-20V P-Channel Power MOSFET

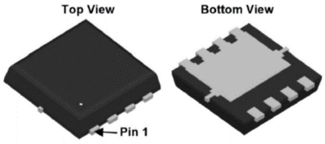
DESCRIPTION：

V_{DSS}	-20V
I_D(Tc=25℃)	-55A
$R_{DS(ON)\_Typ.}$ @V_{GS}=-4.5V	6.6mΩ

- ·High Power and Current Handing Capability
- ·Lead Free Product is Acquired
- ·Surface Mount Package
- ·100% UIS Tested
- ·100% ΔVds Tested

TYPICAL APPLICATIONS：

- ·PWM Applications
- ·Load Switch



PDFN3x3-8L

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current T_C = 25℃ T_C = 100℃	I_D	-55 -35	A
Pulsed Drain Current，tp<10us$^{(1)}$	I_{DM}	-220	A
Single Pulsed Avalanche Energy	E_{AS}	90	mJ
Power dissipation	P_D	66	mW
Junction & Storage temperature Range	T_J, T_{STG}	-55~+150	℃
Thermal Resistance, Junction to Case	$R_{θJC}$	1.9	℃/W

Notes： 1. Repetitive rating: Pulse width limited by junction temperature..

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	$V_{(BR)DSS}$	-20			V
Zero Gate Voltage Drain Current VDS = -20 V, VGS = 0 V	I_{DSS}			-1	uA
Gate-Source Leakage Current VGS = ±12V, VDS = 0V	I_{GSS}			±100	nA
Gate-Source threshold voltage VDS = VGS, ID = -250uA	$V_{GS(th)}$	-0.4	-0.65	-1.0	V
Drain-Source On-State Resistance VGS = -4.5V, ID = -15A VGS = -2.5V, ID = -12A	$R_{DS(on)}$		6.6 8	8.3 10.4	mΩ
Input capacitance f=1MHz, VDS=-10 V, VGS=0 V	C_{iss}		4770		pF
Output capacitance f=1MHz, VDS=-10 V, VGS=0 V	C_{oss}		570		pF
Reverse transfer capacitance f=1MHz, VDS=-10 V, VGS=0 V	C_{rss}		502		pF
Total Gate Charge VDS =-10V, ID =-15A,VGS =-4.5V	Qg		56		nC
Gate-Source Charge VDS =-10V, ID =-15A,VGS =-4.5V	Qg_S		8		nC
Gate-Drain("Miller") Charge VDS =-10V, ID =-15A,VGS =-4.5V	Qgd		16		nC
Turn-on delay time VDD= -10V, VGS= -10V, ID=-13A, R_{GEN}=2.7Ω	$td_{(ON)}$		11		ns
Rise time VDD= -10V, VGS= -10V, ID=-13A, R_{GEN}=2.7Ω	tr		110		ns
Turn-off delay time VDD= -10V, VGS= -10V, ID=-13A, R_{GEN}=2.7Ω	$td_{(OFF)}$		157		ns
Fall time VDD= -10V, VGS= -10V, ID=-13A, R_{GEN}=2.7Ω	tf		160		ns
Maximum Continuous Drain to Source Diode Forward Current	I_S			-55	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}			-220	A
Drain to Source Diode Forward Voltage VGS = 0V, IS =-30A	V_{SD}			-1.2	V
Reverse Recovery Time I_S=-15A,di/dt=-100A/μs，T_J=25℃	Trr		23		nS
Reverse Recovery Charge I_S=-15A,di/dt=-100A/μs，T_J=25℃	Qrr		14		nC

