

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-100V	88mΩ@-10V	-14A
	115mΩ@-4.5V	

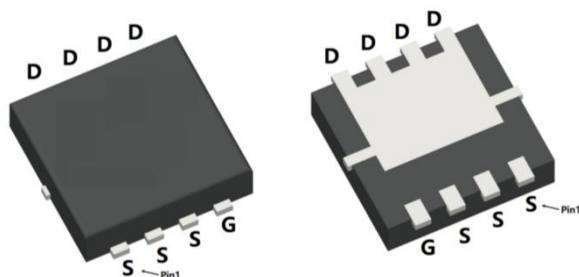
Feature

- Fast switching speed
- Low On-Resistance
- Advanced split gate trench technology

Application

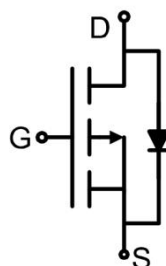
- DC-DC converters
- Power management

Package

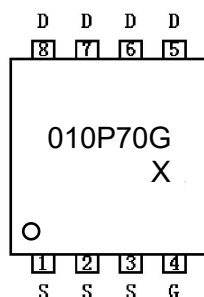


PDFN3*3-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	-14	A
Pulsed Drain Current	I_{DM}	-56	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	110	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	50	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.5	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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

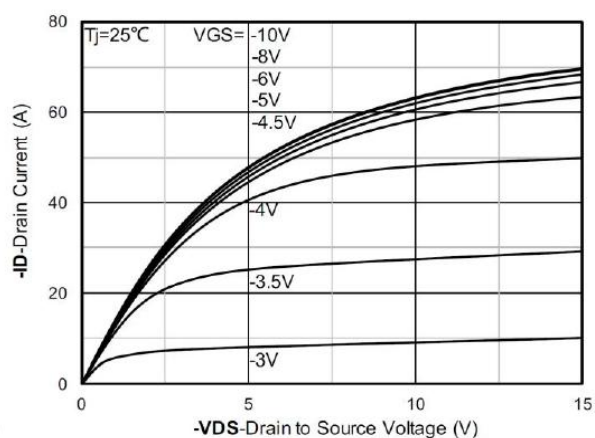
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-80V, V _{GS} =0V, T _J =25℃			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±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 =-10A		70	88	mΩ
		V _{GS} =-4.5V, I _D =-5A		85	115	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f =1MHz		1050		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			23		
Total Gate Charge	Q _g	V _{DS} =-50V, V _{GS} =-10V I _D =-10A		20		nC
Gate-Source Charge	Q _{gs}			4		
Gate-Drain Charge	Q _{gd}			4.4		
Turn-on delay time	t _{d(on)}	V _{DS} =-50V, V _{GS} =-10V I _D =-20A, R _G =9.1Ω		15		nS
Turn-on rise time	t _r			30		
Turn-off delay time	t _{d(off)}			73		
Turn-off fall time	t _f			76		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-14	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25℃			-1.2	V
Reverse Recovery Time	T _{rr}	V _{DS} =-50V, I _S =-5A di/dt =-100A/μs, T _J =25℃		23		nS
Reverse Recovery Charge	Q _{rr}			68		nC

Notes:

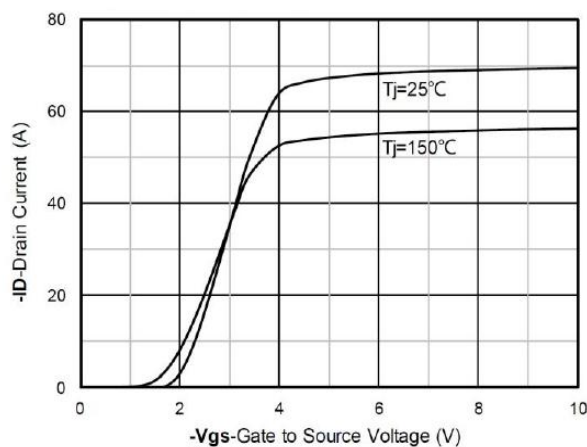
1) EAS test conditions $T_J=25^{\circ}\text{C}$, $V_{DD}=20\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$.

