

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	7.4mΩ@-10V	-110A
	10mΩ@-4.5V	

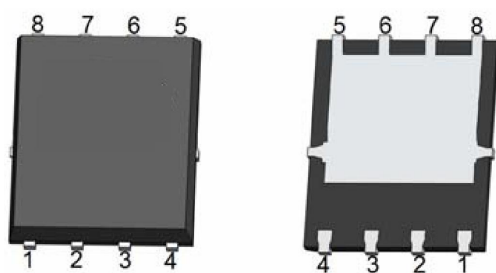
Feature

- Advanced split gate trench technology
- Fast switching speed
- Surface mount package

Application

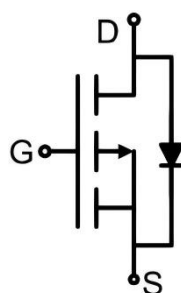
- DC-DC Converters.
- Motor Control.

Package

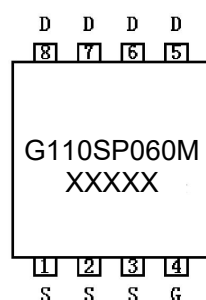


PDFN5*6-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^\circ\text{C}$)	I_D	-110	A
Continuous Drain Current ($T_C=100^\circ\text{C}$)	$I_D (100^\circ\text{C})$	-73	A
Pulsed Drain Current	I_{DM}	-440	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	1092	mJ
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	118	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.06	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

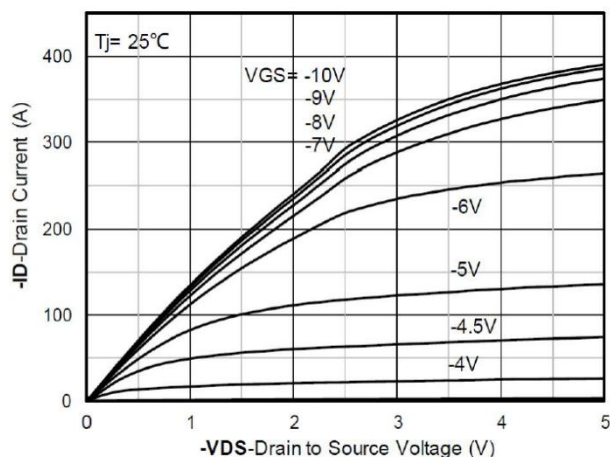
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-48V, V_{GS}=0V, T_J=25^{\circ}C$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-2	-3	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-30A$		5.5	7.4	m Ω
		$V_{GS}=-4.5V, I_D=-30A$		7.5	10	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		6185		pF
Output Capacitance	C_{oss}			1132		
Reverse Transfer Capacitance	C_{rss}			81		
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-10V$ $I_D=-40A$		82		nC
Gate-Source Charge	Q_{gs}			26		
Gate-Drain Charge	Q_{gd}			18		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=-30V, V_{GS}=-10V$ $I_D=-40A, R_G=2.6\Omega$		15		nS
Turn-on rise time	t_r			52		
Turn-off delay time	$t_{d(off)}$			135		
Turn-off fall time	t_f			168		
Source-Drain Diode characteristics						
Diode Forward Current ^{1,5)}	I_S				-110	A
Diode Forward voltage ²⁾	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}C$			-1.2	V
Reverse recover time	T_{rr}	$I_S=-40A, di/dt=-200A/us$		65		nS
Reverse recovery charge	Q_{rr}	$T_J=25^{\circ}C$		238		nC

Notes:

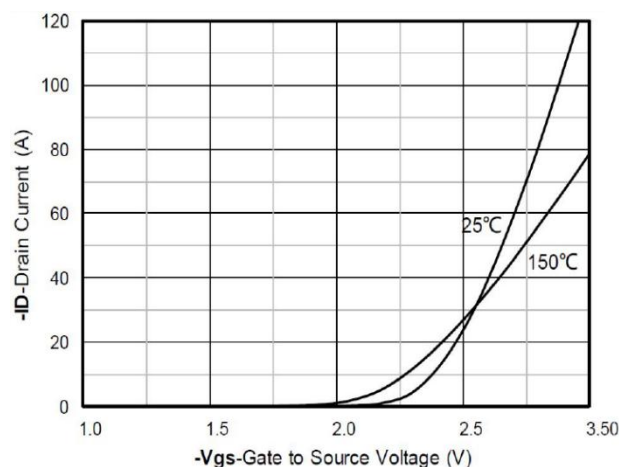
1) EAS is tested at starting $T_J=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $V_{GS}=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\text{m}\Omega$.

2) Guaranteed by design, not subject to production.

