100V N-Channel Power MOSFET

V_{DS}	60V
I_D @V_{GS}=10V	227A
$R_{DS(ON)_Typ.}$ @V_{GS}=10V	1.8mΩ

DESCRIPTION：

·Fast Switching

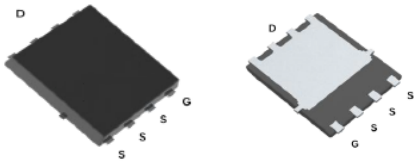
·Very low on-resistance

·Enhancement mode

·100% Avalanche Tested

·100% ΔVds Tested

·Halogen-free and RoHS-compliant



PDFN5×6-8L

TYPICAL APPLICATIONS：

·Load Switch

·PWM Application

·Power Management

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

Characteristic	Condition	Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	Tc=25℃ Tc=100℃	I_D	227 143	A
Pulsed Drain Current		I_{DM}	908	A
Avalanche Current		I_{AS}	68	A
Avalanche Energy		E_{AS}	231	mJ
Power dissipation	Tc=25℃ Tc=100℃	P_D	200 80	W
Junction & Storage temperature Range		T_J, T_{STG}	-55~+150	℃

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient Junction-to-Case	$R_{\theta JA}$ $R_{\theta JC}$	30 0.6	℃/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	$V_{(BR)DSS}$	60			V
Zero Gate Voltage Drain Current VDS = 60 V, 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	$V_{GS(th)}$	1.0	1.7	2.5	V
Drain-Source On-State Resistance VGS = 10V, ID = 60A VGS = 4.5V, ID = 60A	$R_{DS(on)}$		1.8 2.2	2.4 2.6	mΩ
Diode Forward Voltage	V_{SD}		0.8	1.0	V
Diode Continuous Current	I_S			200	A
Input capacitance f=1MHz, VDS=30 V, VGS=0 V	C_{iss}		3822		pF
Output capacitance f=1MHz, VDS=30 V, VGS=0 V	C_{oss}		1372		pF
Reverse transfer capacitance f=1MHz, VDS=30 V, VGS=0 V	C_{rss}		54		pF
Gate Resistance VGS = 0V, VDS= 0V, f = 1MHz	R_G		1.0		Ω
Total Gate Charge VDS= 30V, ID= 60A, VGS= 0 to 10V	Q_G		75		nC
Gate to Source Charge VDS= 30V, ID= 60A, VGS= 0 to 10V	Q_{GS}		9.2		nC
Gate to Drain Charge VDS= 30V, ID= 60A, VGS= 0 to 10V	Q_{GD}		17.1		nC
Turn-on delay time VDS= 30V, VGS= 10V, ID= 60A, R_{GEN}=3.5Ω	td (ON)		12.2		ns
Rise time VDS= 30V, VGS= 10V, ID= 60A, R_{GEN}=3.5Ω	tr		16		ns
Turn-off delay time VDS= 30V, VGS= 10V, ID= 60A, R_{GEN}=3.5Ω	td (OFF)		49		ns
Fall time VDS= 30V, VGS= 10V, ID= 60A, R_{GEN}=3.5Ω	tf		26		ns
Revers Recovery Time IF=60A, di_F/dt = 104A/us	Trr		45		ns
Revers Recovery Charge IF=60A, di_F/dt = 104A/us	Qrr		98		nC