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

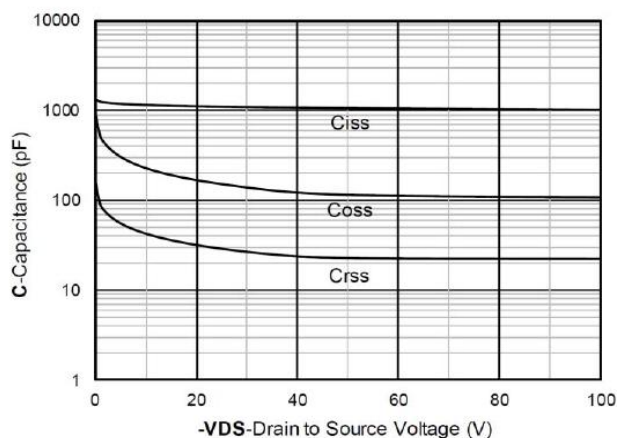
Typical Characteristics



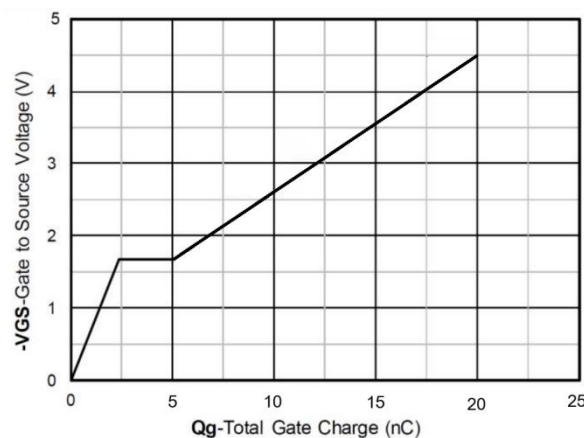
Output Characteristics



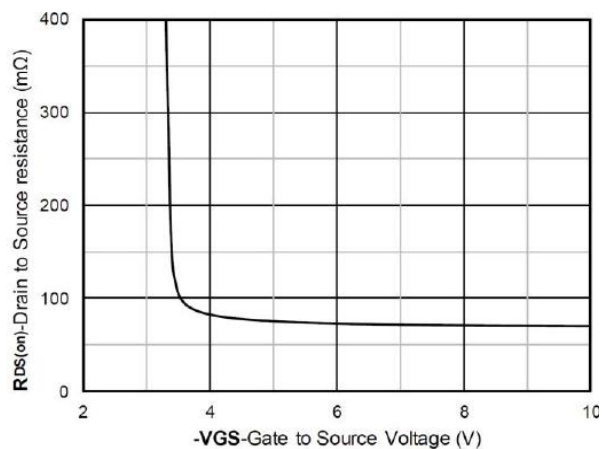
Transfer Characteristics



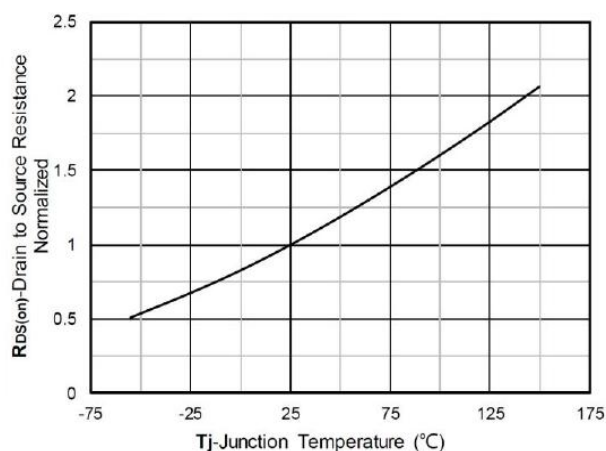
Capacitance Characteristics



Gate Charge

