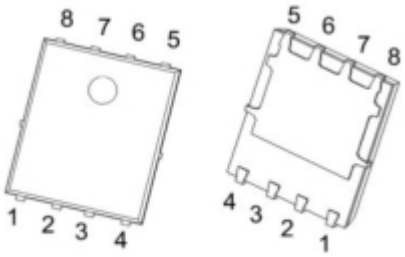
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	3mΩ@-4.5V	-50A
	4.5mΩ@-2.5V	

Feature

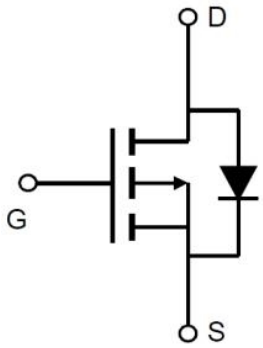
- Super Low Gate Charge
- Green Device Available
- High density cell design for ultra low Rdson
- Advanced high cell density Trench technology

Package



PDFN5X6-8L

Circuit diagram



Marking

20P03 **=Device Code**
***** **=Month Code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-50	A
Pulsed Drain Current[1)]	I_{DM}	-200	A
Power Dissipation	P_D	39	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.2	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical characteristics

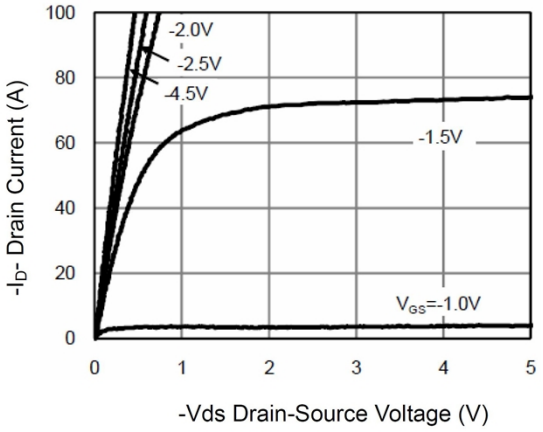
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-20V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±30V , V_{DS}=0V			±100	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.45	-0.65	-1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-20A		3	3.8	mΩ
		V_{GS} =-2.5V, I_D =-20A		4.5	6	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V, V_{GS}=0V, f=1MHz		4920		pF
Output Capacitance	C_{oss}			390		
Reverse Transfer Capacitance	C_{rss}			310		
Total Gate Charge	Q_g	V_{DS}=-10V, V_{GS}=-4.5V, I_D =-20A		99		pF
Gate Source Charge	Q_{gs}			20.5		
Gate Drain Charge	Q_{gd}			31.7		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-10V, V_{GS}=-4.5V, R_G=3, R_L=0.5		20.4		nS
Rise Time	T_r			50.8		
Turn-Off Delay Time	$T_{d(off)}$			98		
Fall Time	T_f			43		
Source- Drain Diode Characteristics						
Forward on voltage	V_{SD}	VGS=0V , IS=-1A			-1.2	V
Reverse Recovery Time	t_{rr}	I_F=-10A, dI/dt=100A/μs , T_J =25℃		21		nS
Reverse Recovery Charge	Q_{rr}			11		nC

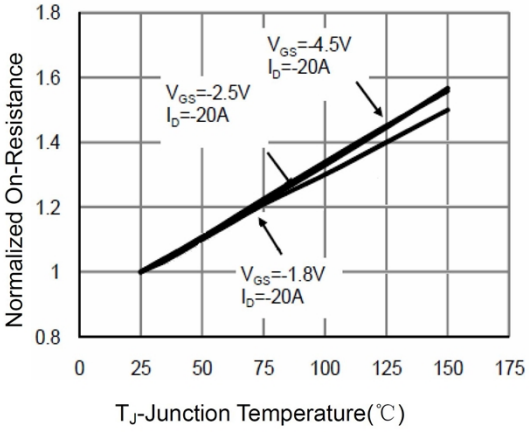
Notes:

1. Pulse width ≤ 300μs; duty cycle≤ 2%.

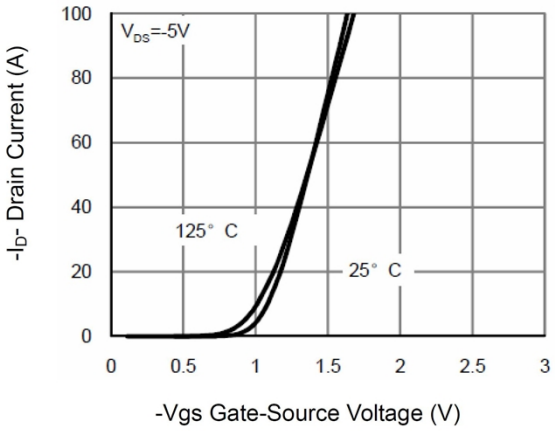
Typical Characteristics



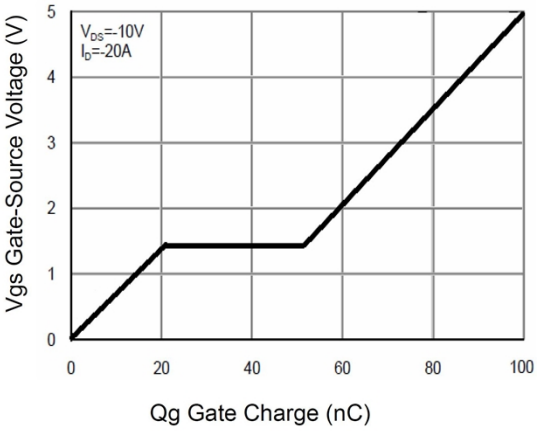
Output Characteristics



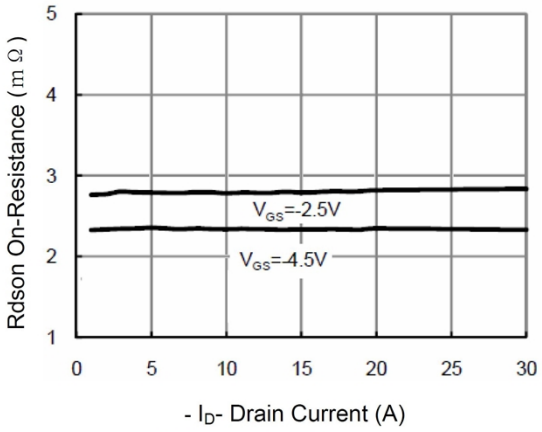
Rdson-Junction Temperature



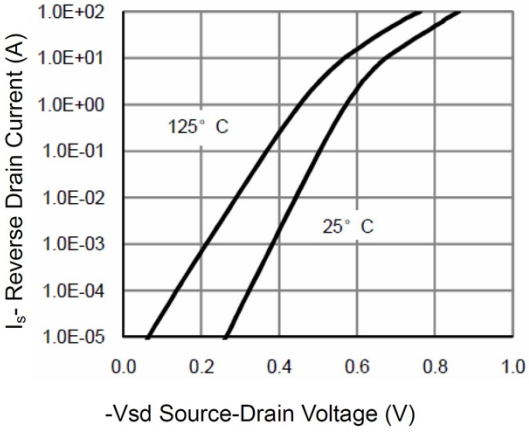
Transfer Characteristics



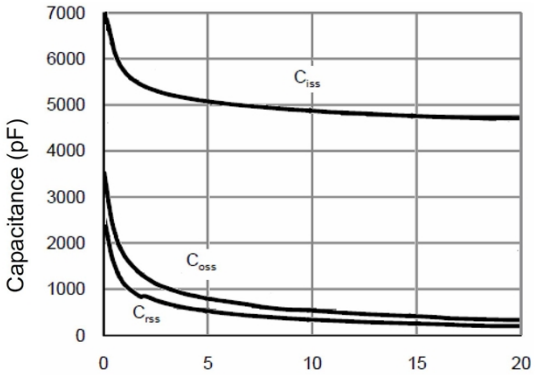
Gate Charge



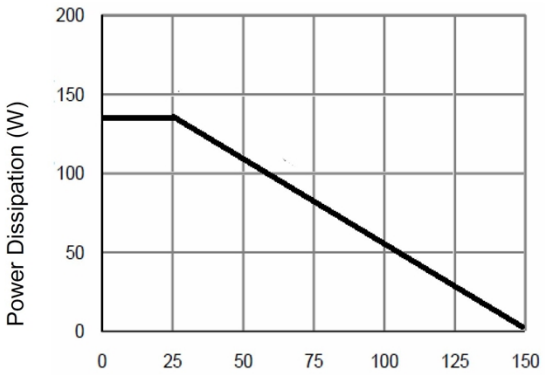
Rdson- Drain Current



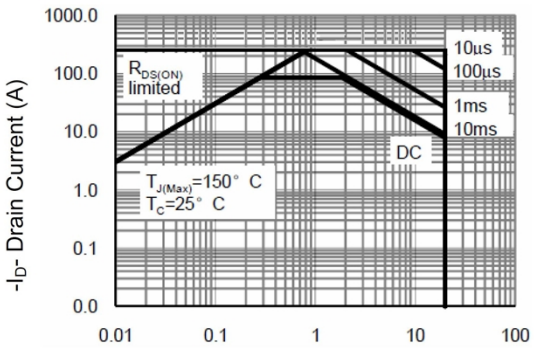
Source- Drain Diode Forward