Typical Performance Characteristics

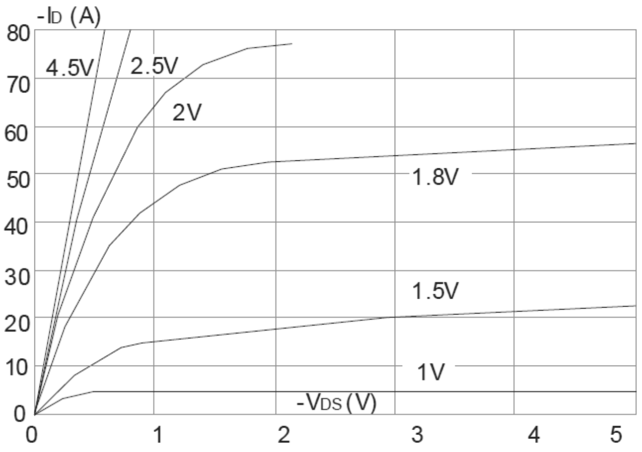


Figure 1. Output Characteristics

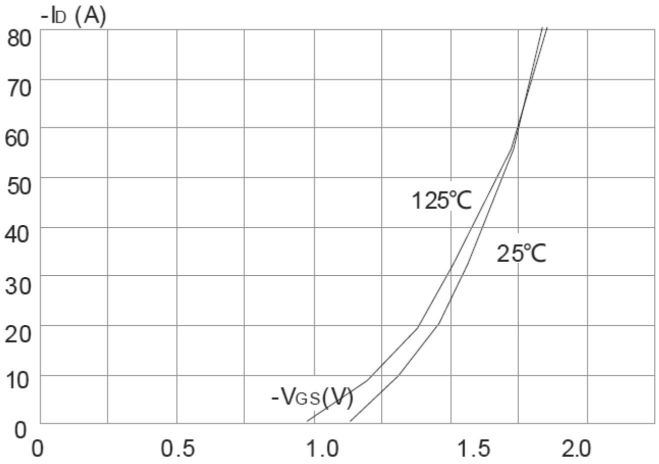


Figure 2. Typical Transfer Characteristics

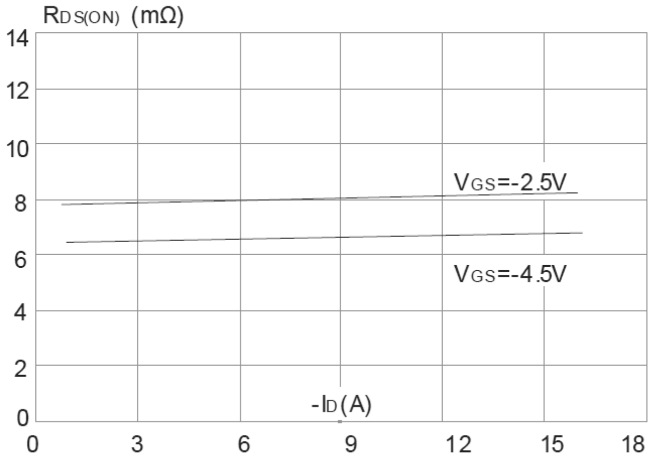


Figure 3. On-resistance vs. Drain Current

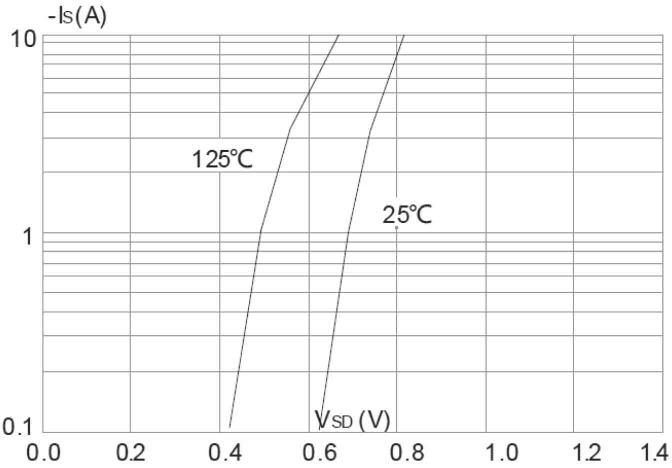


Figure 4. Body Diode Characteristics

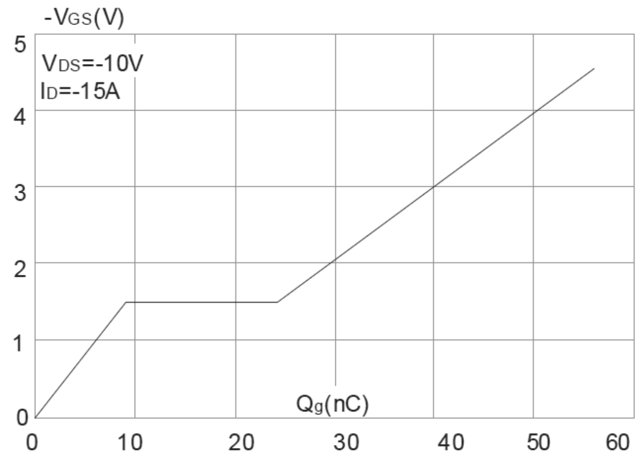


Figure 5. Gate Charge Characteristics

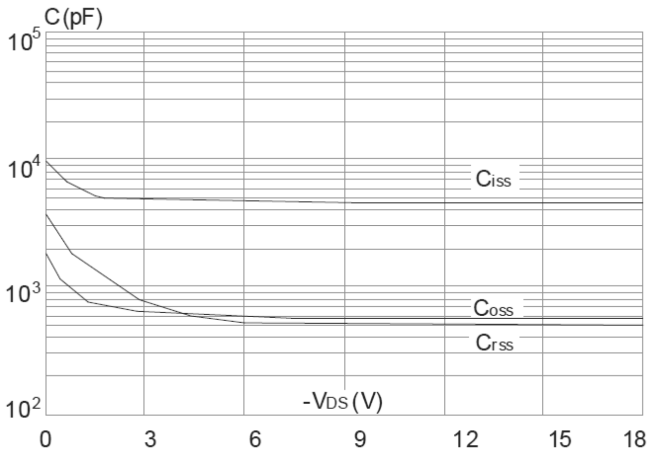


