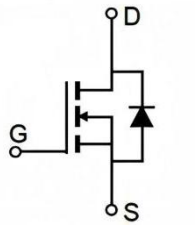
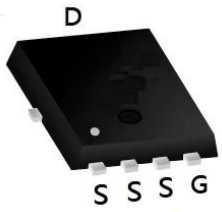
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	100	V
$R_{DS(on)}$	5.5	mΩ
I_D	100	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	100	A
Pulsed Drain Current (Note 1)		I_{DM}	360	A
Single Pulse Avalanche Energy (Note 1)		E_{AS}	520	mJ
Total Power Dissipation	T_C=25℃	P_D	96	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃

Note 1: Pulse test: 300μs pulse width, 2 % duty cycle

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	--	50	℃/W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	--	1.7	℃/W

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
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
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	--	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	--	5.5	6.3	mΩ
		V_{GS}=4.5V, I_D=15A	--	7.5	9	
Input Capacitance	C_{iss}	V_{DS}=50V, V_{GS}=0V f=1MHz	--	2420	--	pF
Output Capacitance	C_{oss}		--	900	--	
Reverse Transfer Capacitance	C_{rss}		--	35	--	
Total Gate Charge (Note 2)	Q_g	V_{GS}=10V,V_{DS}=50V I_D=20A	--	43	--	nC
Gate-Source Charge (Note 2)	Q_{gs}		--	9.4	--	
Gate-Drain Charge (Note 2)	Q_{gd}		--	10.3	--	
Turn-On Delay Time (Note 2)	$t_{d(on)}$	V_{DD}=50V, I_D=20A V_{GS}=10V, R_G=3Ω	--	11.2	--	ns
Rise Time (Note 2)	t_r		--	23	--	
Turn-Off Delay Time (Note 2)	$t_{d(off)}$		--	38	--	
Fall Time (Note 2)	t_f		--	15.3	--	

Diode Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Diode continuous forward current	I_S	V_G=V_D=0V , Force Current	--	--	100	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=20A ,T_J=25℃	--	--	1.2	V
Reverse Recovery Time (Note 2)	t_{rr}	dI/dt=100A/μs, I_F=20A	--	42	--	ns
Reverse Recovery Charge (Note 2)	Q_{rr}		--	46	--	nC

