

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	4.3mΩ@-10V	-90A
	8mΩ@-4.5V	

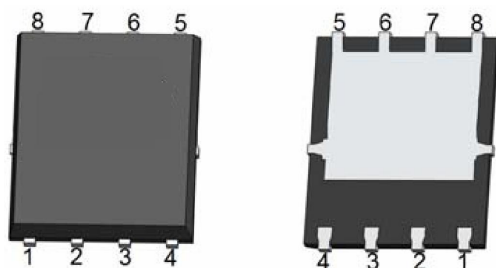
Feature

- Fast switching speed
- Surface mount package

Application

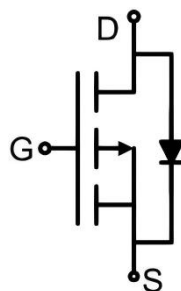
- DC-DC Converters.
- Motor Control.

Package

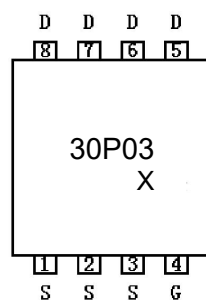


PDFN5*6-8L

Circuit diagram



Marking



Absolute maximum ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current (T _C =25°C)	I _D	-90	A
Continuous Drain Current (T _C =100°C)	I _D (100°C)	-60	A
Pulsed Drain Current	I _{DM}	-360	A
Single Pulse Avalanche Energy ¹⁾	E _{AS}	625	mJ
Power Dissipation (T _C =25°C)	P _D	55	W
Thermal Resistance Junction to Case	R _{θJC}	2.3	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

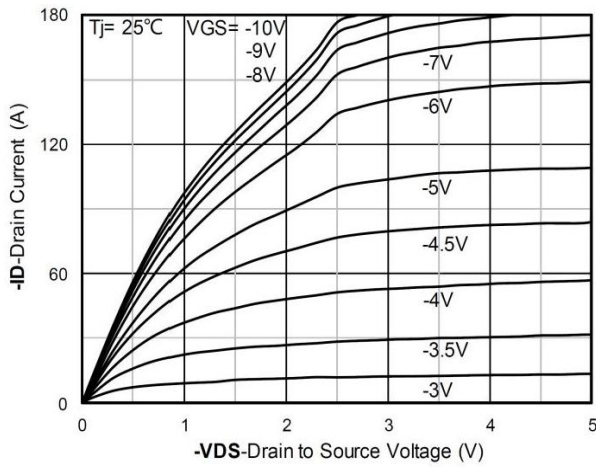
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V, T _J =25°C			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.6	-2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-30A		3.3	4.3	mΩ
		V _{GS} =-4.5V, I _D =-20A		6	8	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f =1MHz		5700		pF
Output Capacitance	C _{oss}			859		
Reverse Transfer Capacitance	C _{rss}			650		
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V I _D =-20A		120		nC
Gate-Source Charge	Q _{gs}			23		
Gate-Drain Charge	Q _{gd}			17		
Turn-on delay time	t _{d(on)}	V _{DS} =-15V, V _{GS} =-10V I _D =-20A, R _G =3Ω		27		nS
Turn-on rise time	t _r			83		
Turn-off delay time	t _{d(off)}			76		
Turn-off fall time	t _f			65		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-90	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25°C			-1.2	V
Reverse Recovery Time	T _{rr}	I _S =-20A, di/dt =-100A/μs T _J =25°C		30		nS
Reverse Recovery Charge	Q _{rr}			18		nC

Notes:

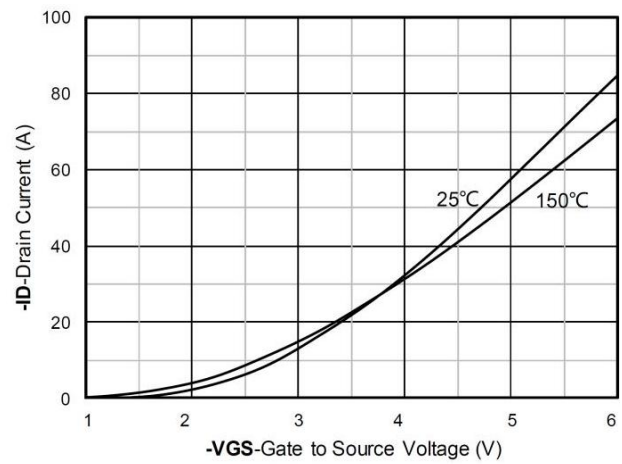
1) The EAS Test condition is V_{DS}=-15V, V_{GS} =-10V, L = 0.5mH, R_G=25Ω

2) Guaranteed by design, not subject to production.

