

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	16mΩ@10V	18A
	21mΩ@4.5V	

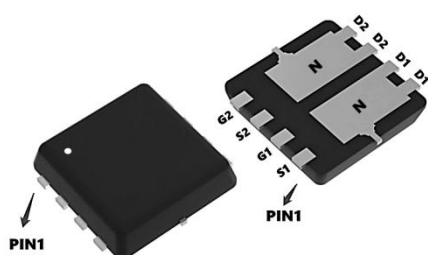
Feature

- Fast switching speed
- Surface mount package
- Advanced Split Gate Trench technology

Application

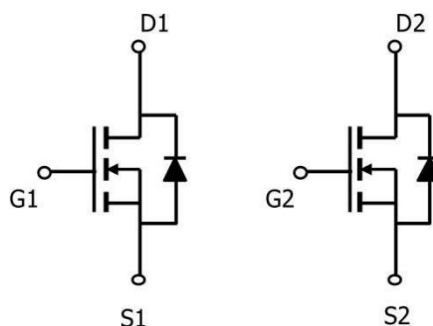
- Motor control
- DC-DC converter

Package

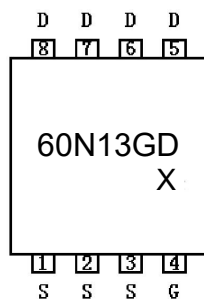


PDFN3*3-8L

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	18	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	12	A
Pulsed Drain Current	I_{DM}	72	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	64	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	30	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	4.17	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

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

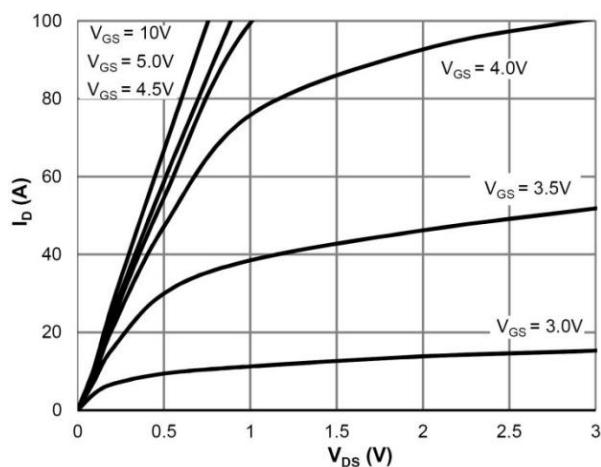
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.8	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=15A$		13	16	m Ω
		$V_{GS}=4.5V, I_D=10A$		16	21	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		709		pF
Output Capacitance	C_{oss}			203		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=10A$		12		nC
Gate-Source Charge	Q_{gs}			2.1		
Gate-Drain Charge	Q_{gd}			3.2		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=30V, V_{GS}=10V, I_D=10A$ $R_G=4.7\Omega$		3		nS
Turn-on rise time	t_r			4.5		
Turn-off delay time	$t_{d(off)}$			14.2		
Turn-off fall time	t_f			4.8		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				18	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$			1.2	V
Reverse Recovery Time	T_{rr}	$I_S=10A, di/dt=-100A/\mu s$		14		nS
Reverse Recovery Charge	Q_{rr}	$T_J=25^{\circ}C$		9		nC

Notes:

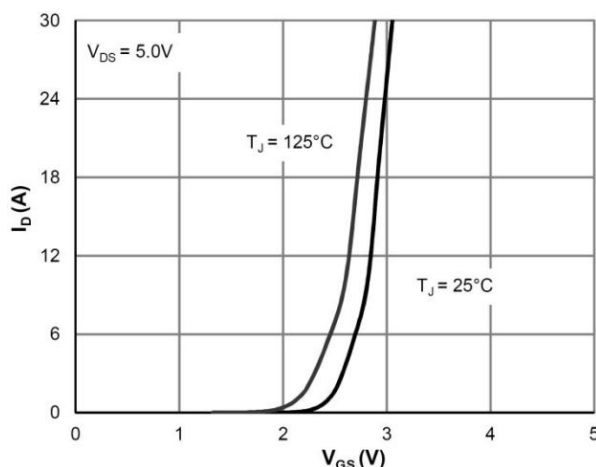
1) The EAS test condition is $V_{DD}=30\text{V}, V_G=10\text{V}, L=0.5\text{mH}, R_g=25\Omega$.

