

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	35mΩ@-10V	-25A
	42mΩ@-4.5V	

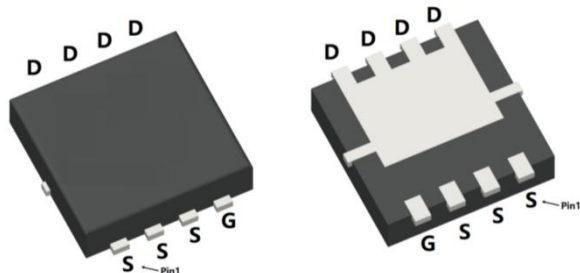
Feature

- Fast switching speed
- Low On-Resistance

Application

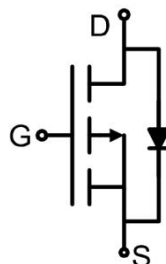
- DC-DC converters
- Power management

Package

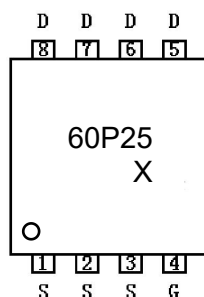


PDFN3*3-8L

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	-25	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	-17	A
Pulsed Drain Current Tested	I_{DM}	-100	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	156	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	37	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	3.4	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

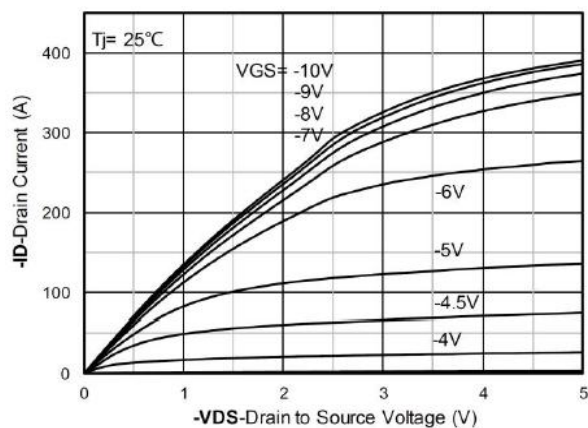
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V, T _J =25℃			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.7	-2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-5A		25	35	mΩ
		V _{GS} =-4.5V, I _D =-4A		30	42	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f =1MHz		2417		pF
Output Capacitance	C _{oss}			179		
Reverse Transfer Capacitance	C _{rss}			120		
Total Gate Charge	Q _g	V _{DS} =-30V, V _{GS} =-10V I _D =-6A		46.5		nC
Gate-Source Charge	Q _{gs}			9.1		
Gate-Drain Charge	Q _{gd}			9.2		
Turn-on delay time	t _{d(on)}	V _{DS} =-30V, V _{GS} =-10V I _D =-6A, R _G =3Ω		9.8		nS
Turn-on rise time	t _r			6.1		
Turn-off delay time	t _{d(off)}			44		
Turn-off fall time	t _f			12.7		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-25	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25℃			-1.2	V
Reverse Recovery Time	T _{rr}	I _S =-20A, di/dt =-100A/μs T _J =25℃		25		nS
Reverse Recovery Charge	Q _{rr}			55		nC

Notes:

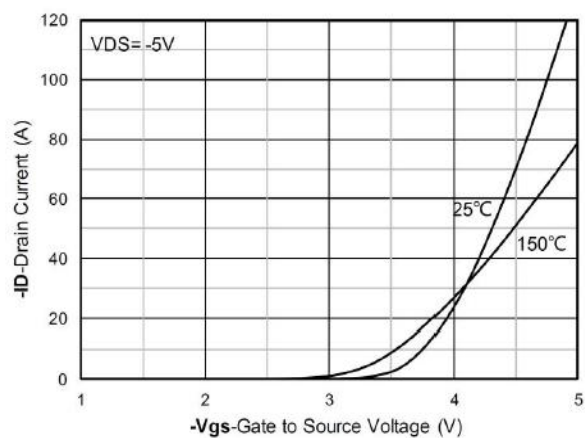
1) EAS test condition : $V_{DS}=-30\text{V}, V_G=-10\text{V}, L=0.5\text{mH}, R_G=25\Omega$.

2) Guaranteed by design, not subject to production testing.

