

Product Summary

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

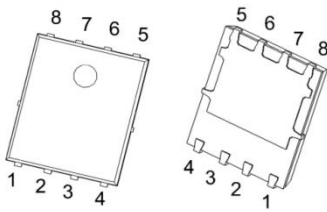
Feature

- Fast Switching
- Low Gate Charge and Rds on
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

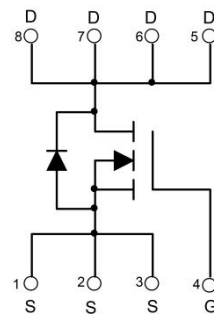
- Power switching application
- DC-DC Converter

Package

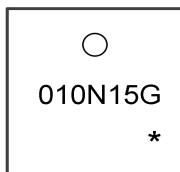


PDFN5X6-8L

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)

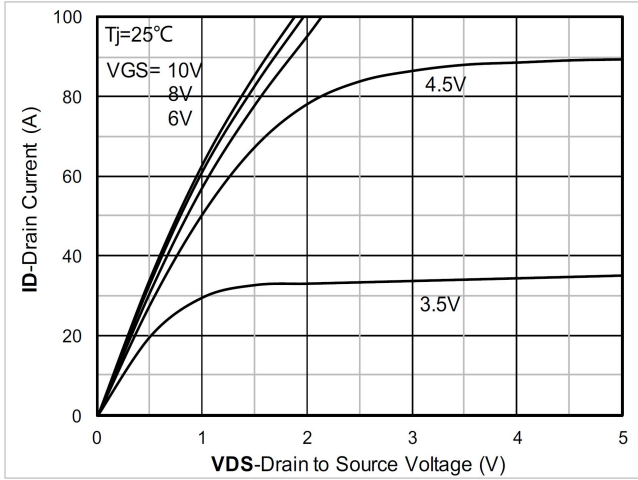
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	---	---	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.8	2.5	V
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	---	15	19	m Ω
		$V_{GS}=4.5V, I_D=10A$	---	18	24	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$	---	1135	---	pF
Output Capacitance	C_{oss}		---	399	---	
Reverse Transfer Capacitance	C_{rss}		---	18	---	
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=20A$	---	16	---	nC
Gate-Source Charge	Q_{gs}		---	5.6	---	
Gate-Drain Charge	Q_{gd}		---	2.4	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=50V, V_{GS}=10V, R_G=3\Omega, I_D=20A$	---	39.2	---	ns
Rise Time	T_r		---	11	---	
Turn-Off Delay Time	$T_{d(off)}$		---	53.2	---	
Fall Time	T_f		---	15.7	---	
Source-Drain Diode Characteristics						
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1.2	V

Note :

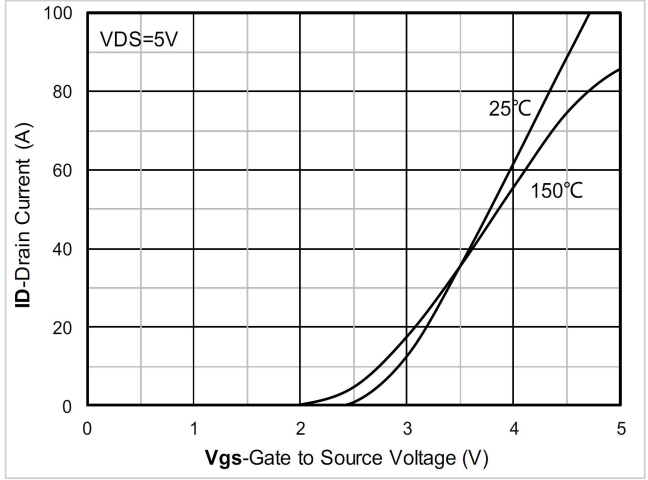
1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD}=50V, V_{GS}=10V, L=0.5mH$
4. The power dissipation is limited by 150°C junction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



