100V N-channel Power MOSFET

V_{DSS}	100V
I_D @V_{GS}=10V	110A
$R_{DS(ON)_Typ.}$ @V_{GS}=10V	5.2mΩ

DESCRIPTION：

·Fast Switching

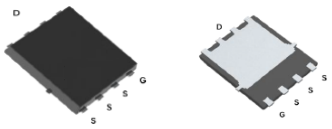
·Very low on resistance

·Enhancement mode

·100% Avalanche Tested

·100% ΔVds Tested

·Halogen free and RoHS compliant



PDFN5×6-8L

TYPICAL APPLICATIONS：

·Power Mahagement

·Load Switch

·PWM Application

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

Characteristic	Condition	Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	Tc=25℃ Tc=100℃	I_D	110 77	A
Pulsed Drain Current (1)		I_{DM}	440	A
Avalanche Current		I_{AS}	27.7	A
Single Pulsed Avalanche Energy (2)		E_{AS}	384	mJ
Power dissipation	Tc=25℃ Tc=100℃	P_D	158 79	W
Junction & Storage temperature Range		T_J, T_{STG}	-55~+175	℃

Notes： 1. This single pulse measurement was taken under T_{J_Max}

2. This single pulse measurement was taken under the following condition [L = 1mH, V GS = 10V, V DS = 50V] while its value is limited by T_{J_Max}.

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient Junction to Case	$R_{\theta JA}$ $R_{\theta JC}$	45 0.95	℃/W

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	$V_{(BR)DSS}$	100			V
Zero Gate Voltage Drain Current VDS = 100V, VGS = 0 V	I_{DSS}			1.0	uA
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			100	nA
Gate-Source threshold voltage VDS = VGS, ID = 250uA	$V_{GS(th)}$	2.2	3.0	3.8	V
Drain-Source On-State Resistance VGS = 10V, ID = 20A	$R_{DS(on)}$		5.2	6.3	mΩ
Diode Forward Voltage VGS = 0V, I_S =20A	V_{SD}		0.8	1.0	V
Maximum Continuous Body Diode Forward Current	IS			110	A
Gate Resistance f=1MHz	Rg		1.1		Ω
Input capacitance f=1MHz, VDS=50V, VGS=0 V	C_{iss}		2472		pF
Output capacitance f=1MHz, VDS=50V, VGS=0 V	C_{oss}		978		pF
Reverse transfer capacitance f=1MHz, VDS=50V, VGS=0 V	C_{rss}		15		pF
Total Gate Charge VDS= 50V, ID= 20A,VGS= 0 to 10V	Q_G		38		nC
Gate to Source Charge VDS= 50V, ID= 20A,VGS= 0 to 10V	Q_{GS}		6.4		nC
Gate to Drain Charge VDS= 50V, ID= 20A,VGS= 0 to 10V	Q_{GD}		8.5		nC
Turn-on delay time VDD=50 V, VGS= 10V, ID=20A, R_{GEN}=3Ω	td (ON)		6.5		ns
Rise time VDD=50 V, VGS= 10V, ID=20A, R_{GEN}=3Ω	tr		10		ns
Turn-off delay time VDD=50 V, VGS= 10V, ID=20A, R_{GEN}=3Ω	td (OFF)		34		ns
Fall time VDD=50 V, VGS= 10V, ID=20A, R_{GEN}=3Ω	tf		23		ns
Revers Recovery Time IF=20A, di/dt = 100A/us	Trr		58		ns
Revers Recovery Charge IF=20A, di/dt = 100A/us	Qrr		115		nC