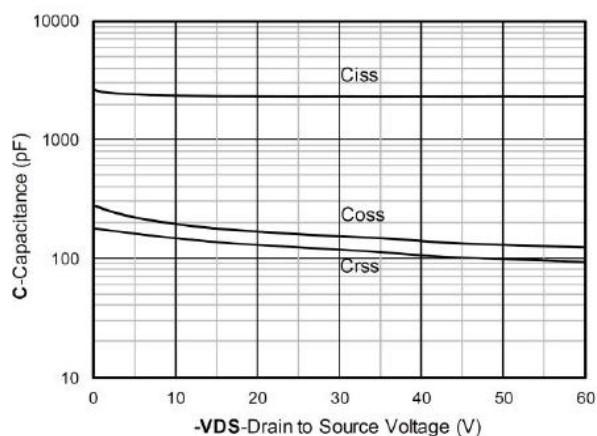
Typical Characteristics



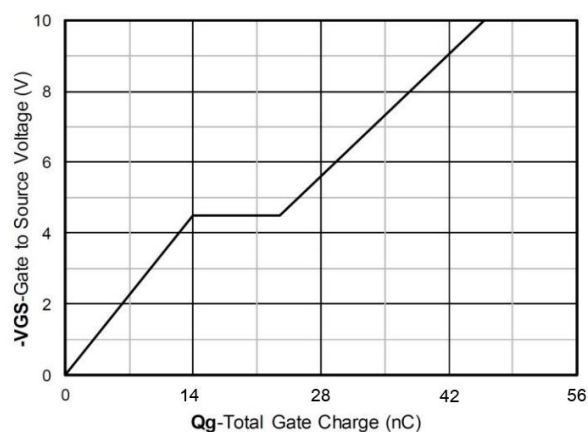
Output Characteristics



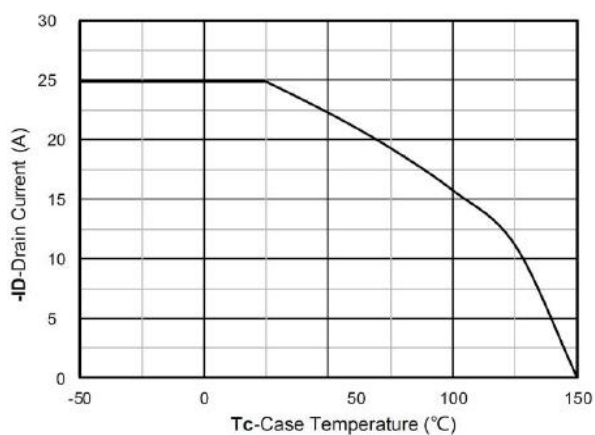
Transfer Characteristics



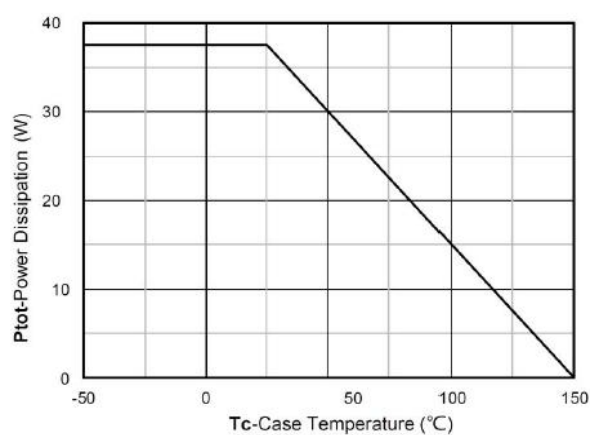
Capacitance Characteristics



Gate Charge

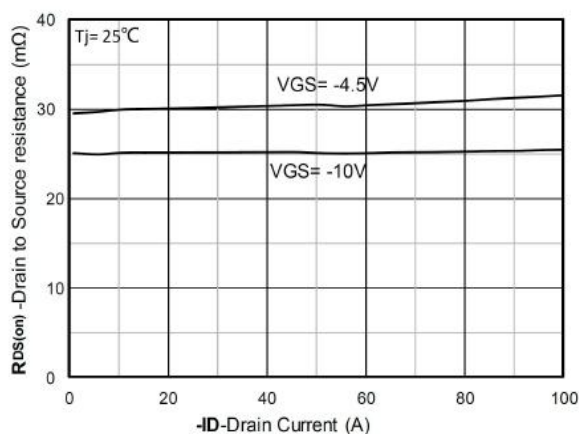


Current dissipation

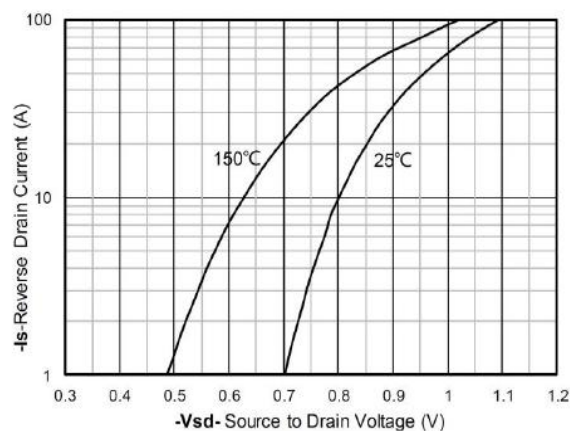


Power dissipation

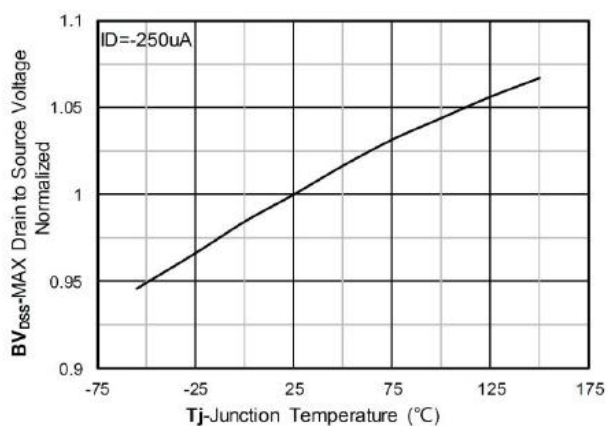
Typical Characteristics



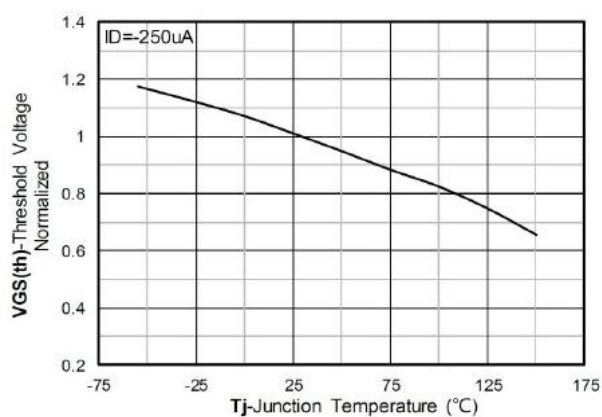
RDS(on) VS Drain Current