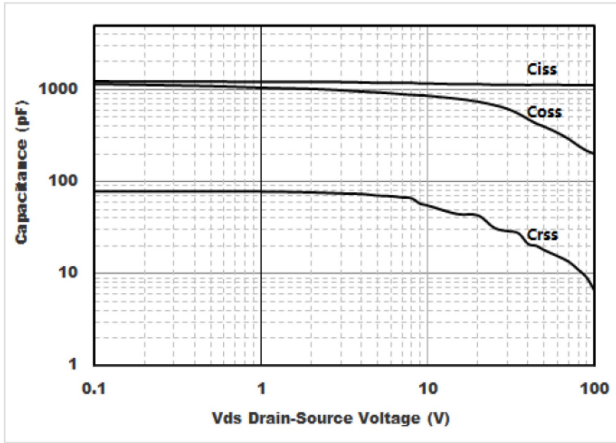
Typical Characteristics



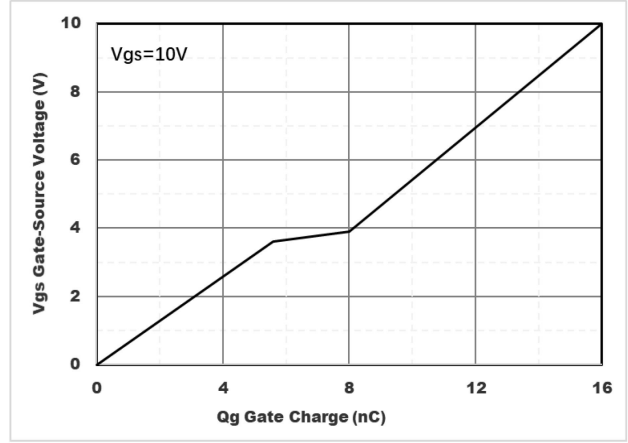
Output Characteristics



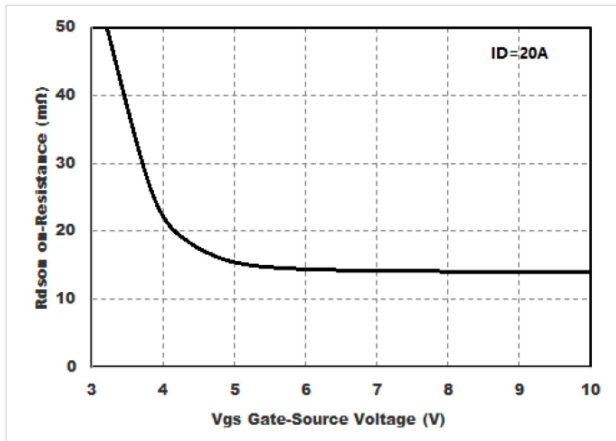
Transfer Characteristics



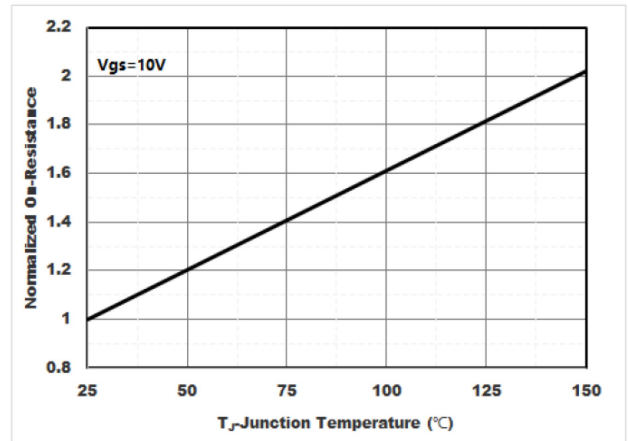
Capacitance Characteristics



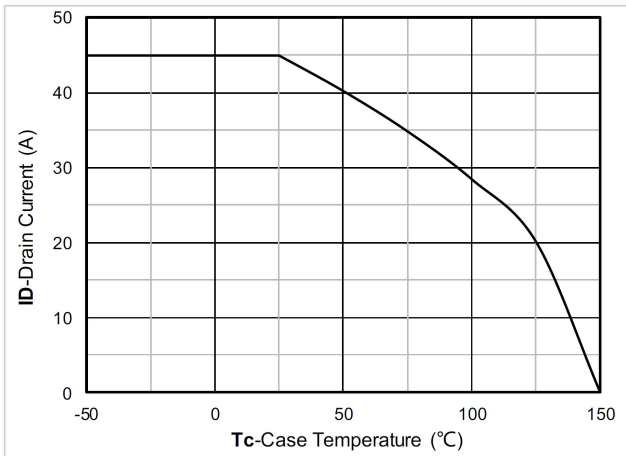
Gate Charge



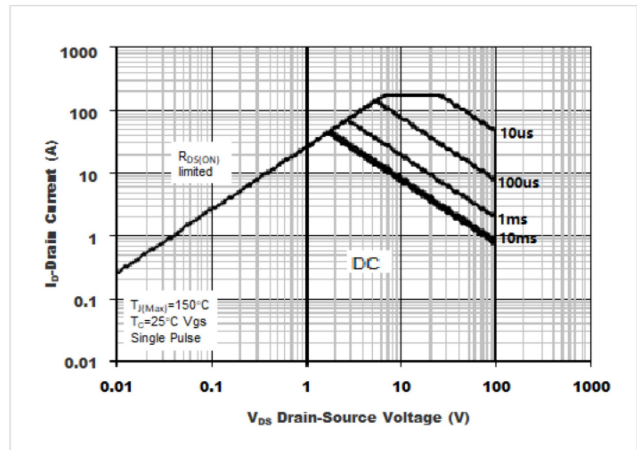
On-Resistance vs. Drain Current and Gate Voltage