Typical Performance Characteristics

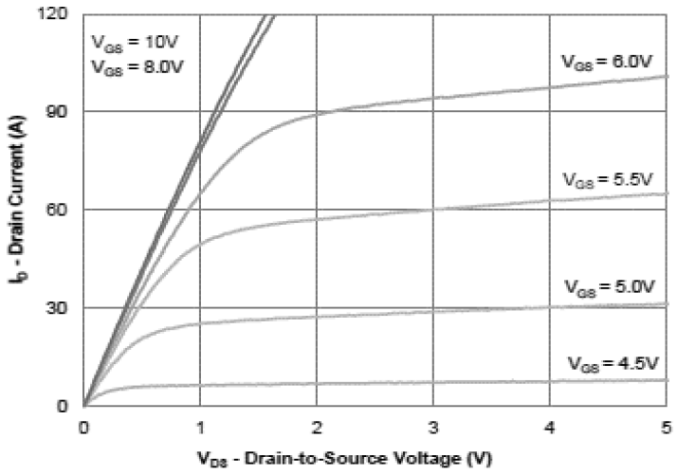


Figure 1. Output Characteristics

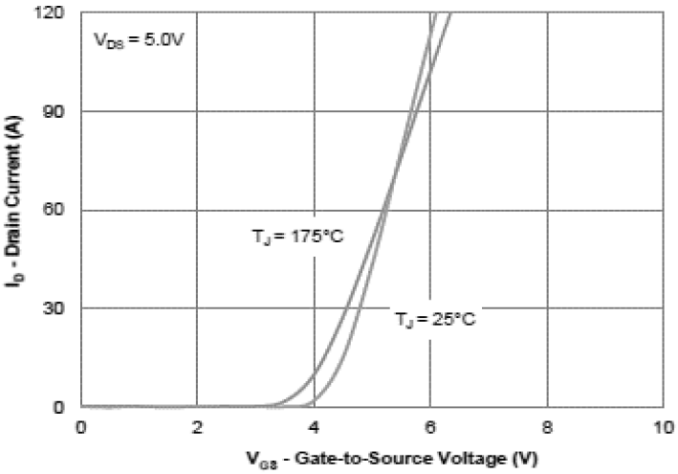


Figure 2. Transfer Characteristics

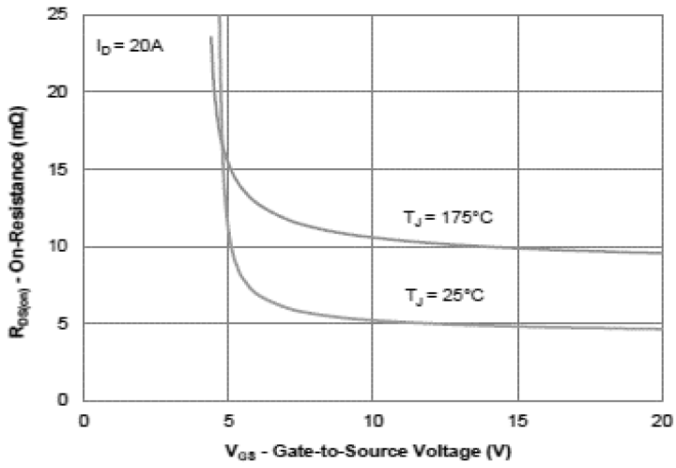


Figure 3. On-Resistance vs. Gate-Source Voltage

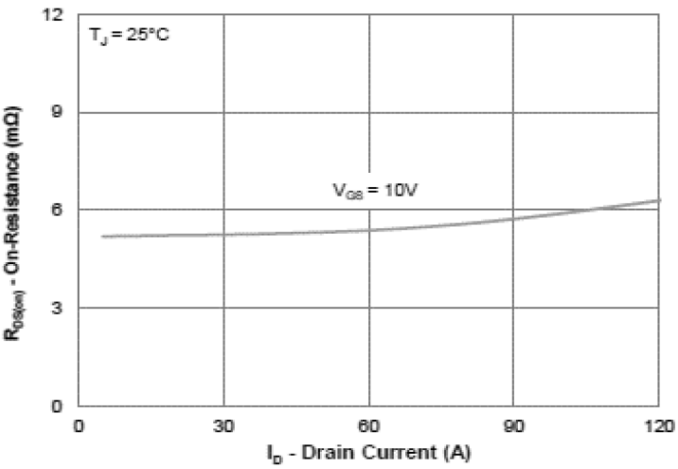


Figure4. On-Resistance vs. Drain Current and Gate Voltage

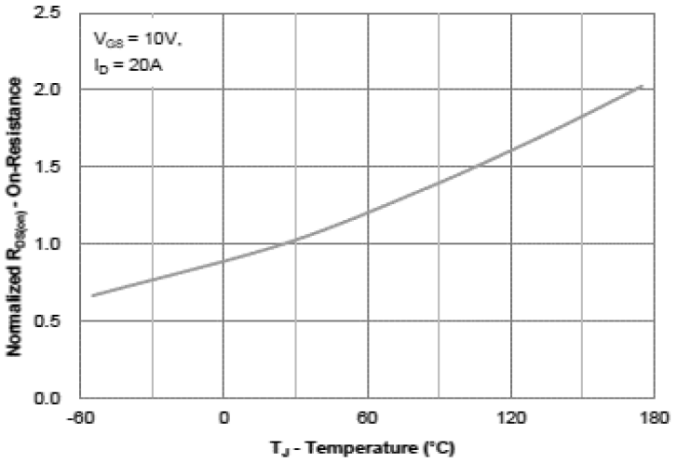