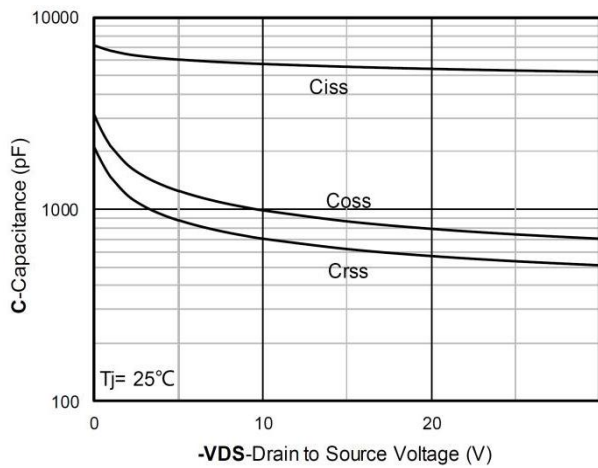
Typical Characteristics



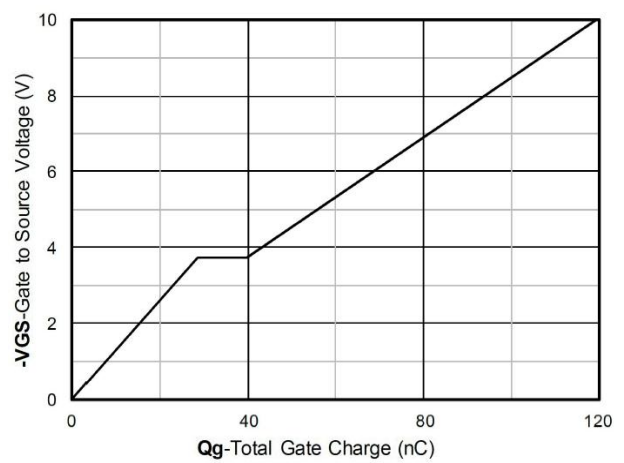
Output Characteristics



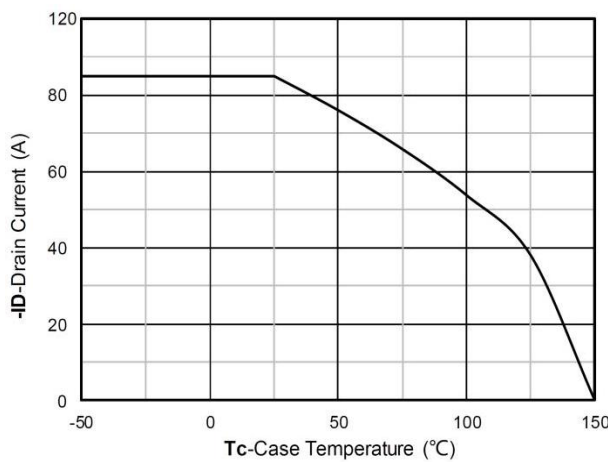
Transfer Characteristics



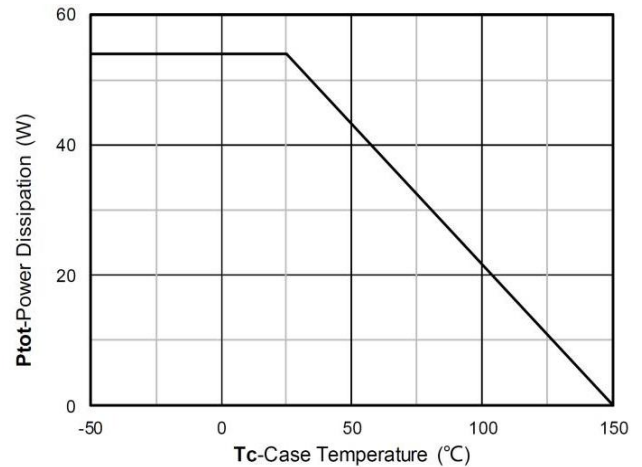
Capacitance Characteristics



Gate Charge

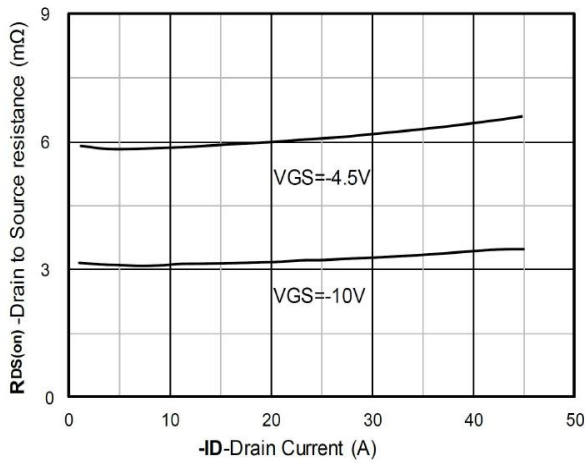