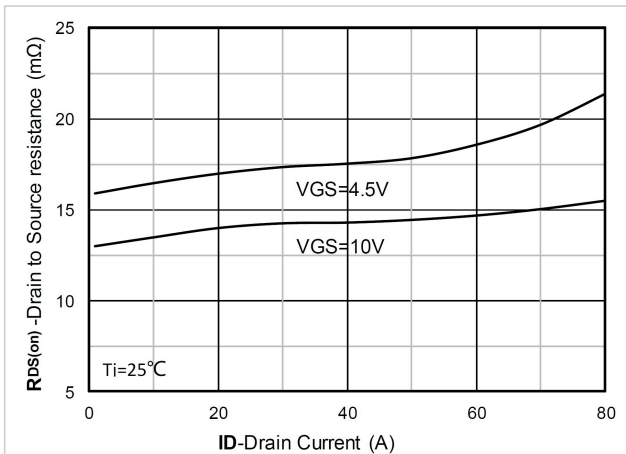
Normalized On-Resistance



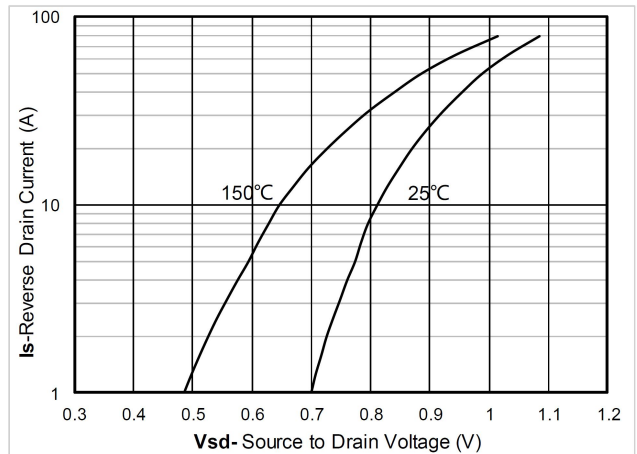
Drain current



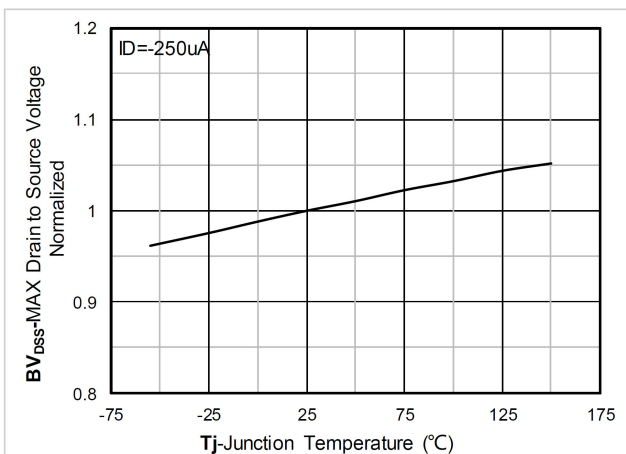
Safe Operation Area



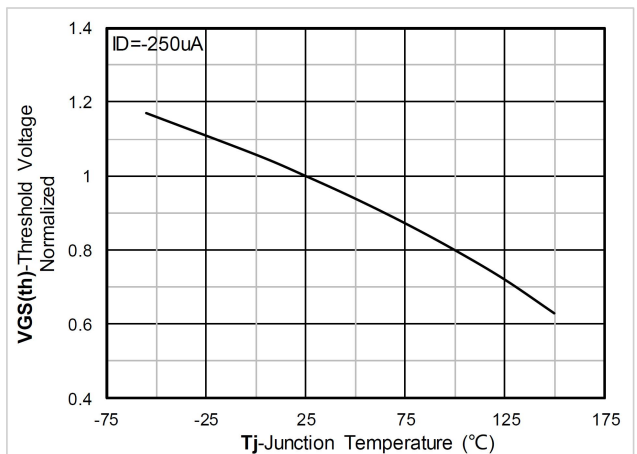
RDS(on) VS Drain Current



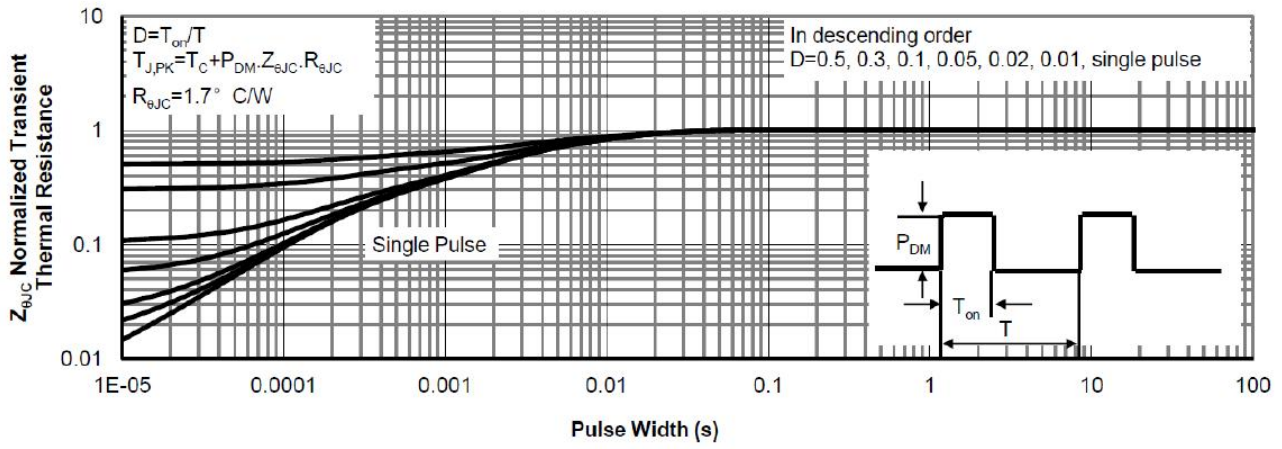
Forward characteristics of reverse diode



Normalized breakdown voltage