2) Guaranteed by design, not subject to production.

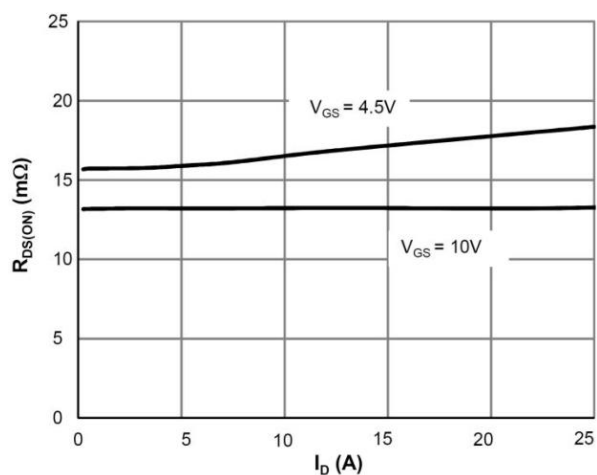
Typical Characteristics



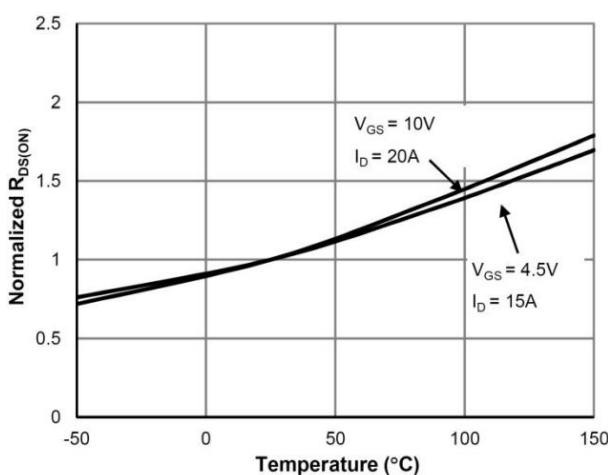
Saturation Characteristics



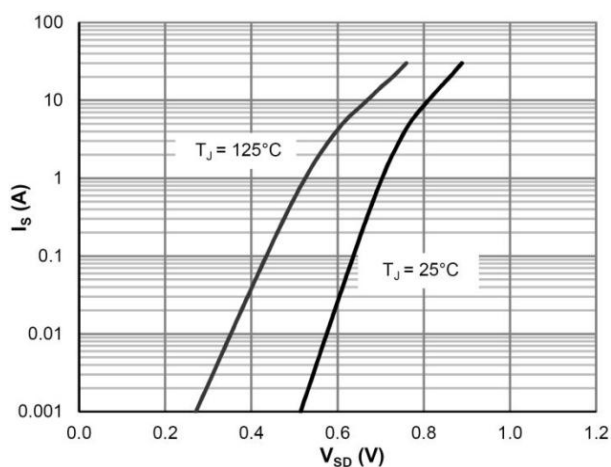
Transfer Characteristics



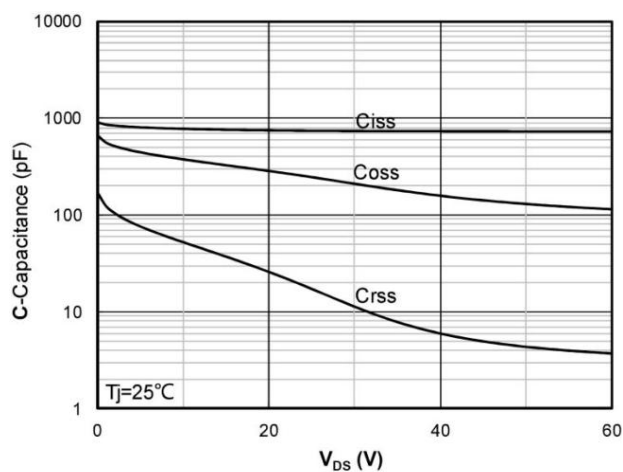
$R_{DS(ON)}$ vs. Drain Current