Current dissipation

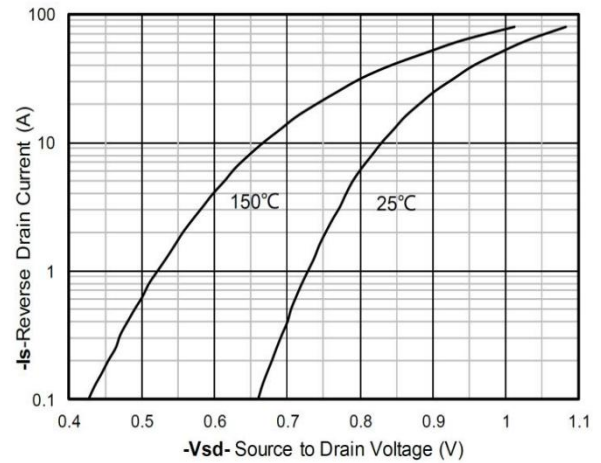


Power dissipation

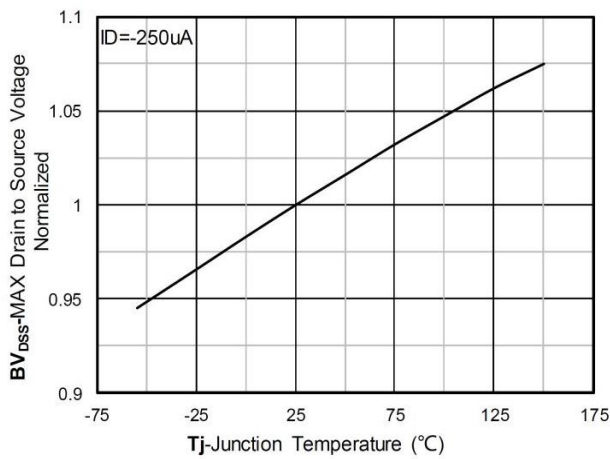
Typical Characteristics



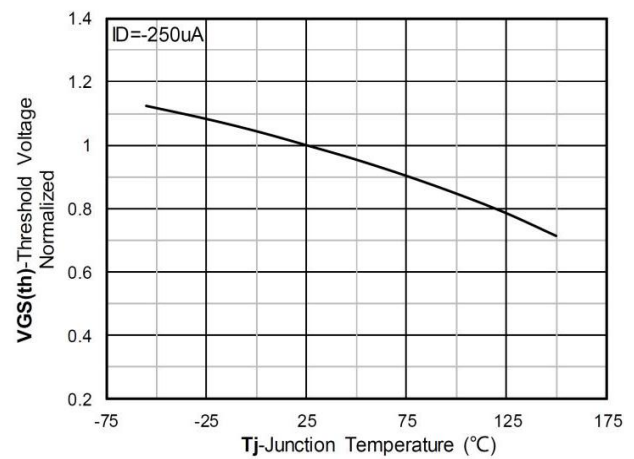
$R_{DS(on)}$ VS Drain Current



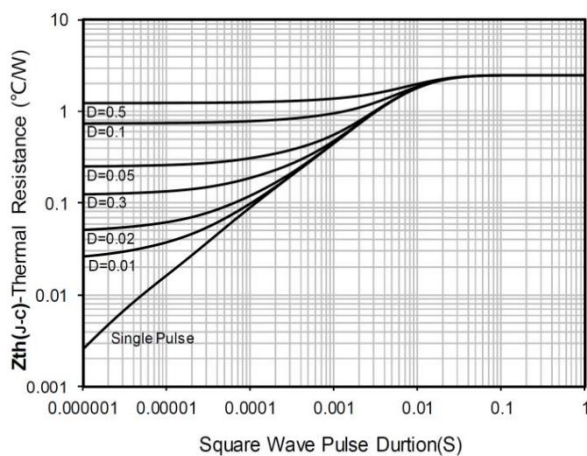
Forward characteristics of reverse diode