Typical Performance Characteristics

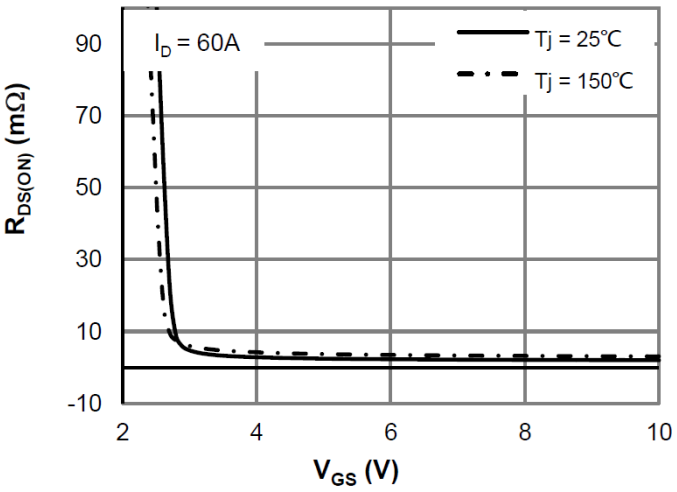


Figure 1. $R_{DS(ON)}$ VS. V_{GS}

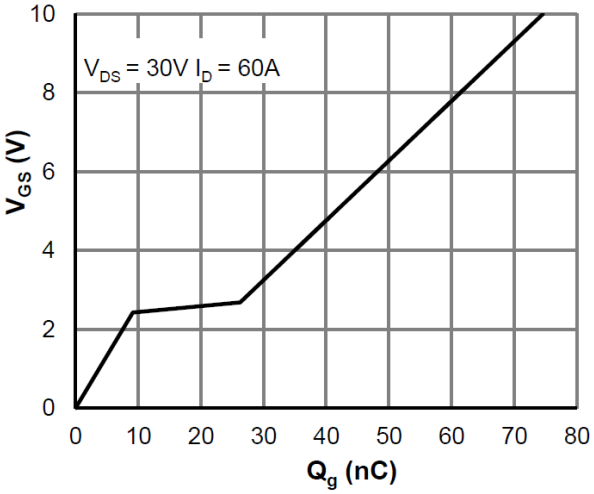


Figure 2. Gate Charge Curve

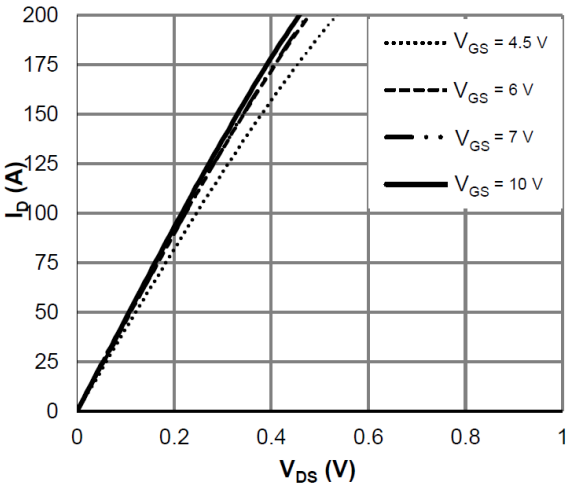


Figure 3. Saturation Characteristics

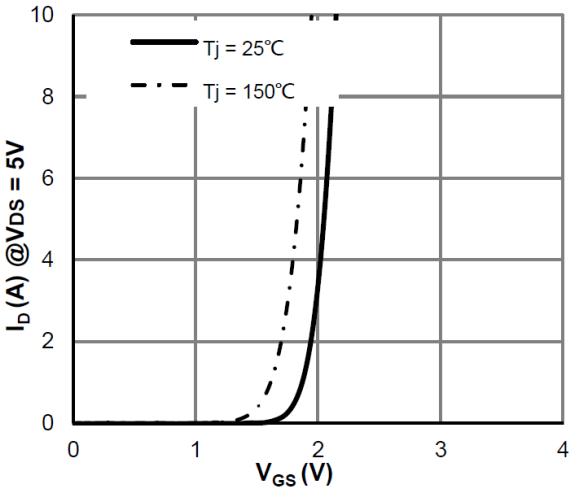


Figure 4. Transfer Characteristics

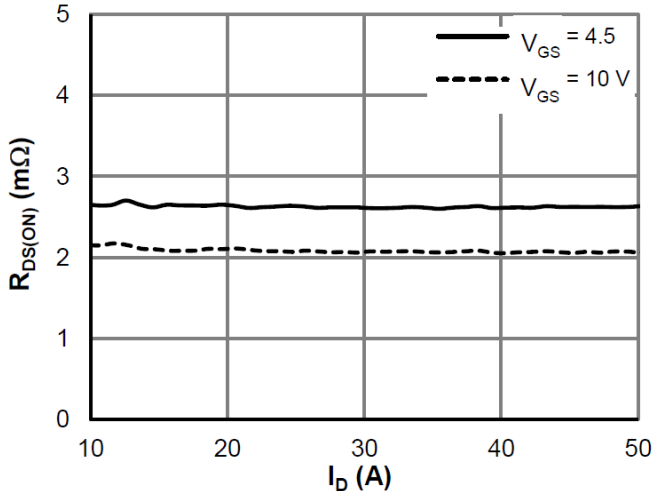