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

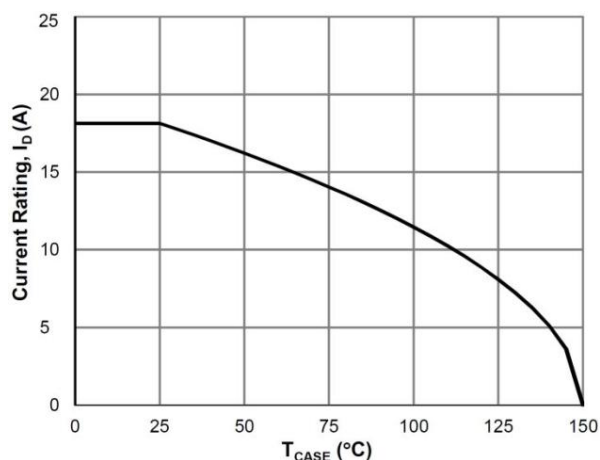


Body-Diode Characteristics

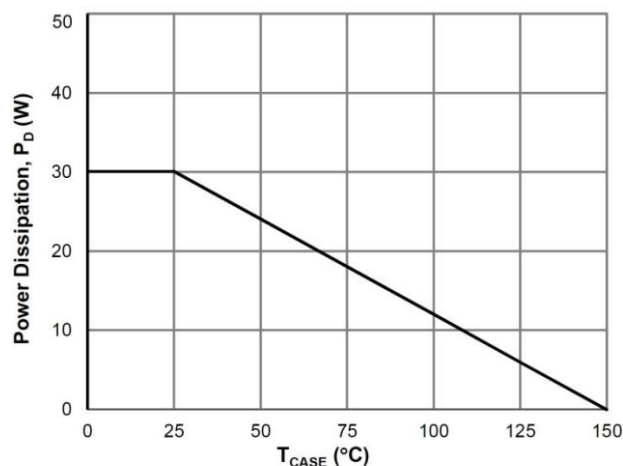


Capacitance Characteristics

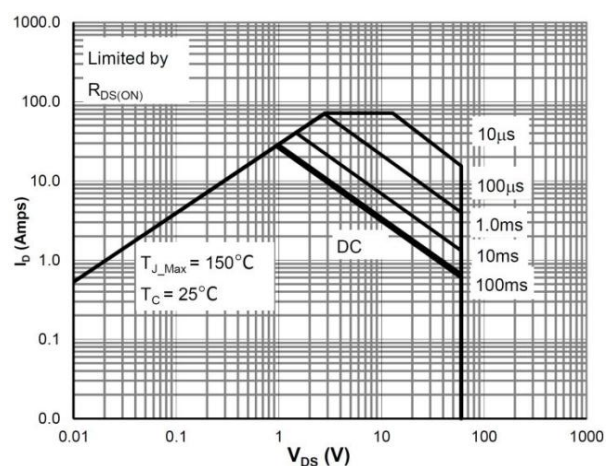
Typical Characteristics



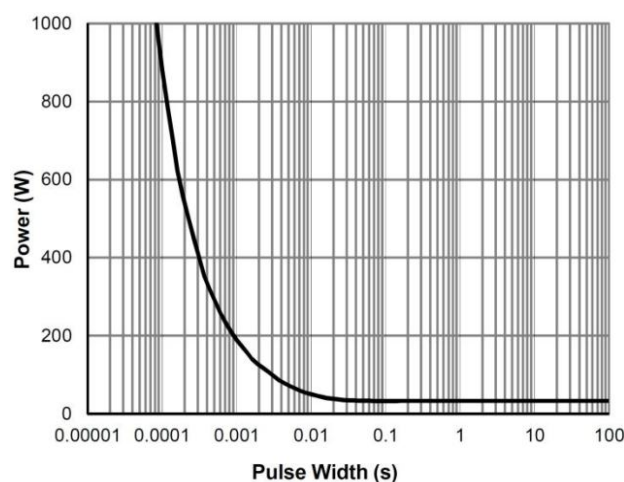
Current De-rating