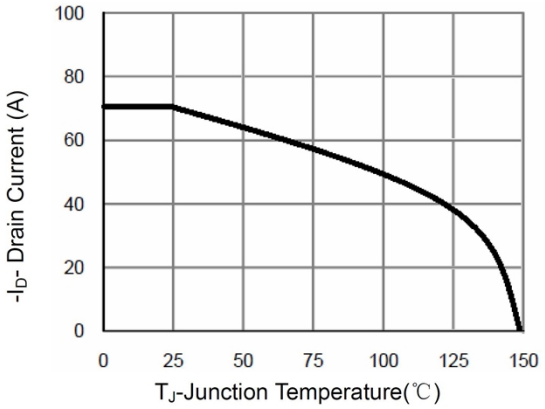
Capacitance vs Vds



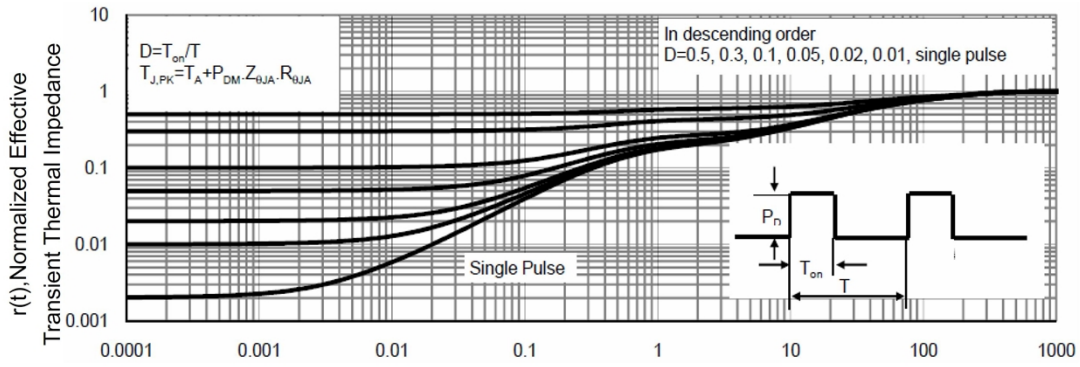
Power De-rating



Safe Operation Area

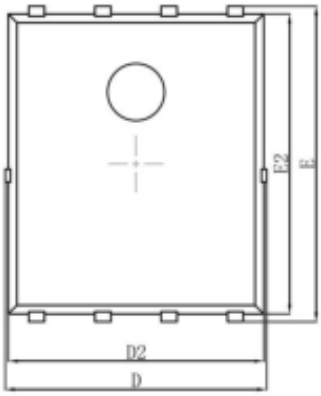


Current De-rating

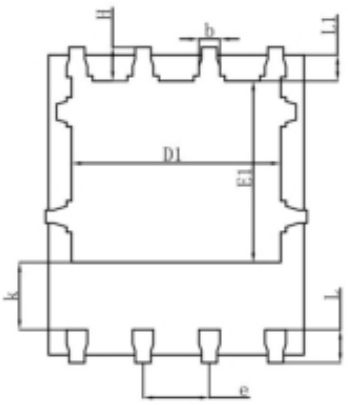


Normalized Maximum Transient Thermal Impedance

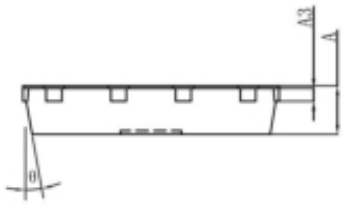
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
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	1.270TYP.		0.050TYP.	
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°