Figure 5. $R_{DS(ON)}$ vs. Drain Current

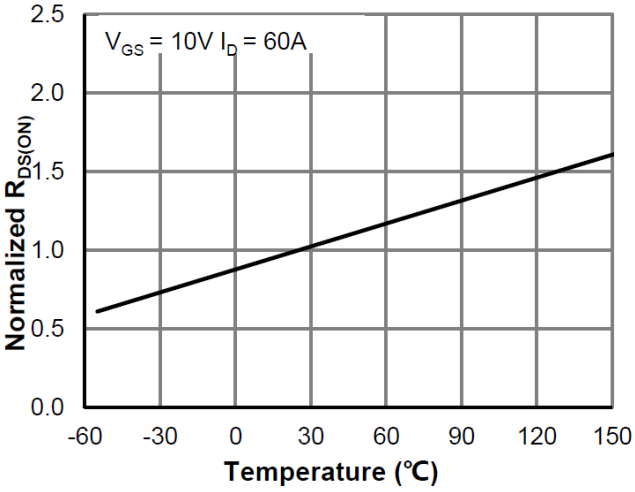


Figure 6. $R_{DS(ON)}$ vs. Junction Temperature

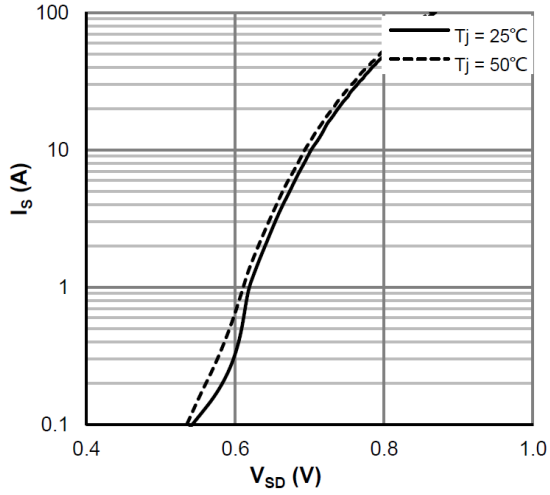


Figure 7. Body-Diode Characteristics

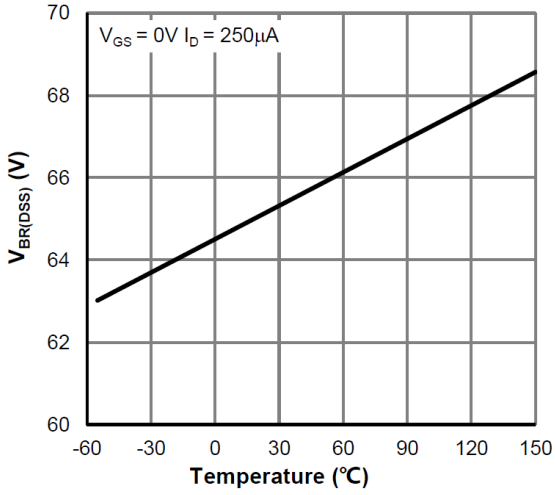


Figure 8. VBR(DSS) vs. Junction Temperature

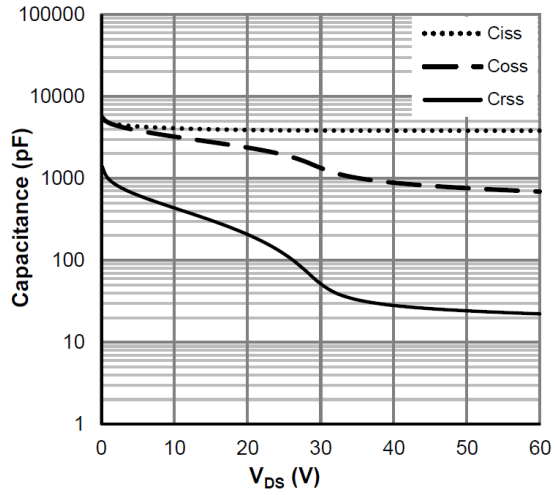


Figure 9. Capacitance Characteristics

