

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	7.8mΩ@10V	70A
	10.5mΩ@4.5V	

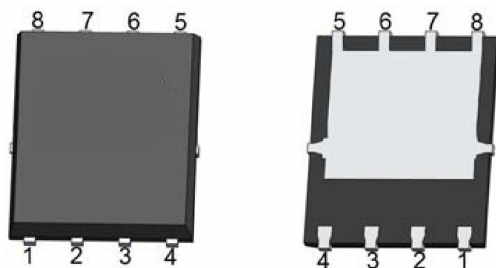
Feature

- Fast switching
- Low gate charge and $R_{DS(ON)}$
- Advanced split gate trench technology
- 100% Single Pulse avalanche energy test

Application

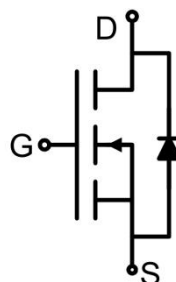
- Power switching application
- Battery management
- Uninterruptible power supply

Package

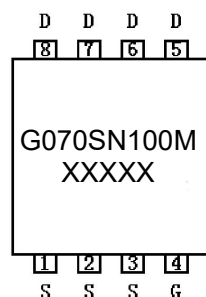


PDFN5*6-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	70	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	50	A
Pulsed Drain Current	I_{DM}	280	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	272	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	92	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.36	$^{\circ}\text{C/W}$
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)

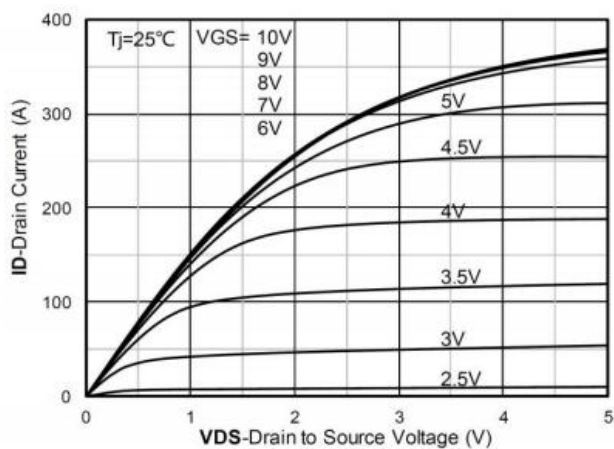
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 0.1	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.7	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=30A$		6.2	7.8	m Ω
		$V_{GS}=4.5V, I_D=25A$		8	10.5	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		1942		pF
Output Capacitance	C_{oss}			388		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=50A$		67		nC
Gate-Source Charge	Q_{gs}			12		
Gate-Drain Charge	Q_{gd}			21		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=50V, V_{GS}=50V, I_D=50A$ $R_G=4.7\Omega$		12		nS
Turn-on rise time	t_r			11		
Turn-off delay time	$t_{d(off)}$			42		
Turn-off fall time	t_f			6		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				70	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25\text{ }^{\circ}C$			1.2	V
Reverse Recovery Time	T_{rr}	$I_S=20A, di/dt=100A/\mu s, T_J=25^{\circ}C$		59		nS
Reverse Recovery Charge	Q_{rr}			88		nC

Notes:

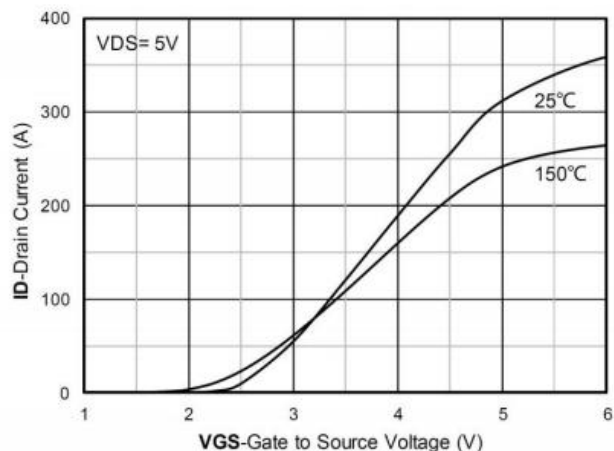
1) The EAS test condition is $V_{DD}=50V, V_{GS}=10V, L=0.5\text{mH}, R_G=25\Omega$.