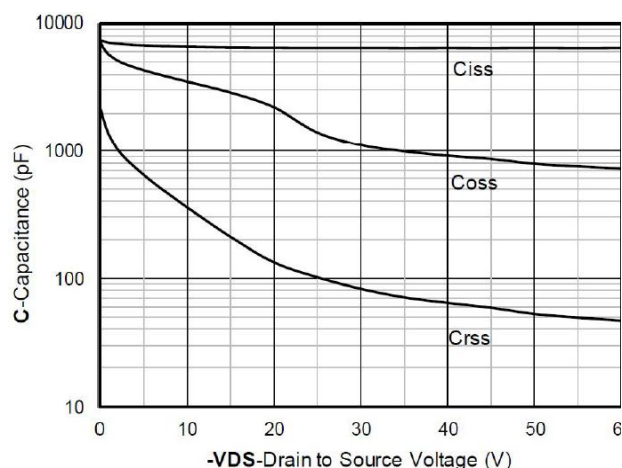
Typical Characteristics



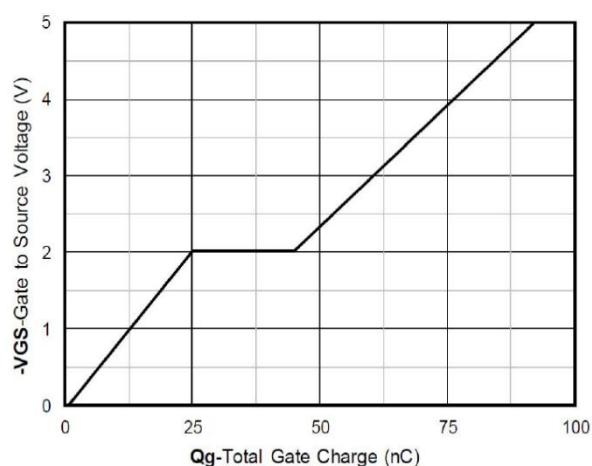
Output Characteristics



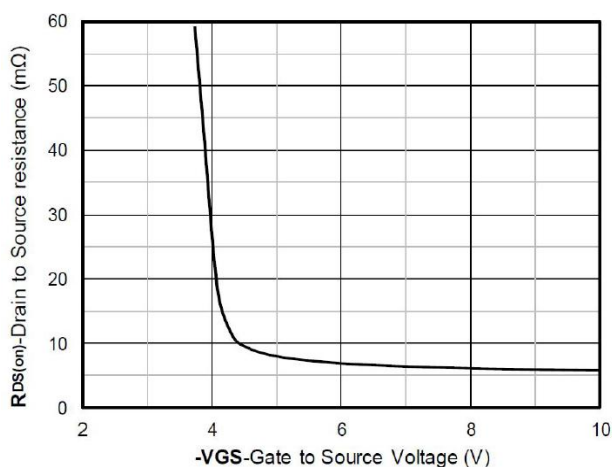
Transfer Characteristics



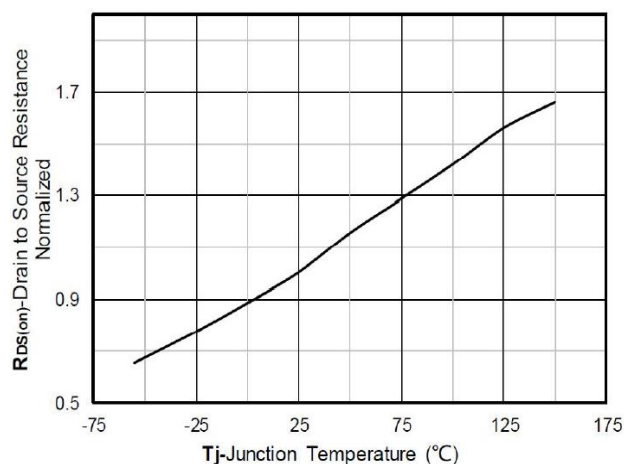
Capacitance Characteristics



Gate Charge

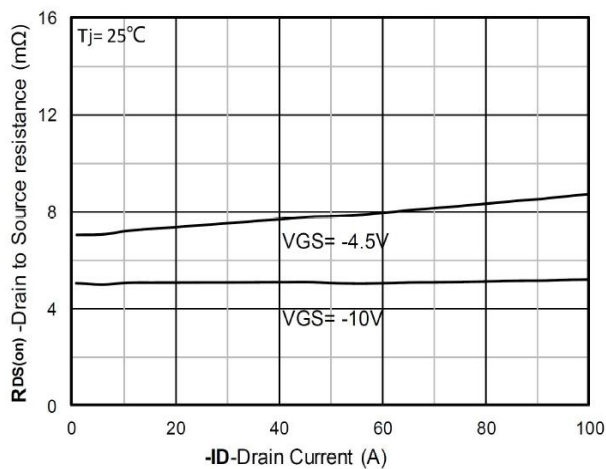