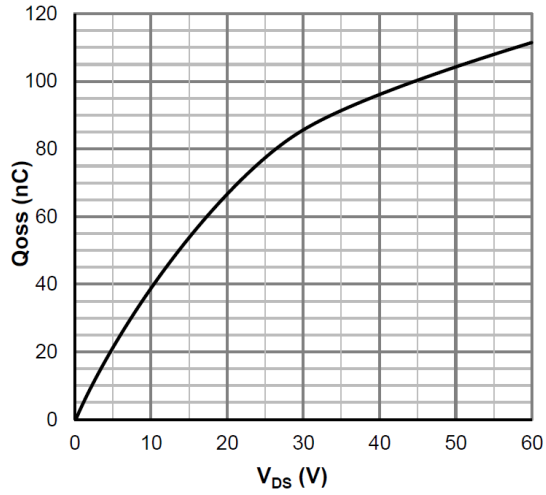


Figure10. Coss Stored Energy

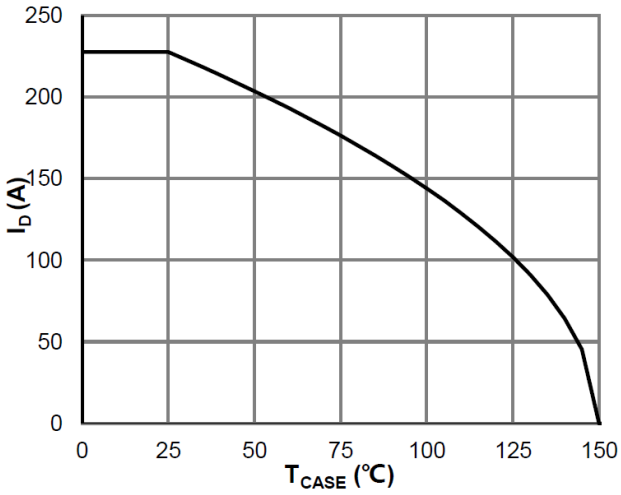


Figure 11. Current De-rating

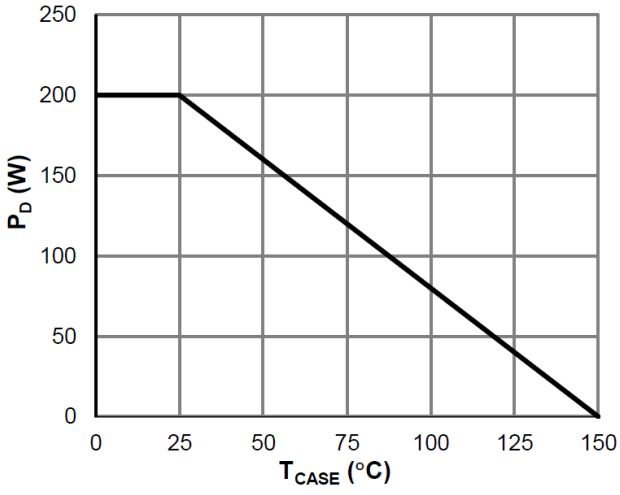


Figure 12.Power De-rating

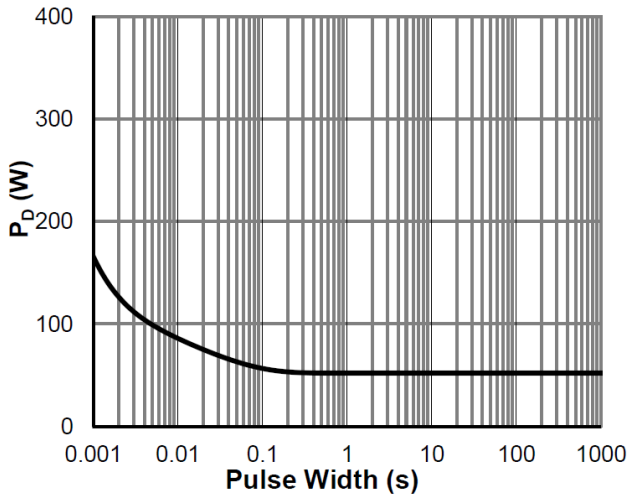


Figure 13. Single Pulse Power Rating, Junction-to-Case

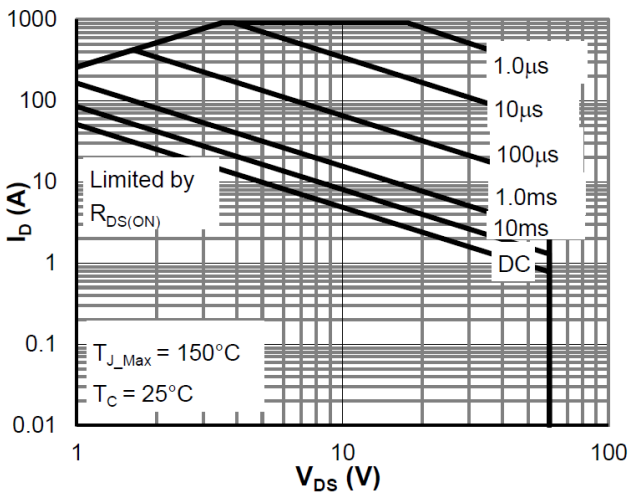


Figure 14 Maximum Safe Operating Area.