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

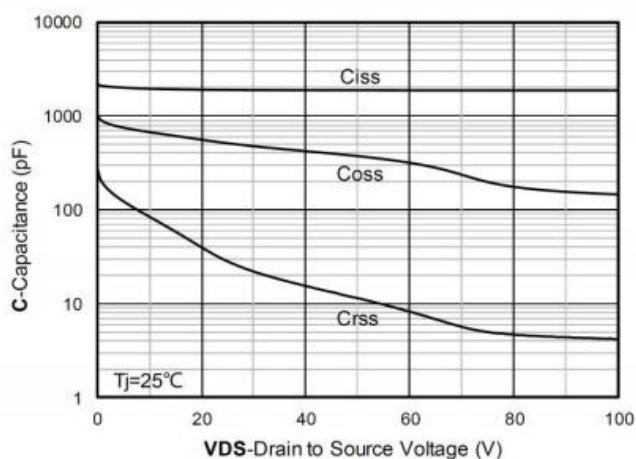
Typical Characteristics



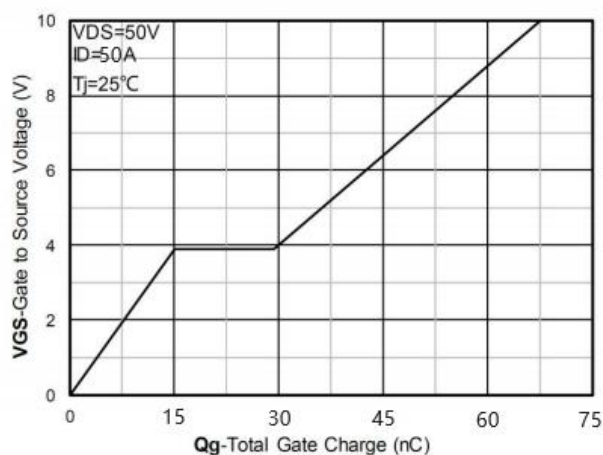
Output Characteristics



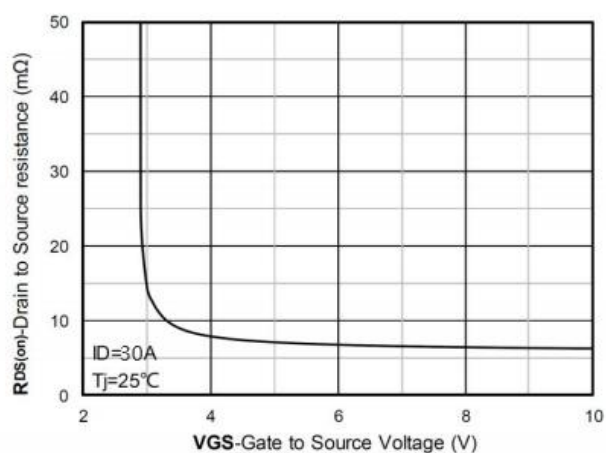
Transfer Characteristics



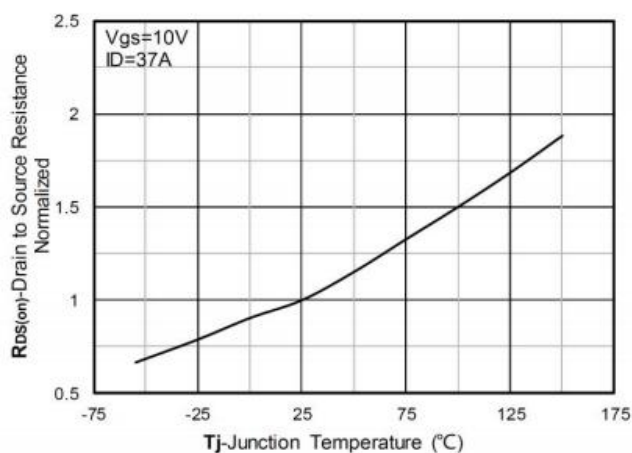
Capacitance Characteristics



Gate Charge