On-Resistance vs Gate to Source Voltage

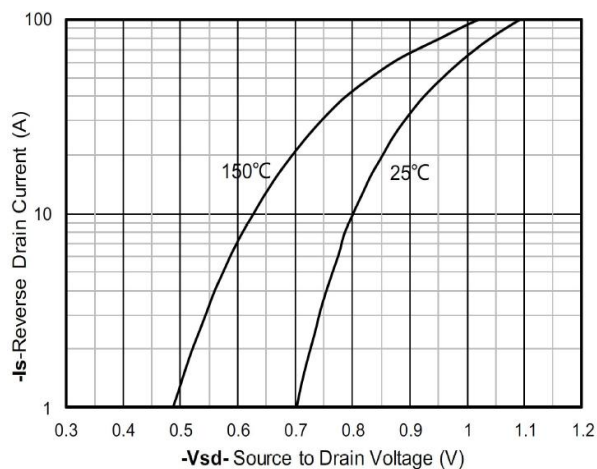


Normalized On-Resistance

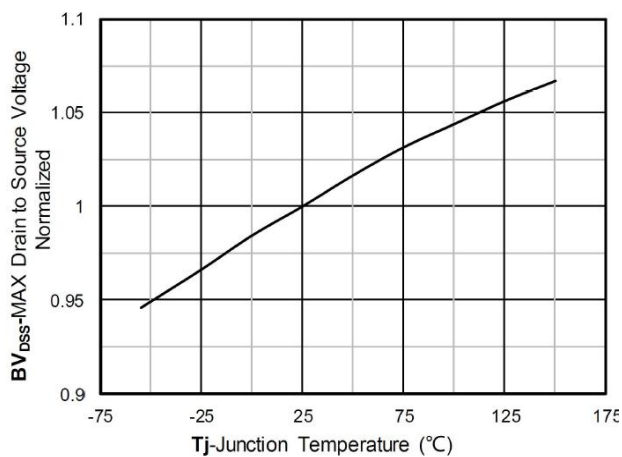
Typical Characteristics



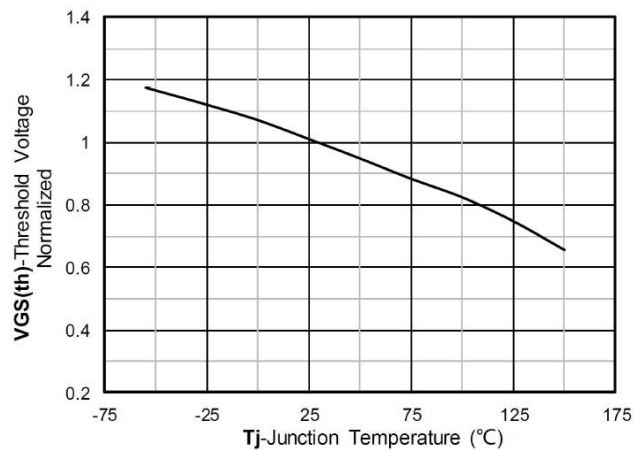
$R_{DS(on)}$ VS Drain Current



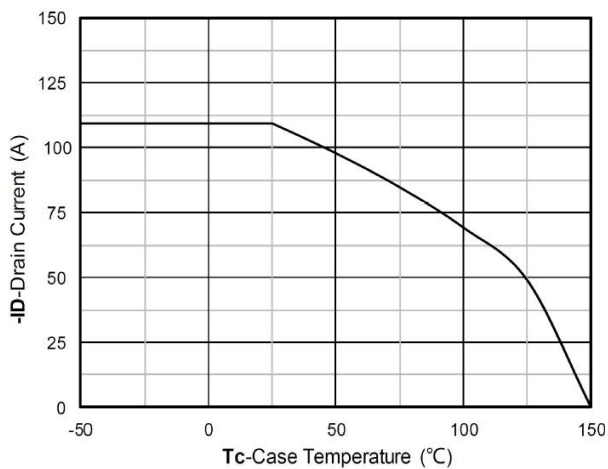
Forward characteristics of reverse diode



