

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	15mΩ@10V	40A
	18mΩ@4.5V	

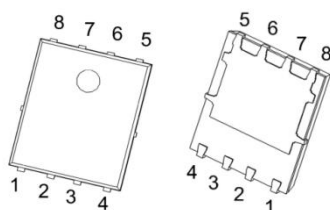
Feature

- Fast Switching
- Low Gate Charge and $R_{DS(on)}$
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

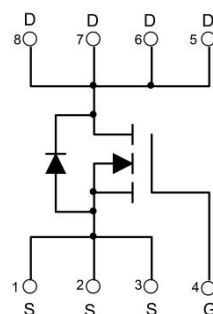
- Power switching application
- DC-DC Converter

Package

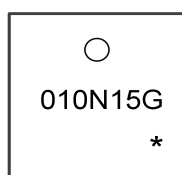


PDFN5X6-8L

Circuit diagram



Marking



010N15G =Device Code
* =Month Code

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	40	A
Pulsed Drain Current ²	I_{DM}	160	A
Single Pulse Avalanche Energy ³	E_{AS}	156	mJ
Avalanche Current	I_{AS}	21	A
Total Power Dissipation ⁴ (Tc=25°C)	P_D	65	W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	1.92	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

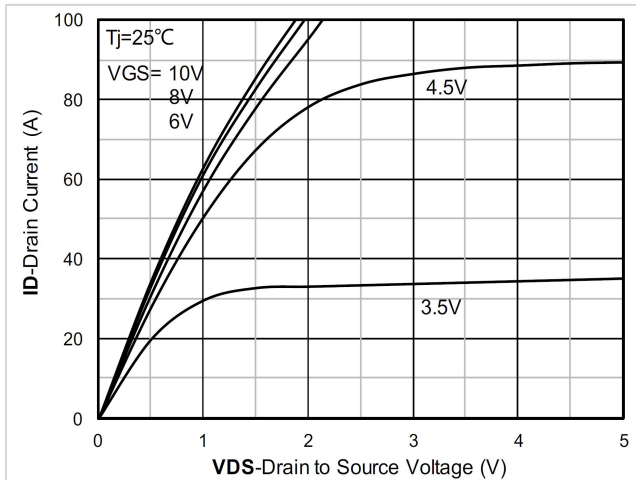
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	100	---	---	V
Drain-Source Leakage Current	IDSS	VDS=80V , VGS=0V , TJ=25℃	---	---	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance ²	RDS(on)	VGS=10V , ID=20A	---	15	19	mΩ
		VGS=4.5V , ID=10A	---	18	24	
Dynamic Characteristics						
Input Capacitance	Ciss	VDS=50V , VGS=0V , f=1MHz	---	1135	---	pF
Output Capacitance	Coss		---	399	---	
Reverse Transfer Capacitance	Crss		---	18	---	
Switching Characteristics						
Total Gate Charge	Qg	VDS=50V , VGS=10V , ID=20A	---	16	---	nC
Gate-Source Charge	Qgs		---	5.6	---	
Gate-Drain Charge	Qgd		---	2.4	---	
Turn-On Delay Time	Td(on)	VDD=50V , VGS=10V , RG=3Ω , ID=20A	---	39.2	---	ns
Rise Time	Tr		---	11	---	
Turn-Off Delay Time	Td(off)		---	53.2	---	
Fall Time	Tf		---	15.7	---	
Source-Drain Diode Characteristics						
Diode Forward Voltage ²	VSD	VGS=0V , IS=1A , TJ=25℃	---	---	1.2	V

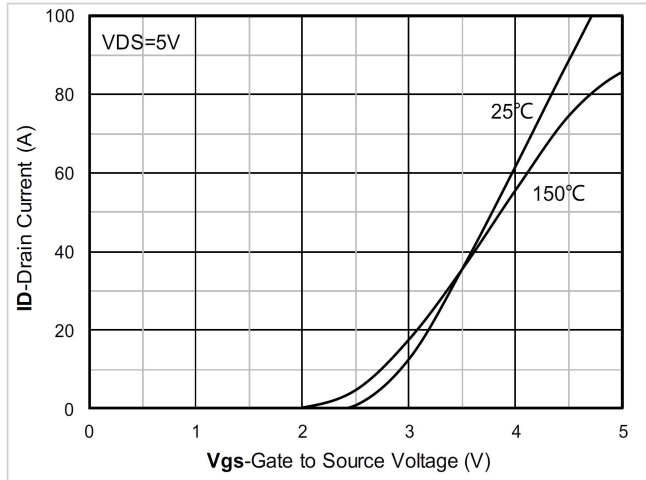
Note :