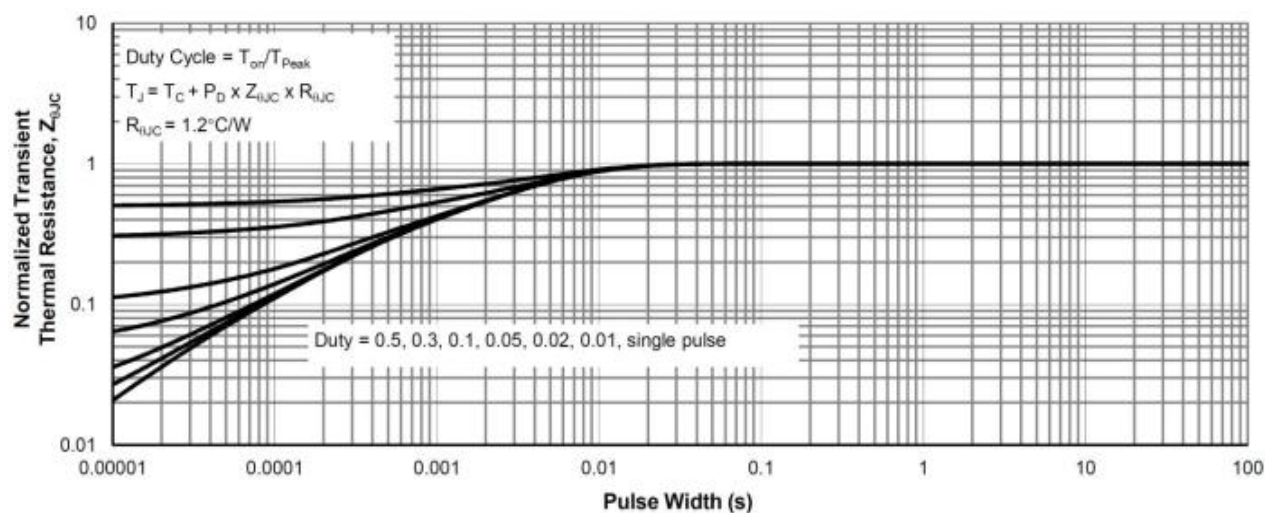
Power De-rating



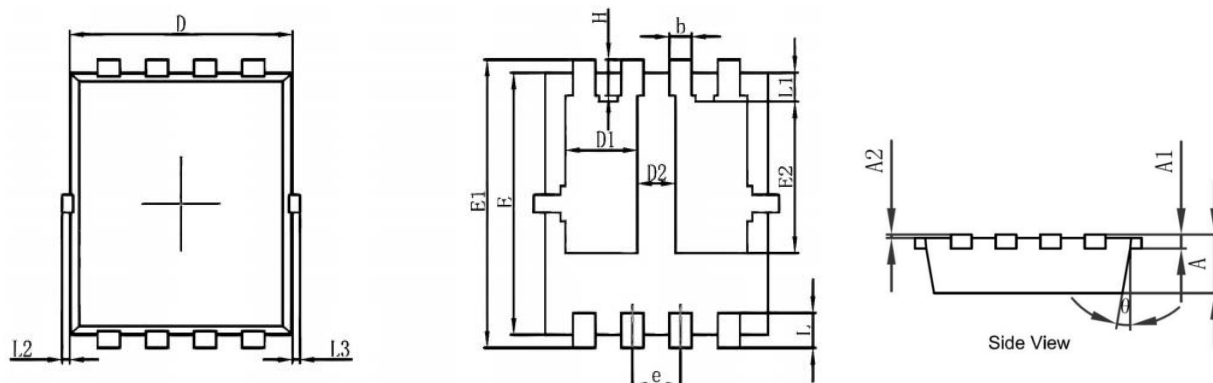
Maximum Safe Operating Area



Single Pulse Power Rating, Junction-to-Case



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	0.935	1.135	0.037	0.045
D2	0.280	0.480	0.011	0.019
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°