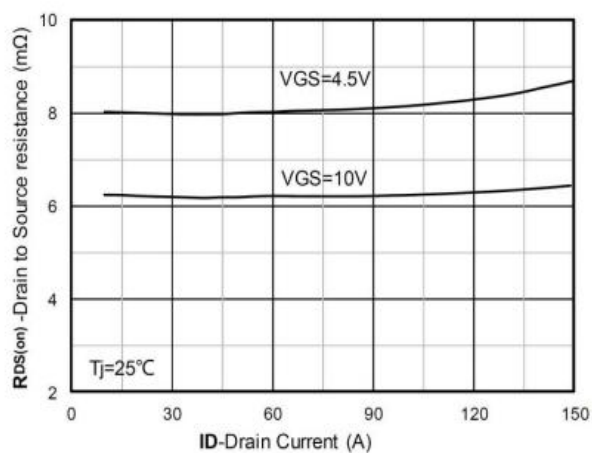


On-Resistance vs Gate to Source Voltage

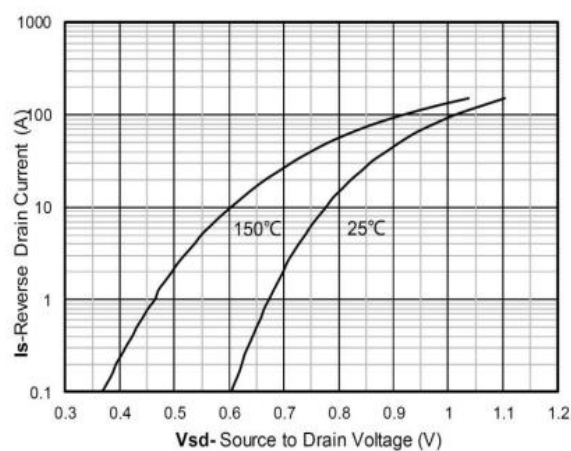


Normalized On-Resistance

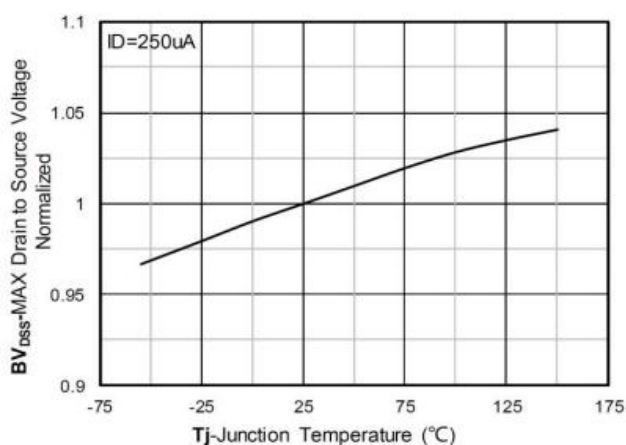
Typical Characteristics



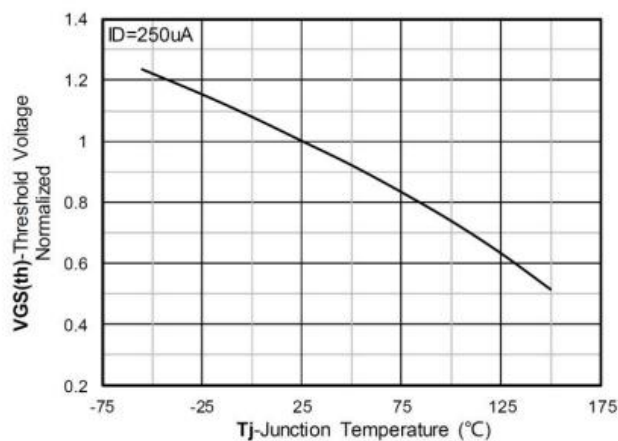
$R_{DS(on)}$ VS Drain Current



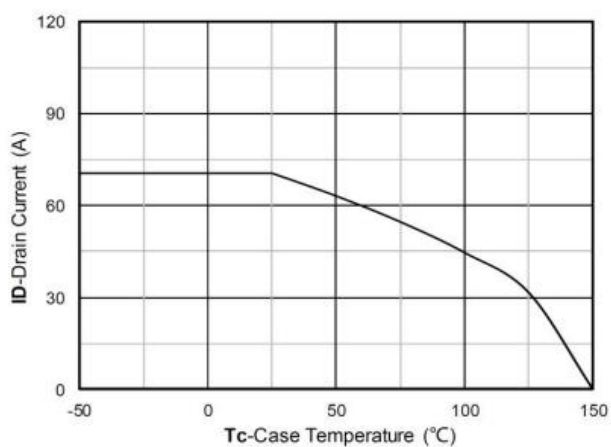
Forward characteristics of reverse diode