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=0.5mH$
4. The power dissipation is limited by 150°C junction temperature

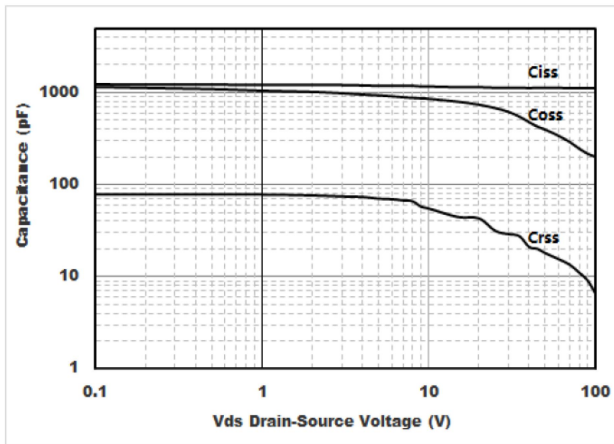
Typical Characteristics



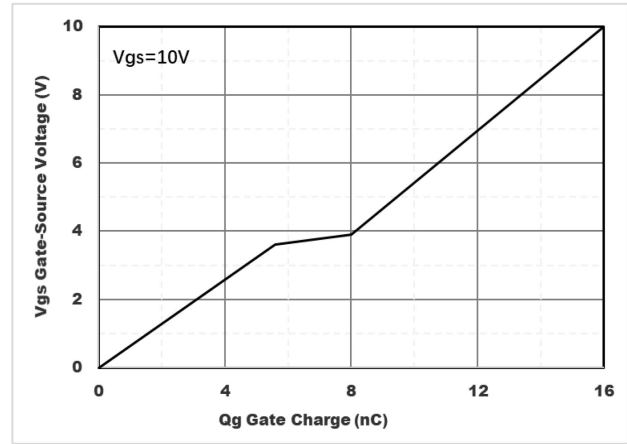
Output Characteristics



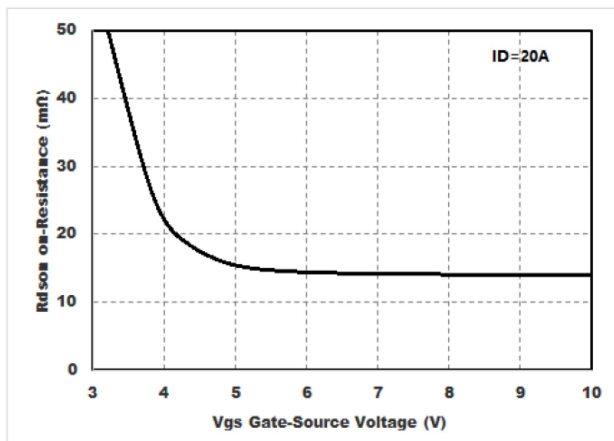
Transfer Characteristics



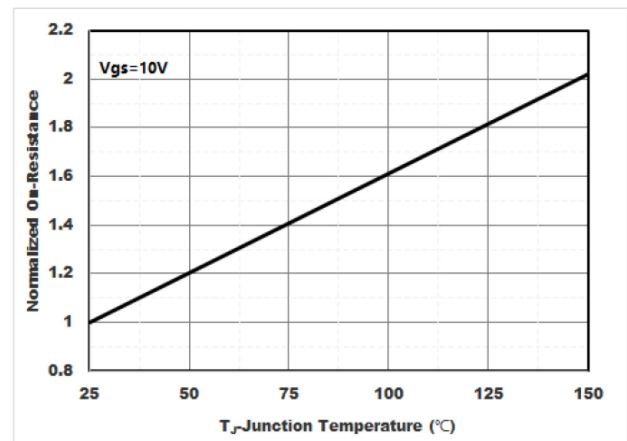
Capacitance Characteristics



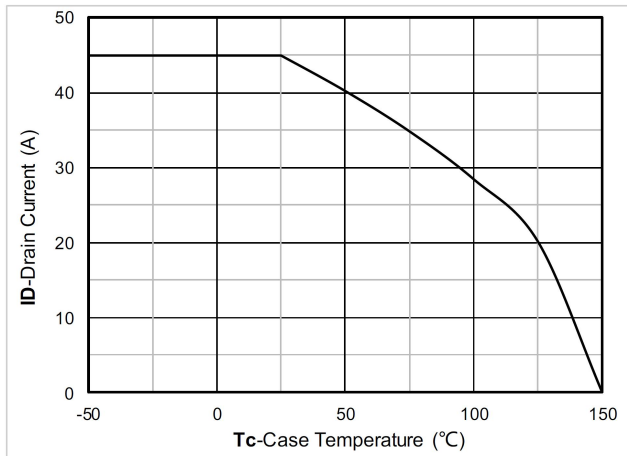
Gate Charge



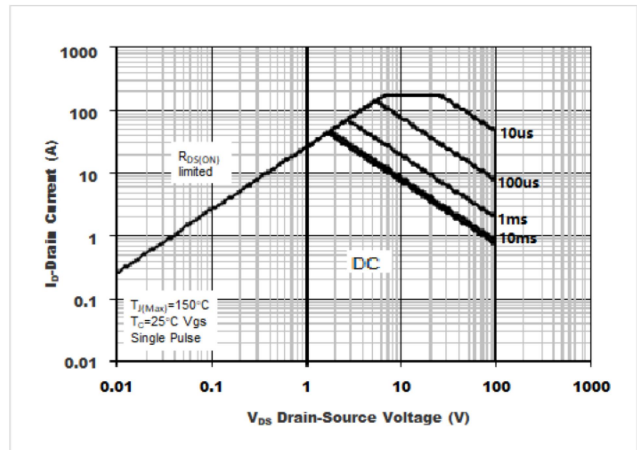
On-Resistance vs. Drain Current and Gate Voltage