Note 2 :Pulse test: 300μs pulse width, 2 % duty cycle

Typical Characteristics

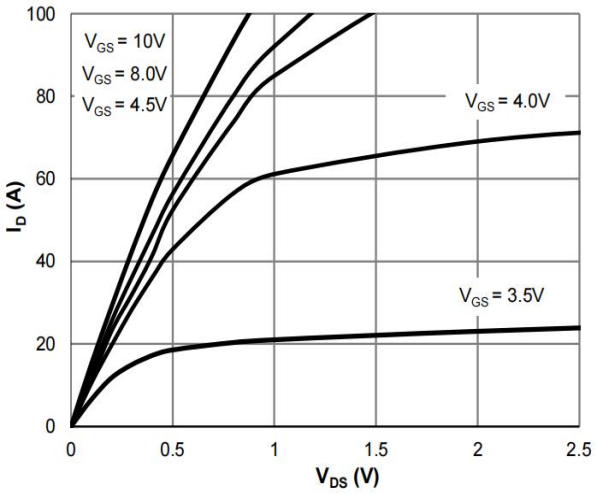


Figure 1: Saturation Characteristics

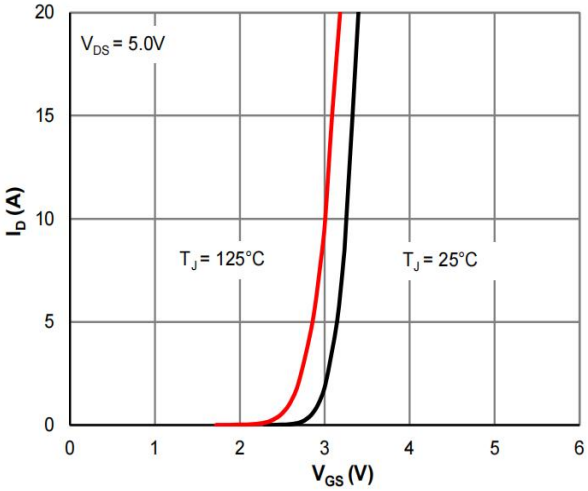


Figure 2: Transfer Characteristics

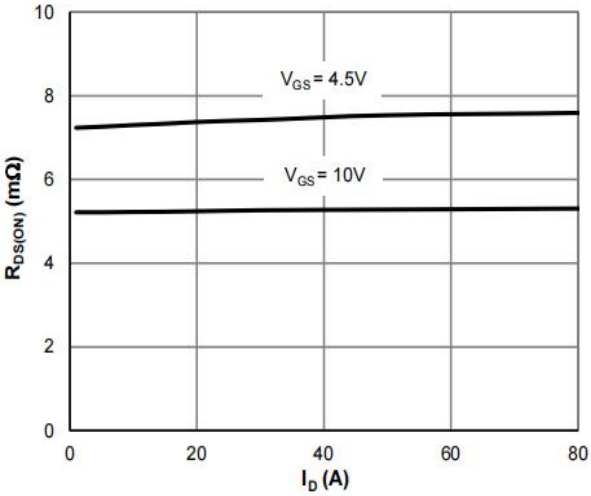


Figure 3: $R_{DS(ON)}$ vs. Drain Current

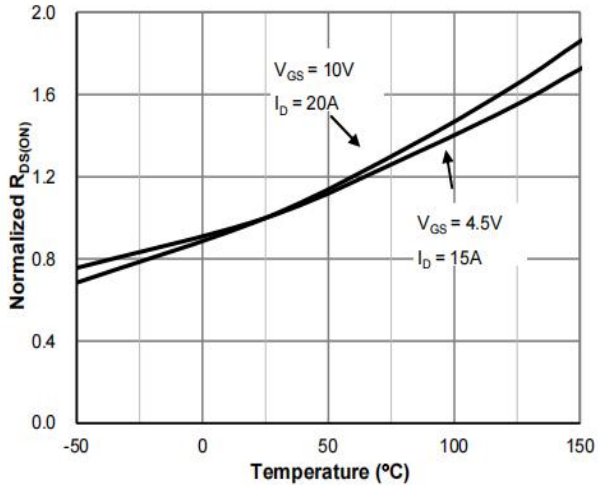


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