Figure 6. Capacitance Characteristics

Typical Performance Characteristics

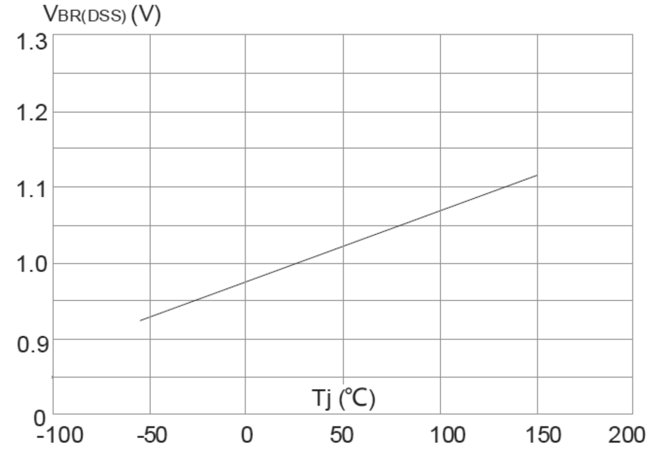


Figure 7. Normalized Breakdown Voltage vs.
Junction Temperature

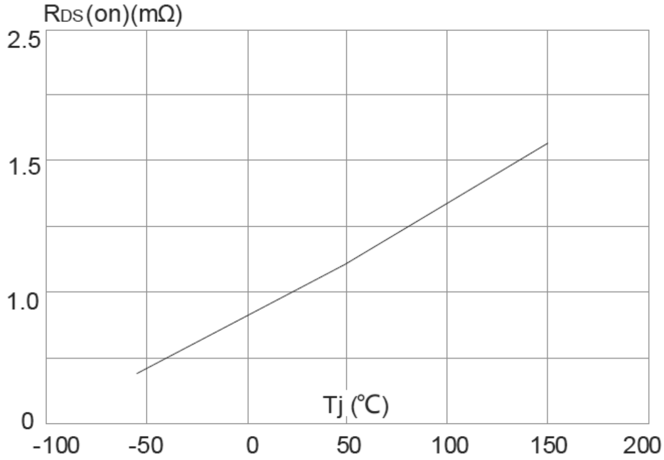


Figure 8. Normalized on Resistance vs.
Junction Temperature

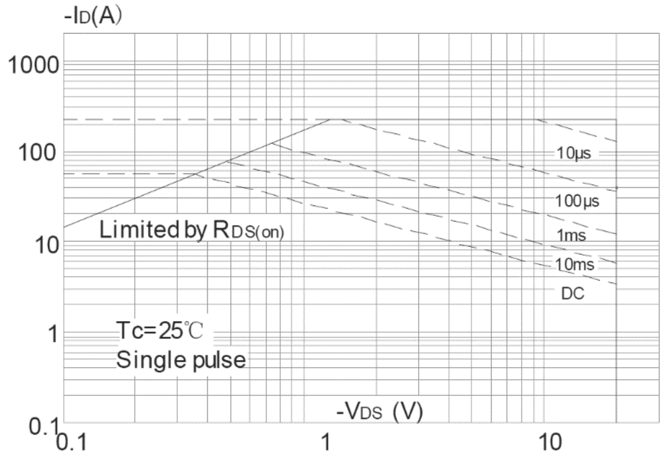


Figure 9. Maximum Safe Operating Area

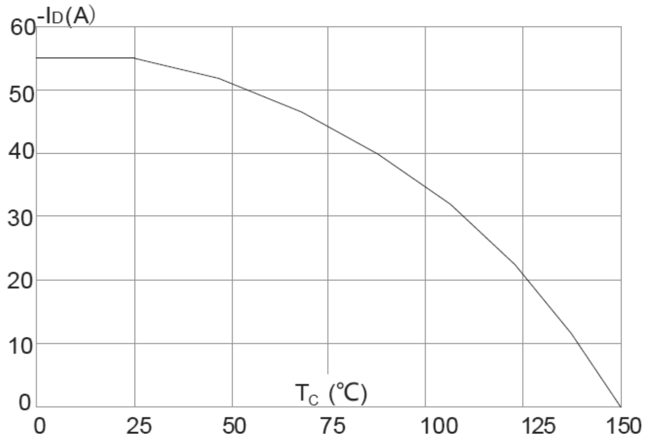


Figure 10. Maximum Continuous Drain Current
vs. Case Temperature

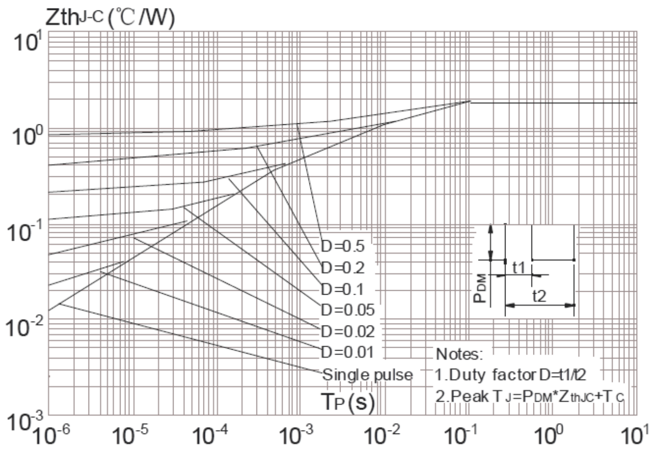