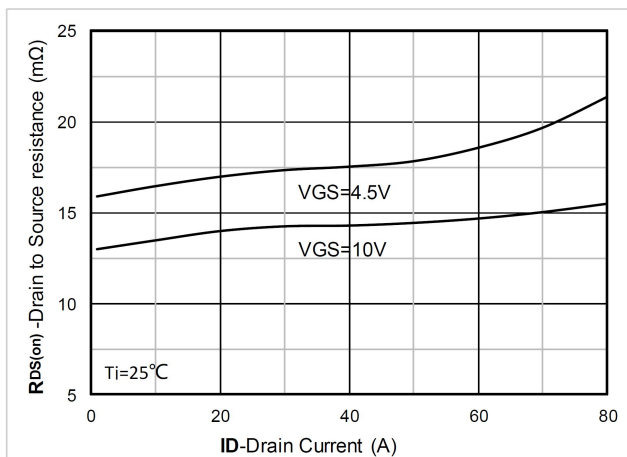
Normalized On-Resistance



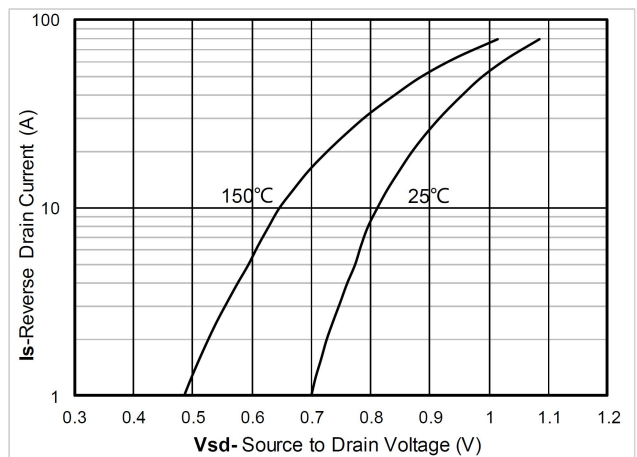
Drain current



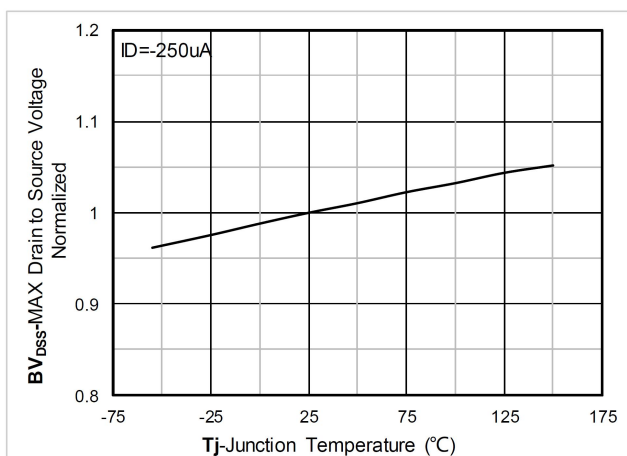
Safe Operation Area



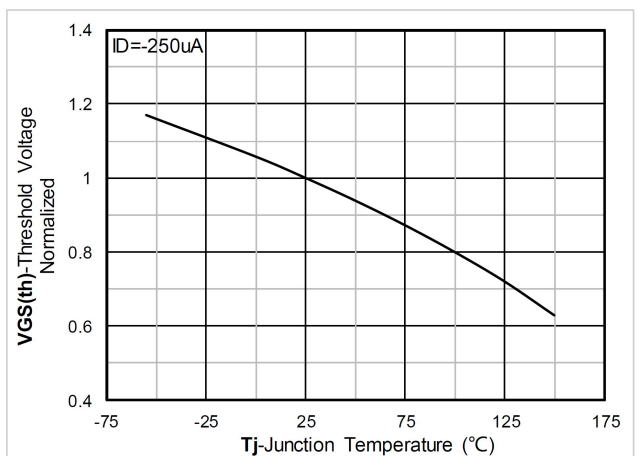
RDS(on) VS Drain Current



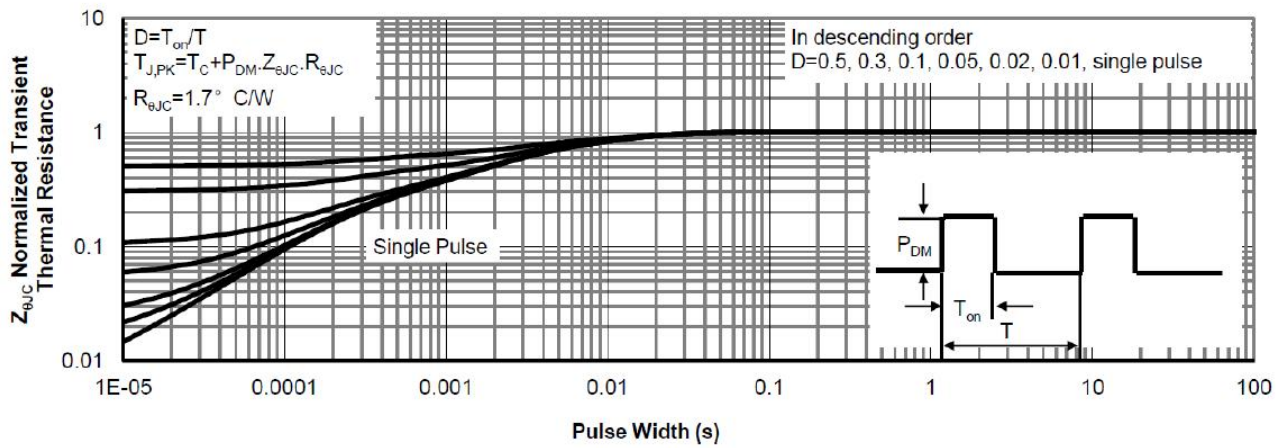
Forward characteristics of reverse diode