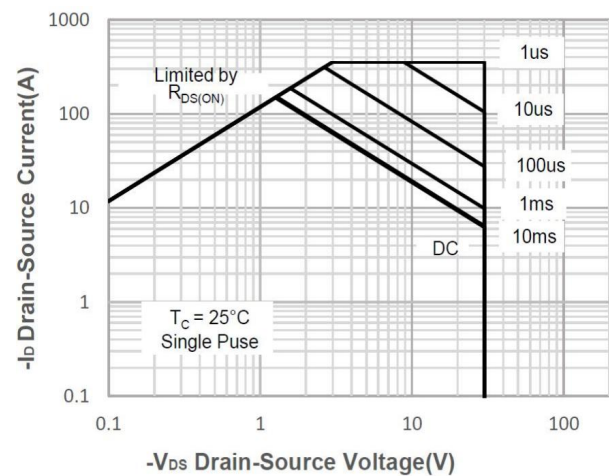
Normalized breakdown voltage



Normalized Threshold voltage

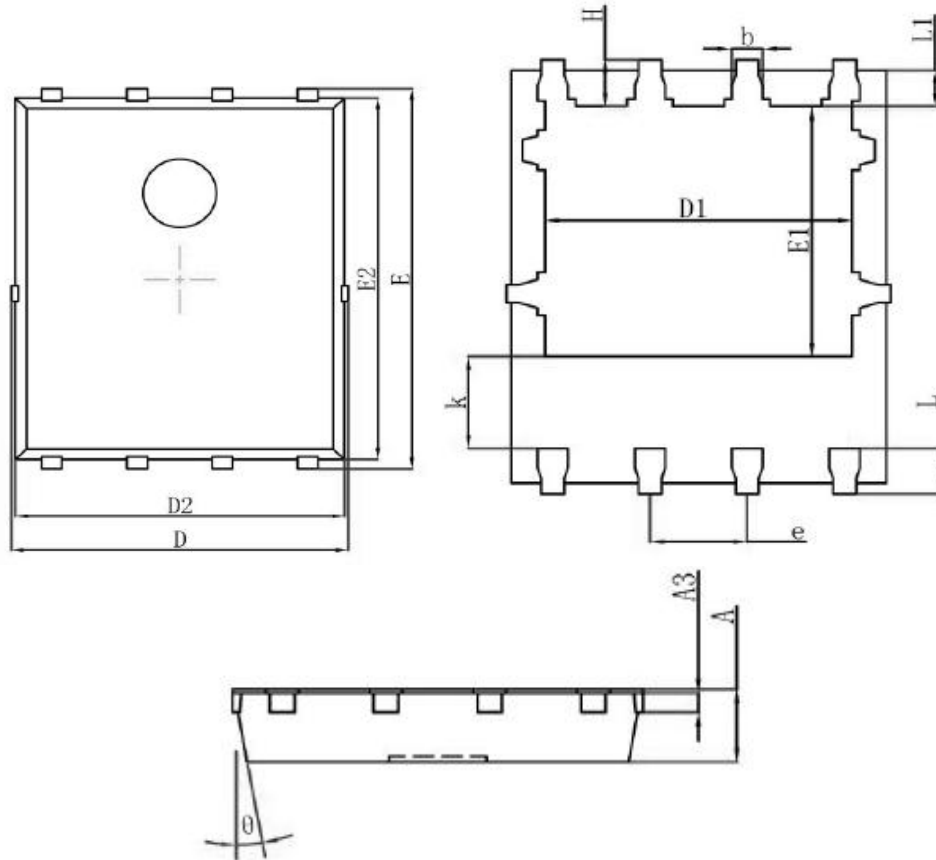


Maximum Transient Thermal Impedance



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°