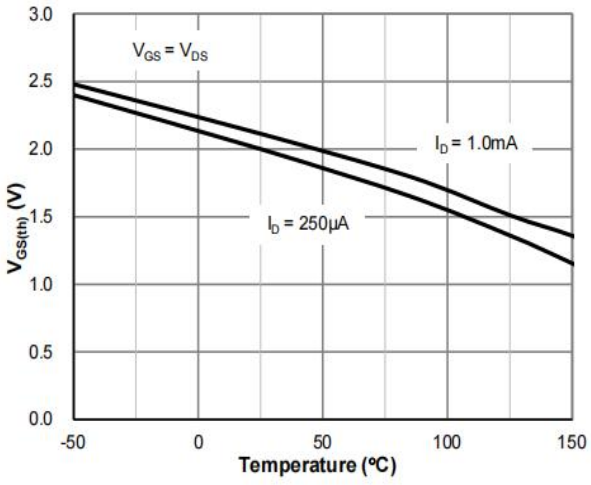


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

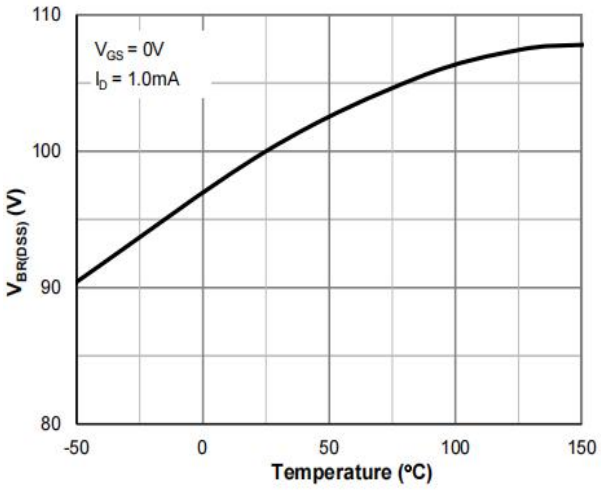


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

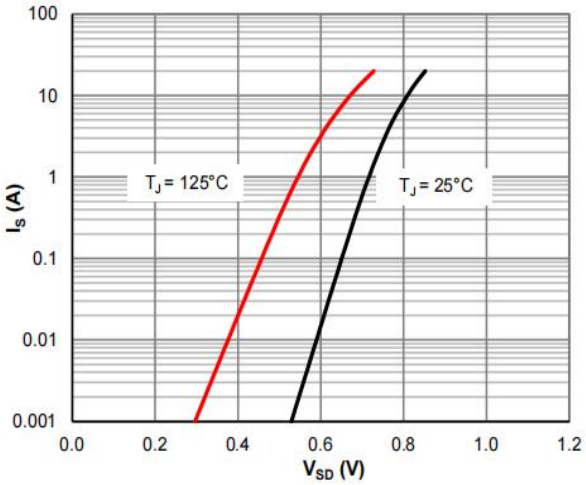


Figure 7: Body-Diode Characteristics

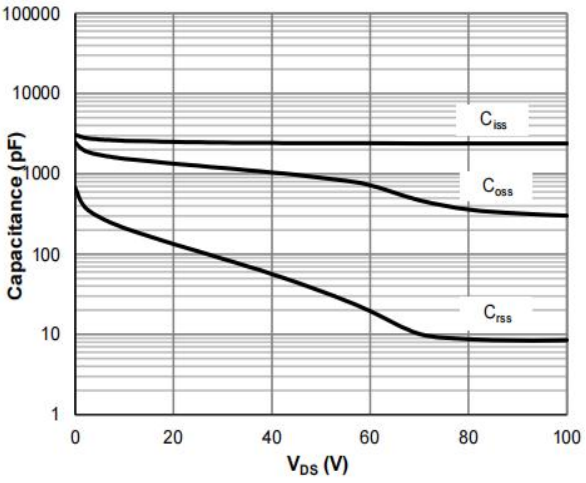


Figure 8: Capacitance Characteristics

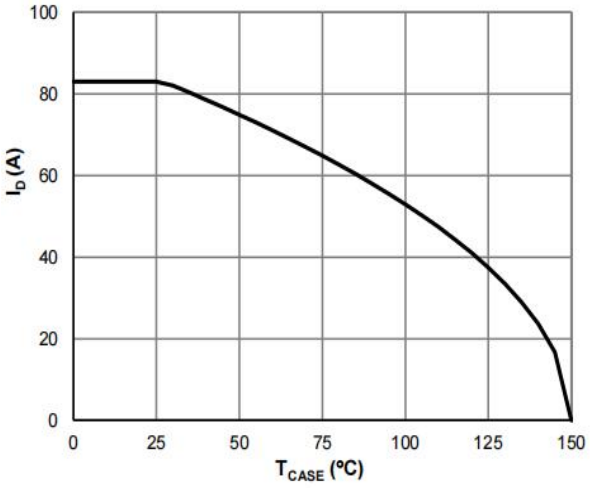