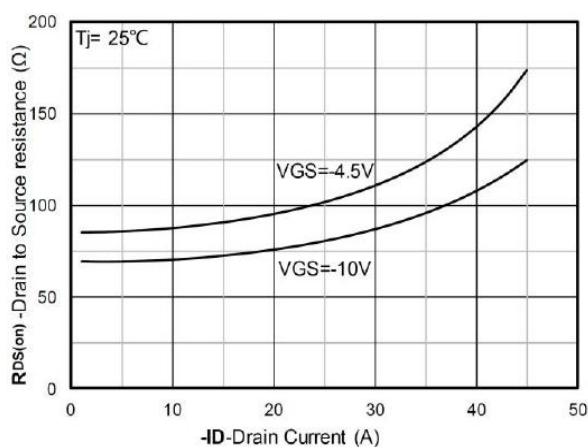


On-Resistance vs Gate to Source Voltage

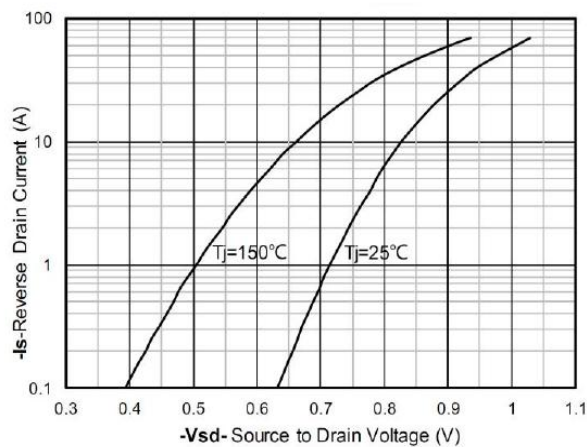


Normalized On-Resistance

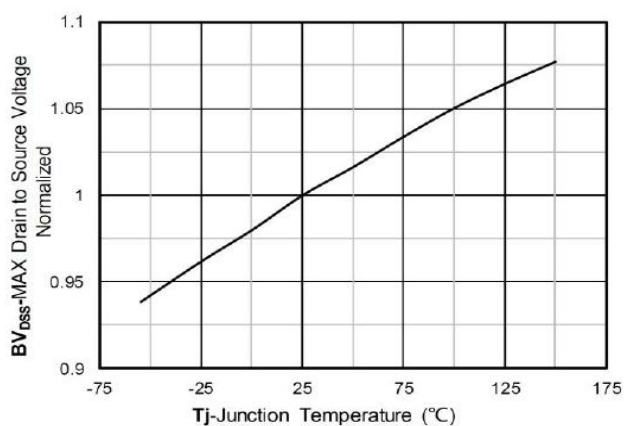
Typical Characteristics



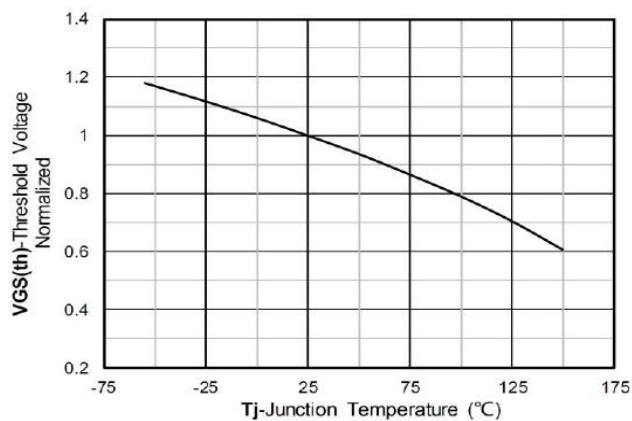
RDS(on) VS Drain Current



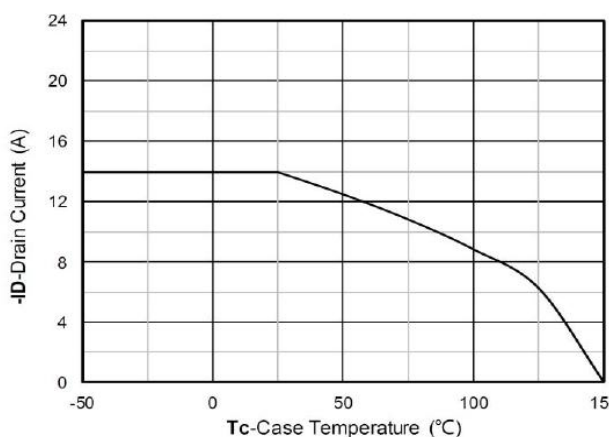
Forward characteristics of reverse diode