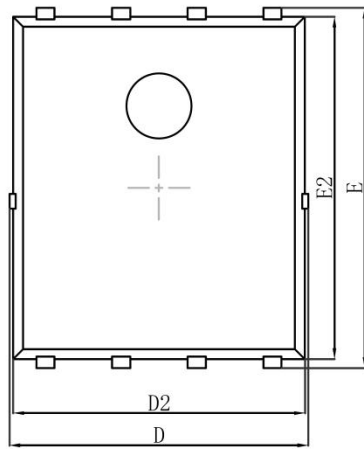
Normalized Threshold voltage



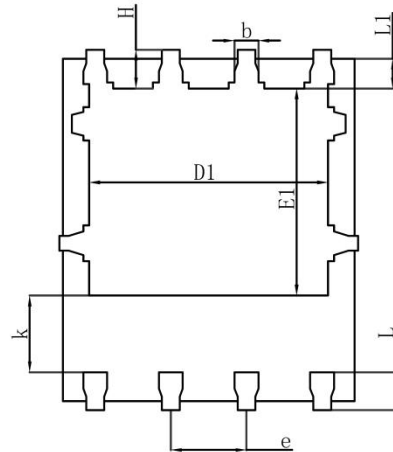
Normalized Maximum Transient thermal impedance



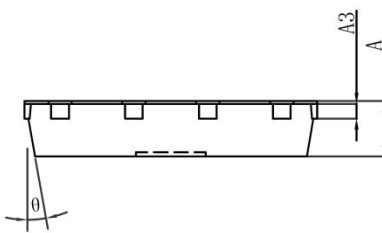
PDFN5X6-8L Package Information



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°

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