Figure 9: Current De-rating

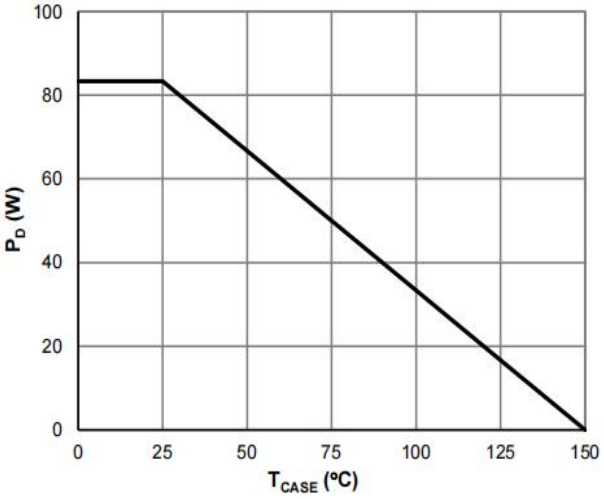


Figure 10: Power De-rating

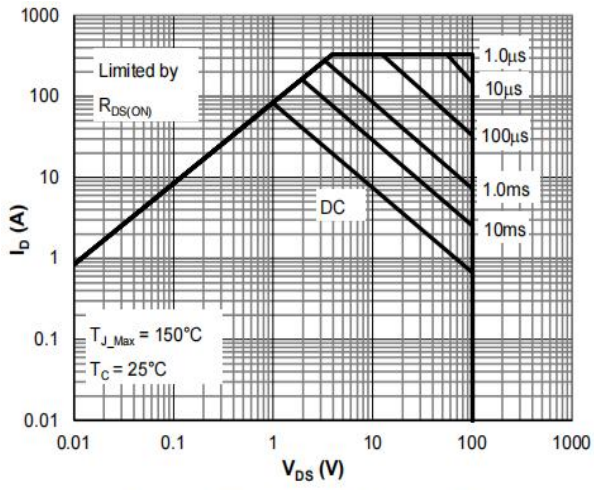


Figure 11: Maximum Safe Operating Area

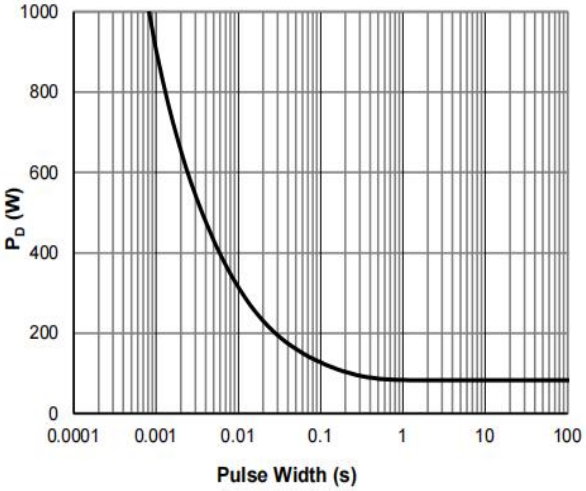
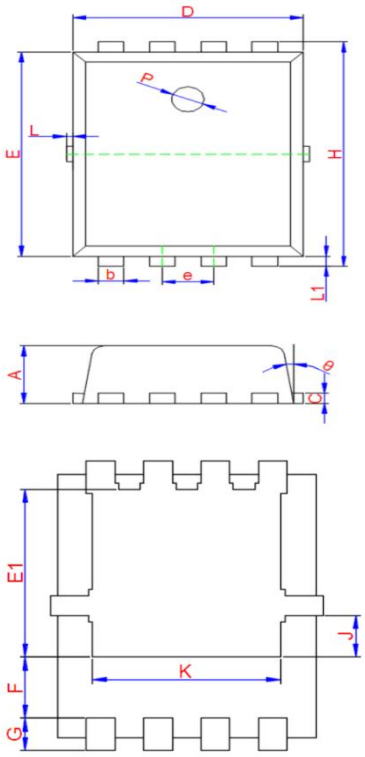


Figure 12: Single Pulse Power Rating, Junction-to-Case

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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