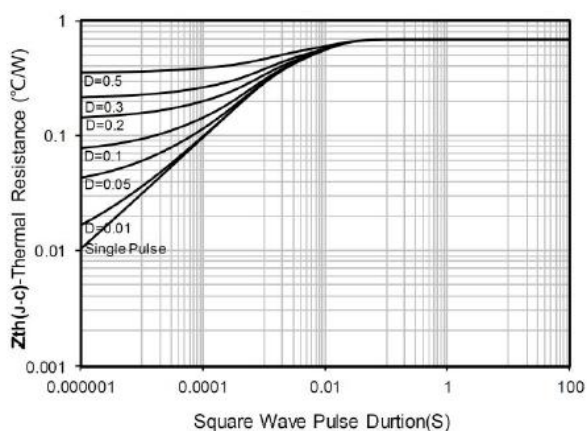
Forward characteristics of reverse diode



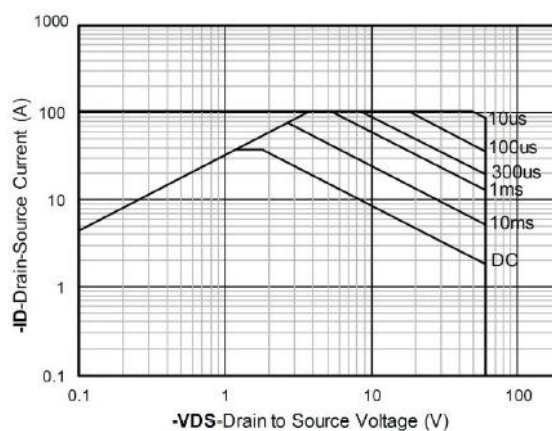
Normalized breakdown voltage



Normalized Threshold voltage

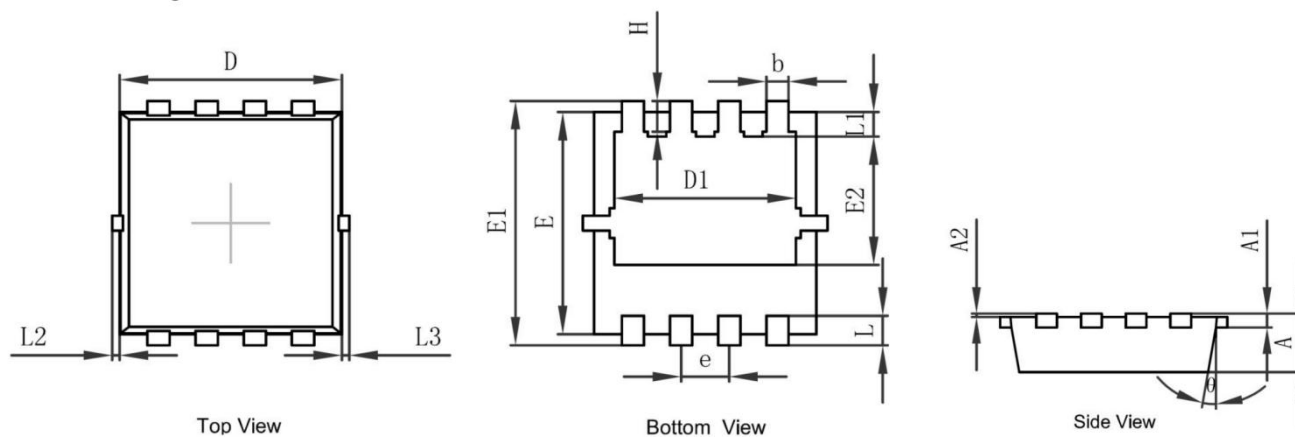


Maximum Transient Thermal Impedance



Safe Operation Area

PDFN3*3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0.000	0.050	0.000	0.002
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0.000	0.100	0.000	0.004
L3	0.000	0.100	0.000	0.004
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°