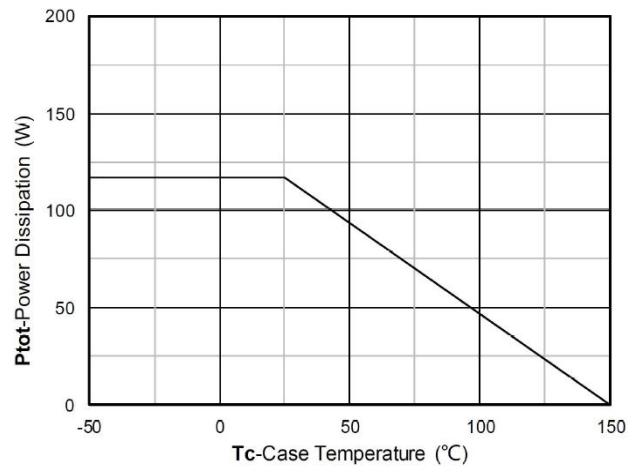
Normalized breakdown voltage



Normalized Threshold voltage

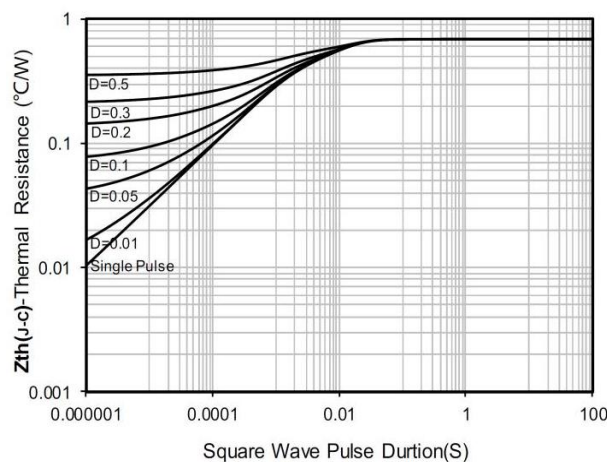


Current dissipation

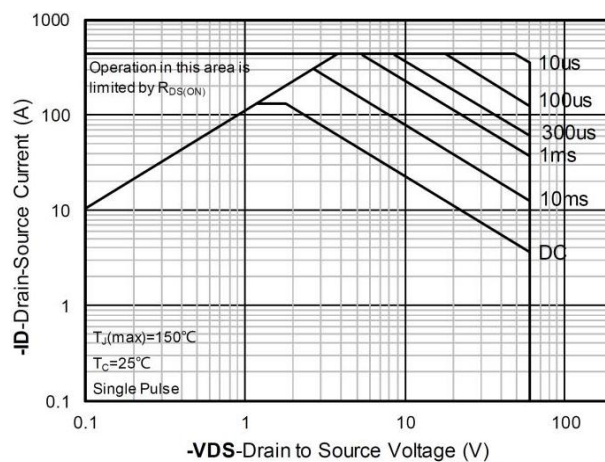


Power dissipation

Typical Characteristics

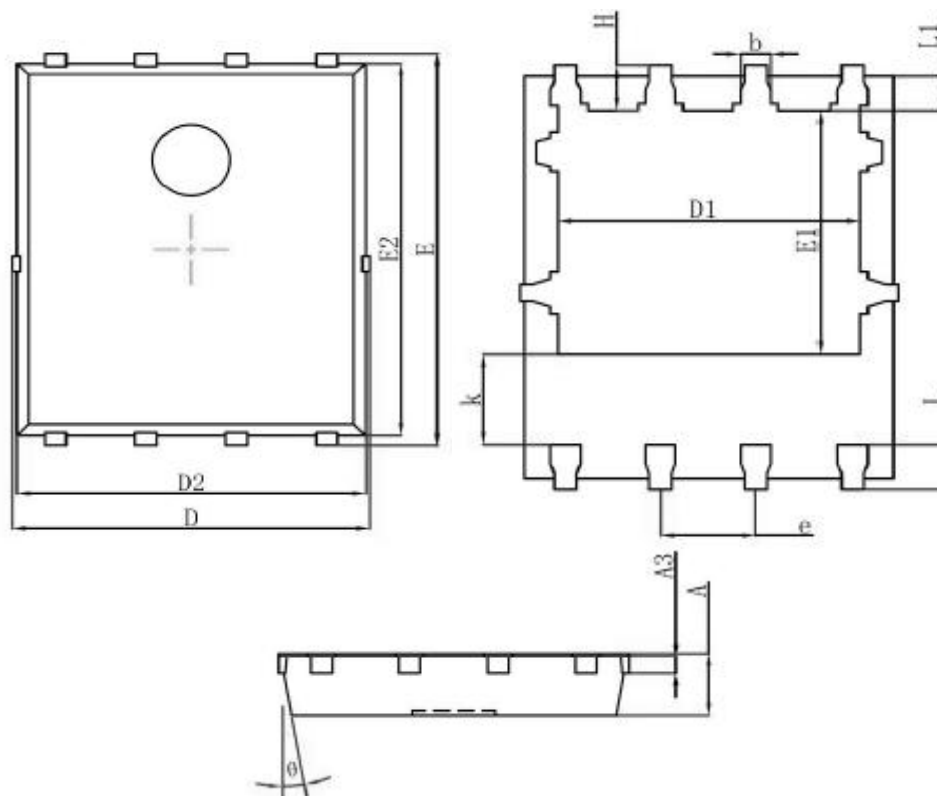


Maximum Transient Thermal Impedance



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	0.245 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 TYP.		0.050 TYP.	
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°