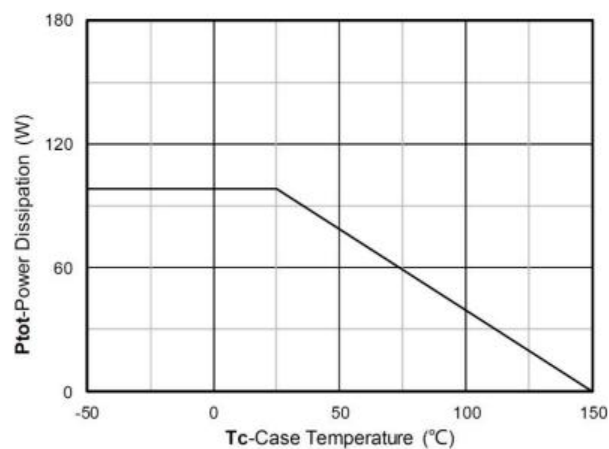
Normalized breakdown voltage



Normalized Threshold voltage

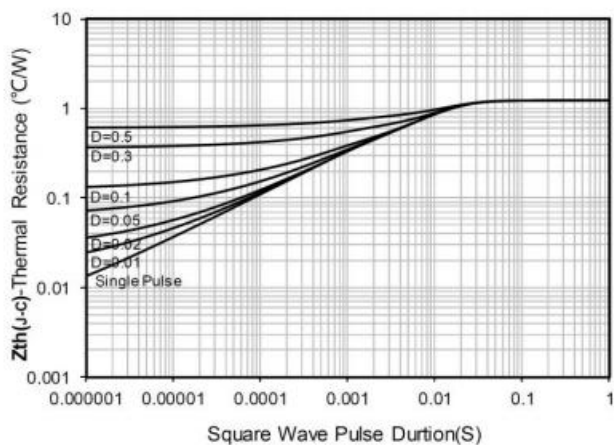


Current dissipation

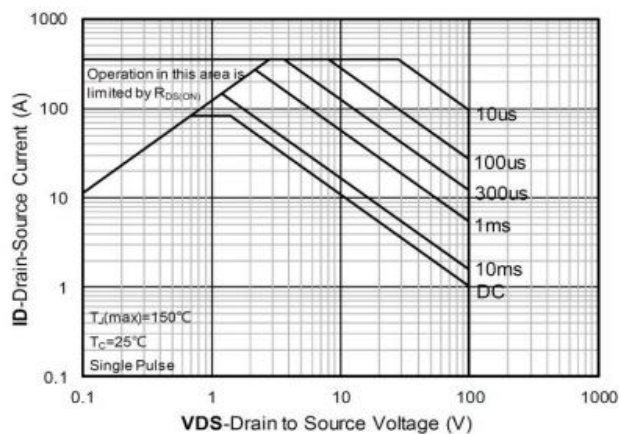


Power dissipation

Typical Characteristics

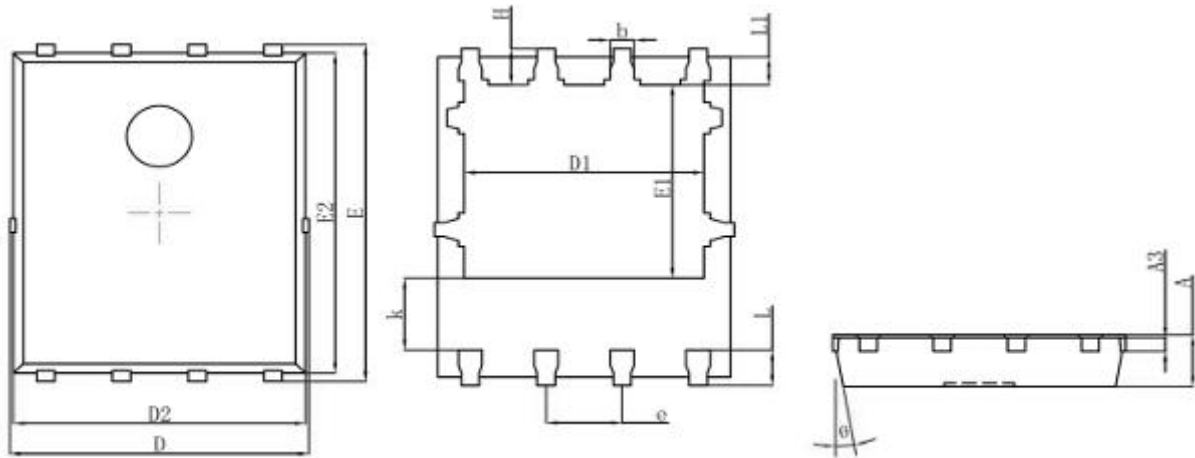


Maximum Transient Thermal Impedance



Safe Operation Area

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010 REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270 BSC.		0.050 BSC.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°