Figure 5. On-Resistance vs. Junction Temperature

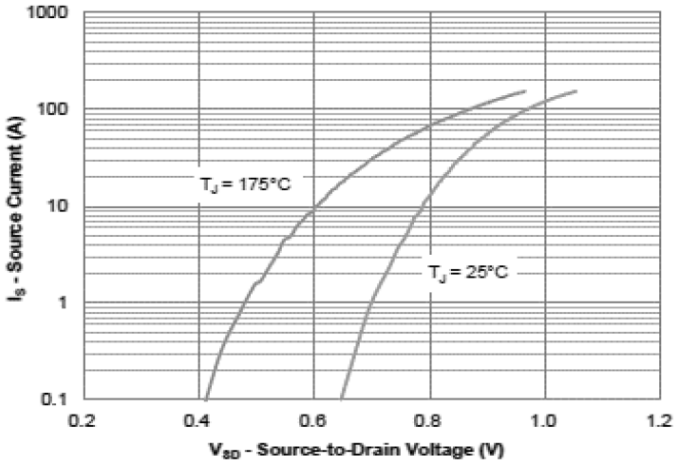


Figure 6. Source-Drain Diode Forward Voltage

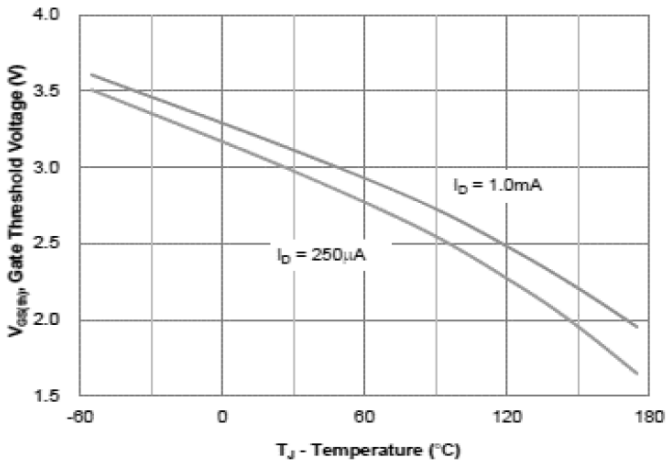


Figure 7. Gate Threshold Variation vs. Junction Temperature

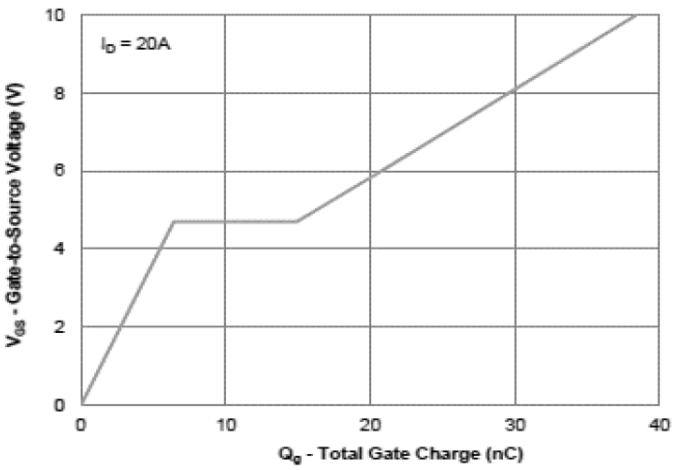


Figure8. Gate Charge Characteristics

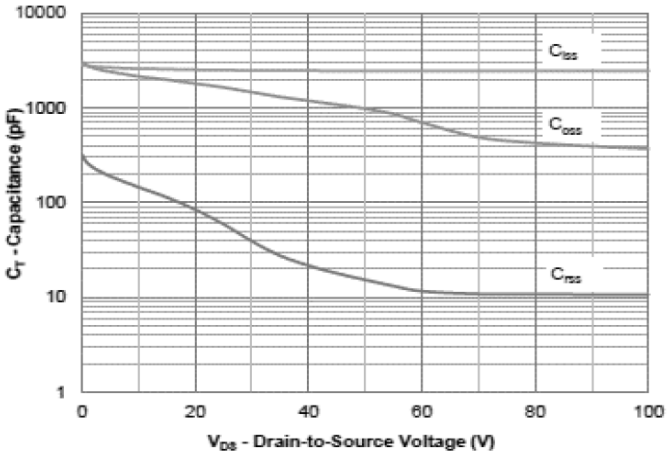


Figure 9. Capacitance Characteristics

