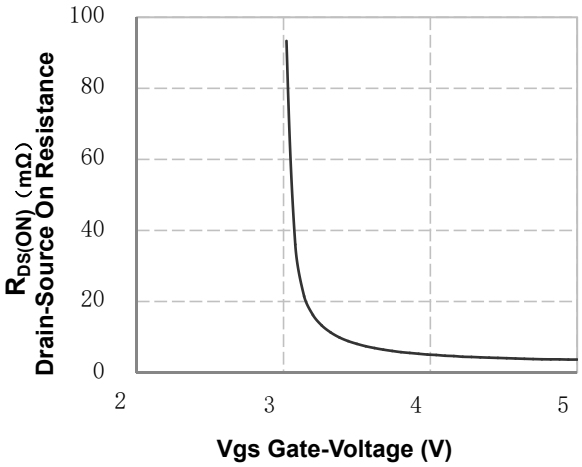


Figure 8. On-Resistance vs Gate Voltage

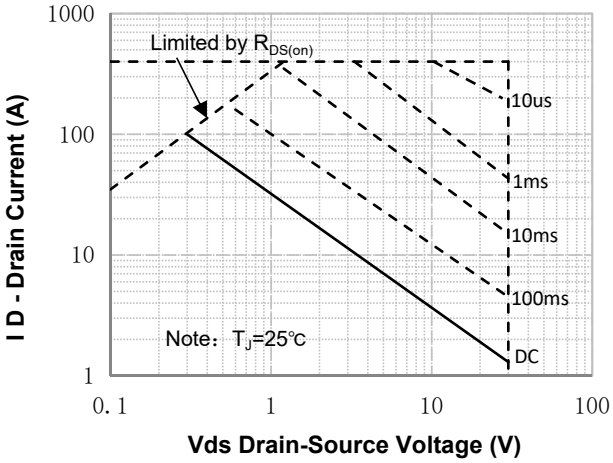


Figure 9. Maximum Safe Operating Area

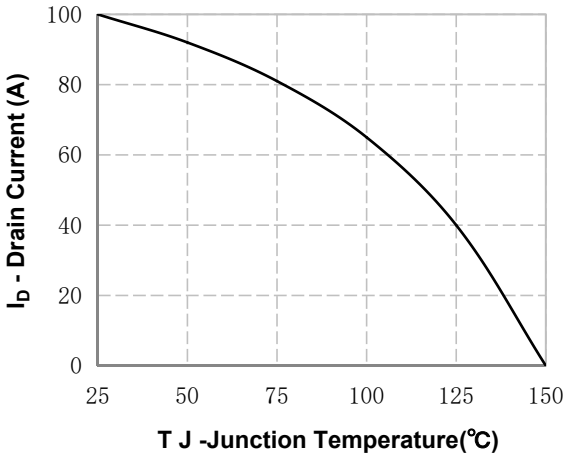


Figure 10. Maximum Continuous Drain Current vs Temperature

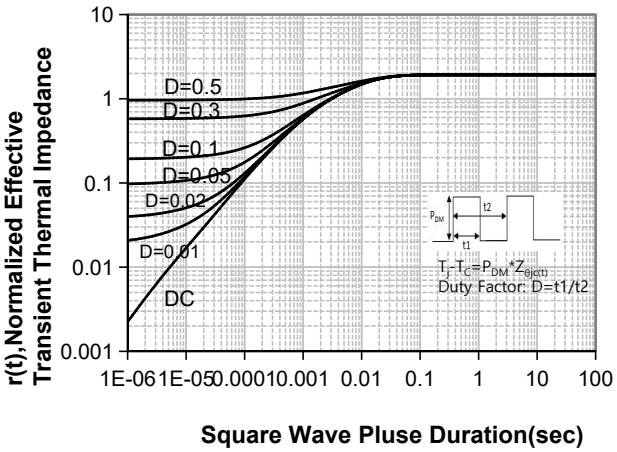
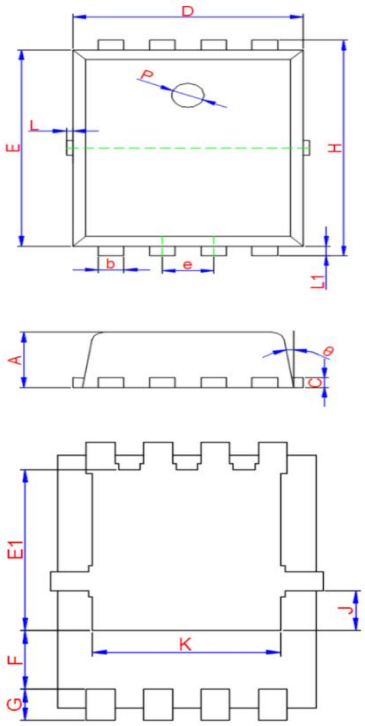


Figure 11. Transient Thermal Response Curve

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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