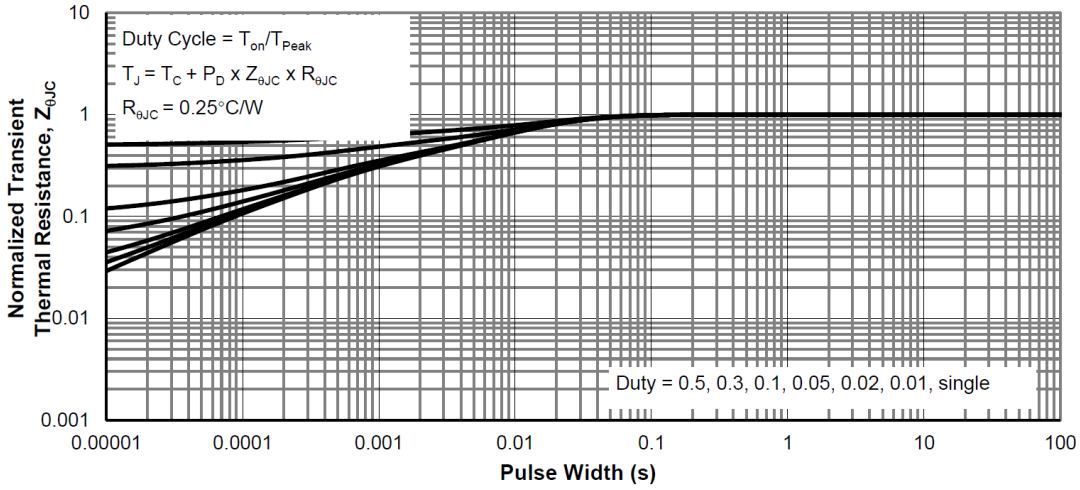
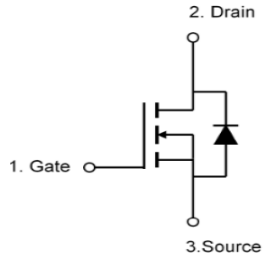
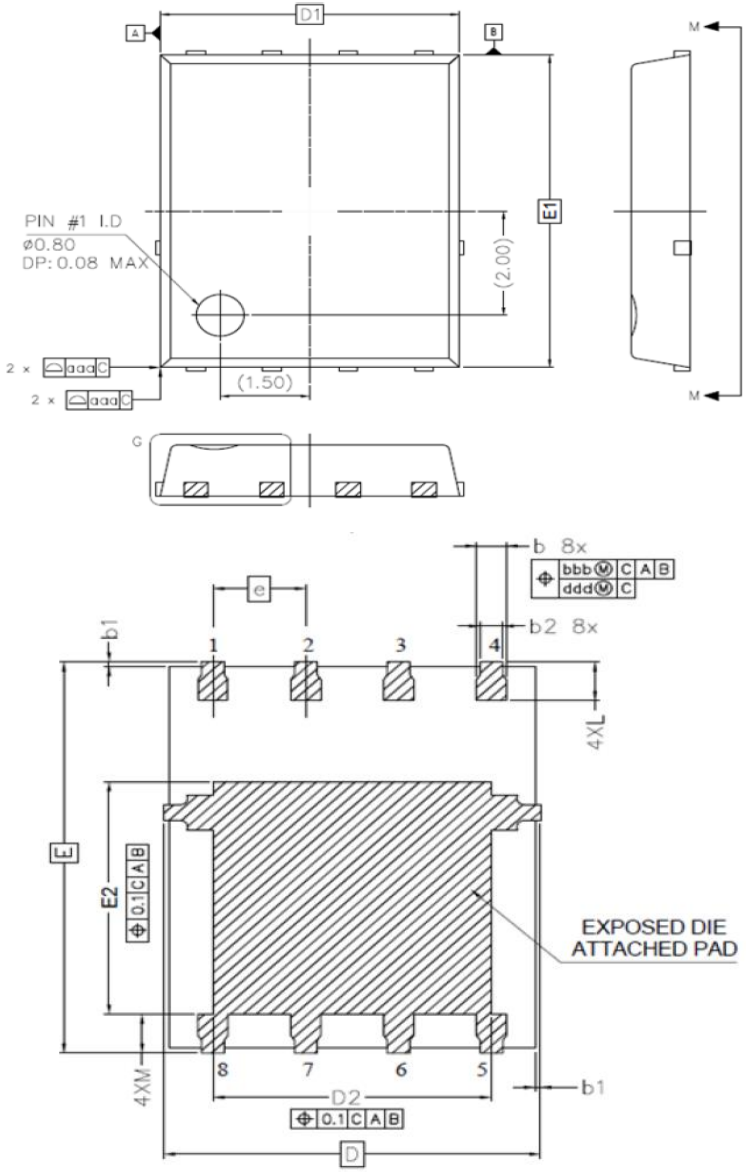


Figure15. Normalized Maximum Transient Thermal Impedance

·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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