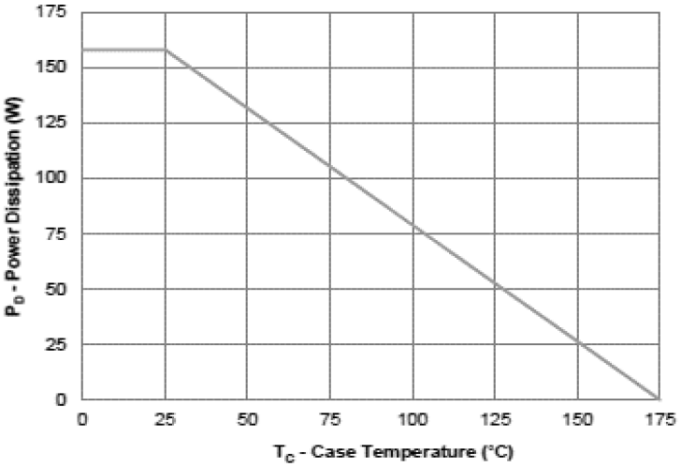


Figure 10. Power Derating

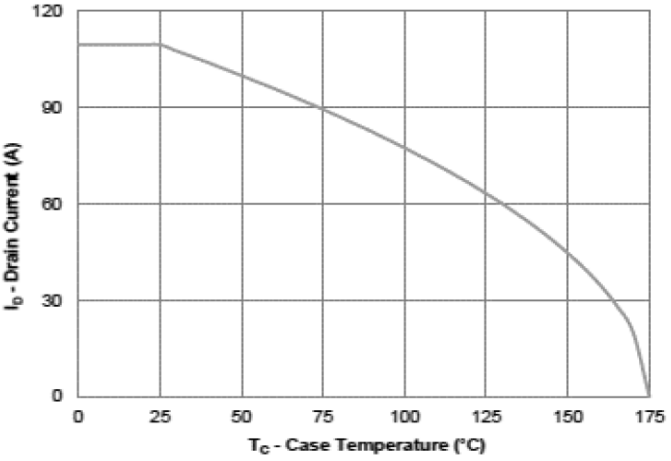


Figure 11. Current Derating

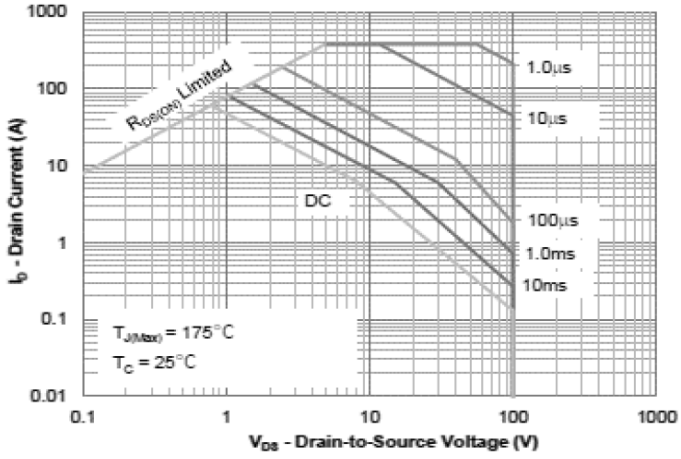


Figure 12. Safe Operating Area

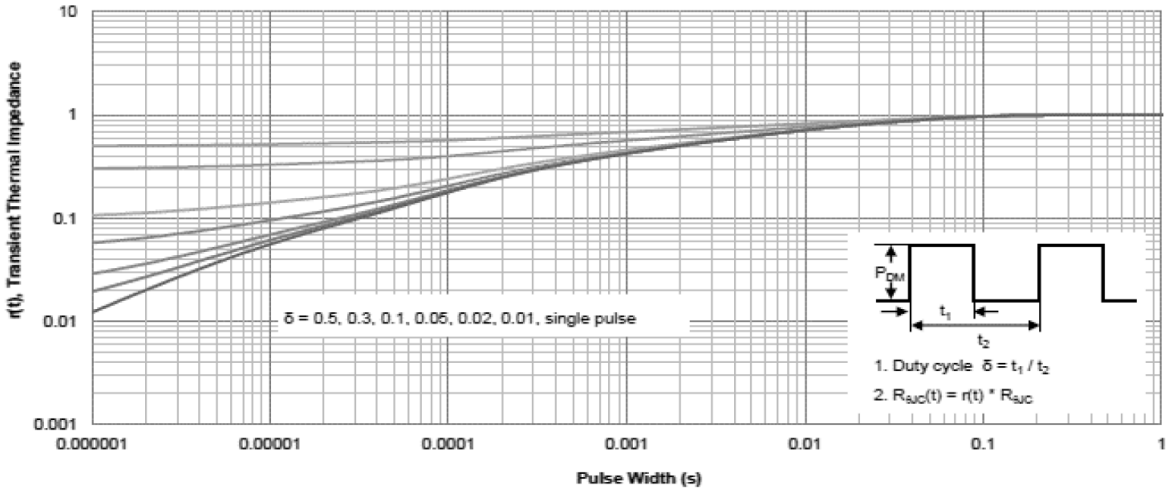
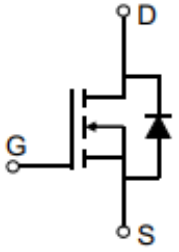
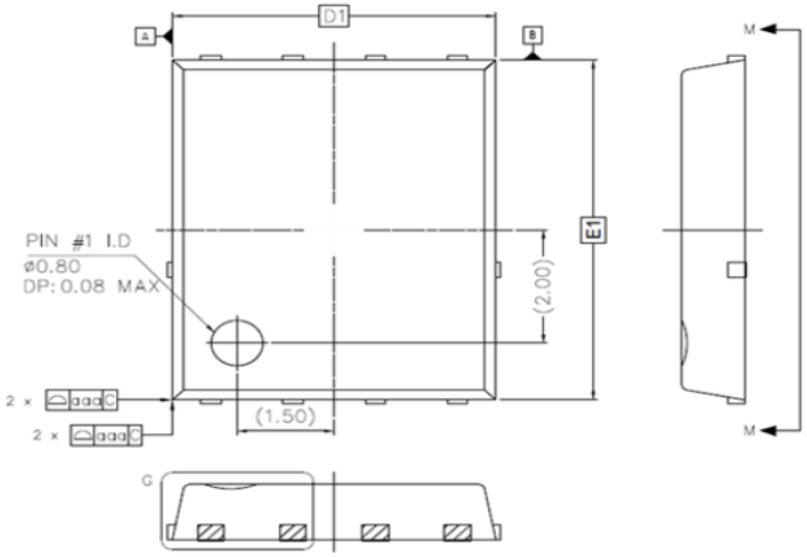


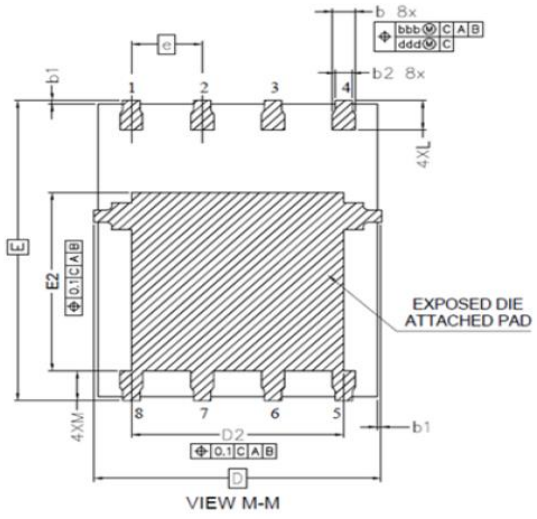
Figure 13. Normalized Maximum Transient Thermal Impedance