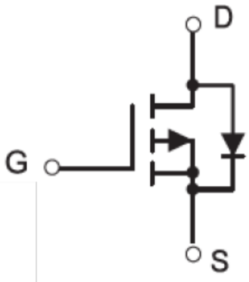
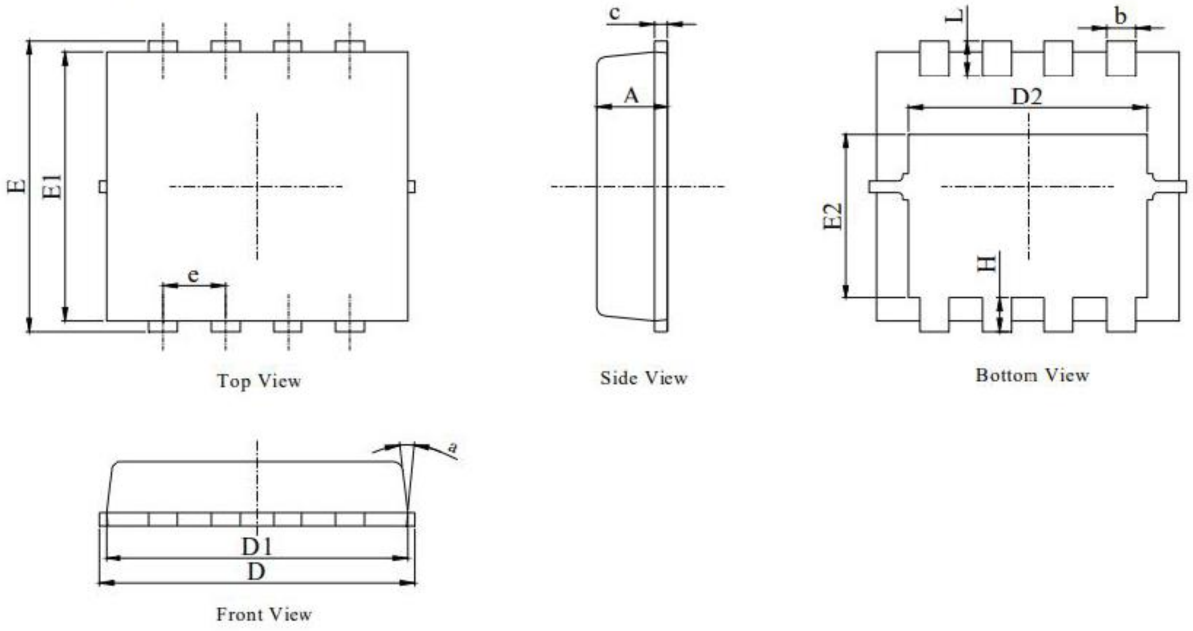


Figure 11. Maximum Effective Transient
Thermal Impedance, Junction-to-Case

·Circuit diagram



·Package outlines : Dimensions in (mm)



DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.20	0.25
D	3.00	3.15	3.25
D1	2.95	3.05	3.15
D2	2.39	2.49	2.59
E	3.20	3.30	3.40
E1	2.95	3.05	3.15
E2	1.70	1.80	1.90
e	0.65 BSC		
H	0.30	0.40	0.50
L	0.25	0.40	0.50
a	---	---	15°

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