Normalized breakdown voltage



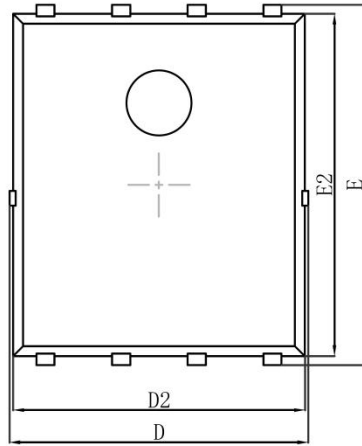
Normalized Threshold voltage



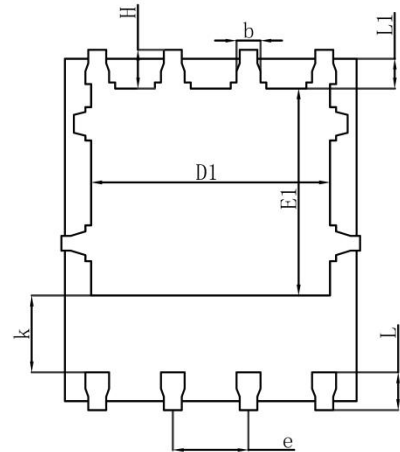
Normalized Maximum Transient thermal impedance



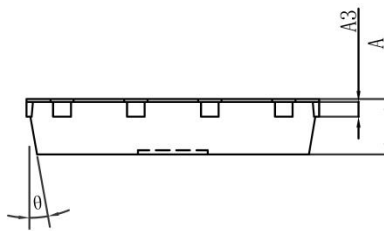
PDFN5X6-8L Package Information



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°