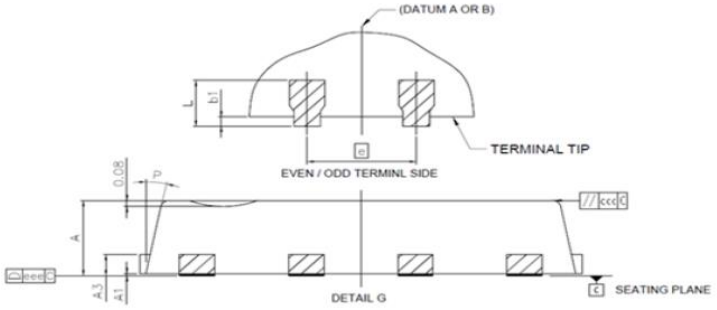
·Circuit diagram



·Package outlines : Dimensions in (mm)







DIM	MILLIMETERS	
	MIN	MAX
A	0.95	1.05
A1	0.00	0.05
A3	0.25 REF	
b	0.31	0.51
b1	0.03	0.13
b2	0.21	0.41
D	5.15 BSC	
D1	5.00 BSC	
D2	3.70	3.90
E	6.15 BSC	
E1	6.00 BSC	
E2	3.56	3.76
e	1.27 BSC	
L	0.51	0.71
M	0.51	0.71
P	10°	12°
aaa	0.10	
bbb	0.10	
ccc	0.10	
ddd	0.05	
eee	0.08	

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