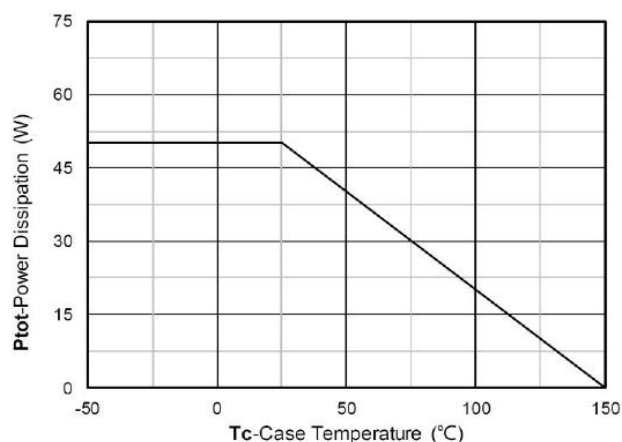
Normalized breakdown voltage



Normalized Threshold voltage

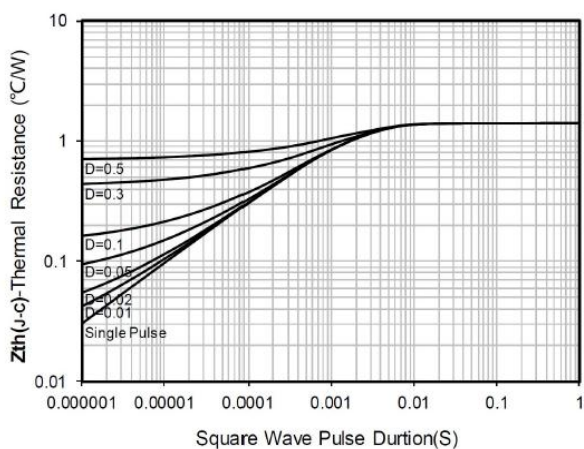


Current dissipation

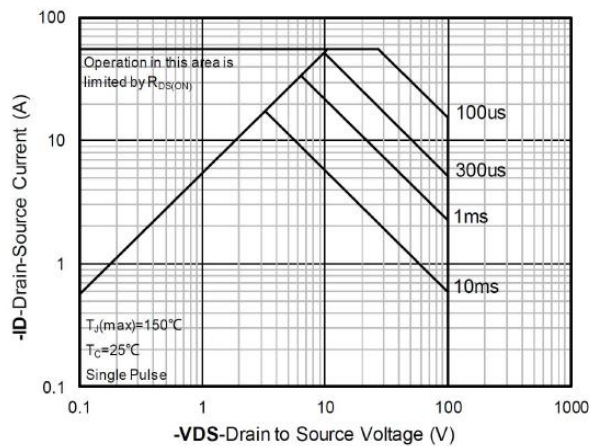


Power dissipation

Typical Characteristics

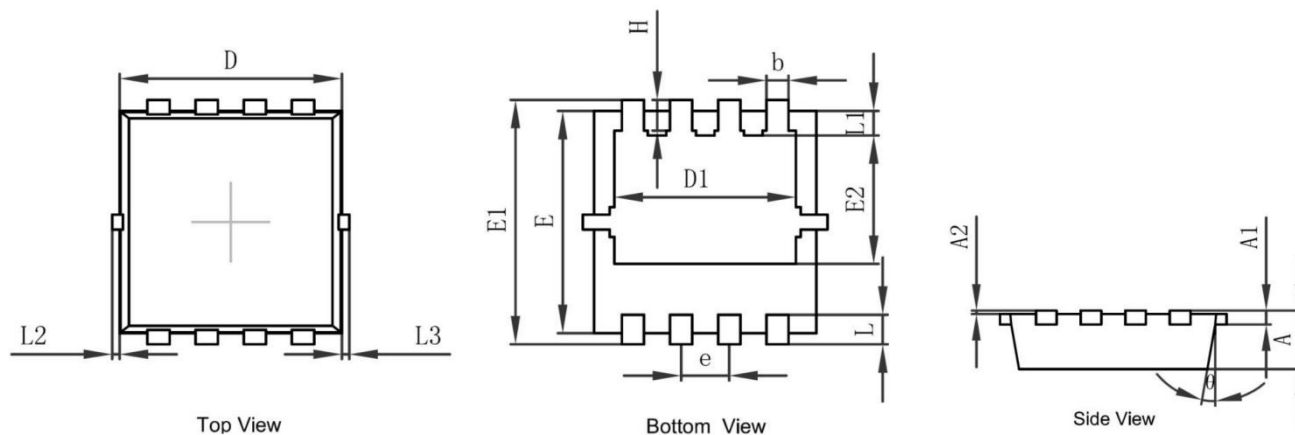


Maximum Transient Thermal Impedance



Safe Operation Area

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°