Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	1.6mΩ@10V	120A
	2.5mΩ@4.5V	

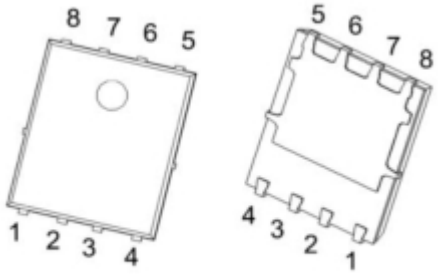
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Application

- Power switching application
- DC-DC Converter
- Power Management

Package



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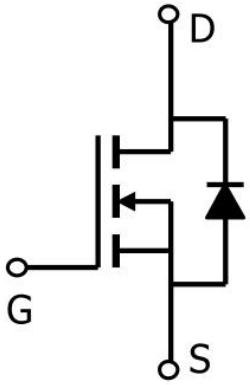
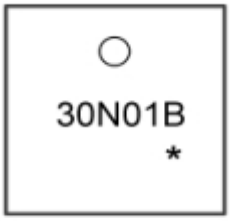
Circuit diagram



Marking



30N01B : Product code

*** : Month code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	30	V
Gate source voltage	V_{GS}	±20	V
Continuous drain current(Tc=25℃)	I_D	120	A
Pulsed drain current	I_{DM}	480	A
Power dissipation(Tc=25℃)	P_D	103	W
Single pulsed avalanche energy[1]	E_{AS}	314	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	1.2	℃/W
Operation and storage temperature	T_{STG}, T_J	-55 to 150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

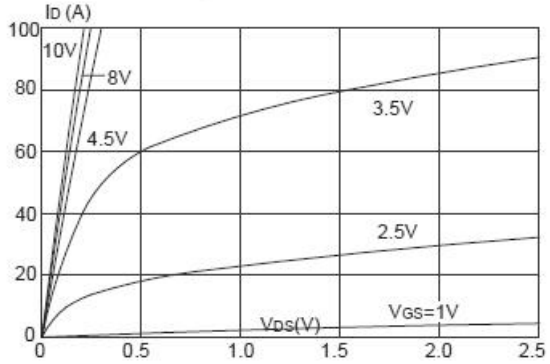
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Drain Cut-Off Current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±0.1	uA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	2.5	V
Drain-source on-resistance[2]	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		1.6	2	mΩ
		V_{GS} =4.5V, I_D =20A		2.5	3.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1MHz		6760		pF
Output Capacitance	C_{oss}			885		
Reverse Transfer Capacitance	C_{rss}			550		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=15V, V_{DS}=10V, I_D =30A		85		pF
Gate-Source Charge	Q_{gs}			11		
Gate-Drain Charge	Q_{gd}			19		
Turn-On Delay Time	$T_{d(on)}$	V_{GD}=10V, V_{DS}=15V, I_D =30A, R_G=3.0Ω		14		nS
Rise Time	T_r			7.5		
Turn-Off Delay Time	$T_{d(off)}$			57		
Fall Time	T_f			13		
Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A			1.2	V

Note:

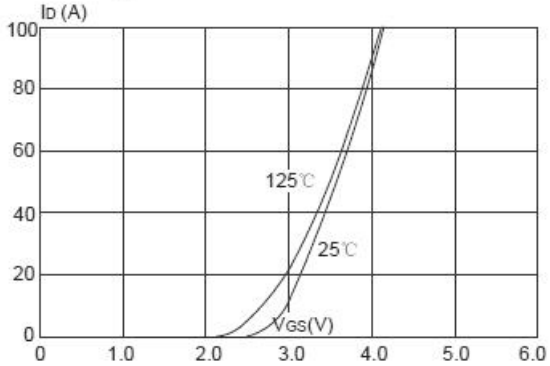
1. E_{AS} is tested at starting T_j = 25℃, V_{DD} =15V,V_{GS} = 10V,L = 0.5mH, Rg=25 Ω;

Typical Characteristics

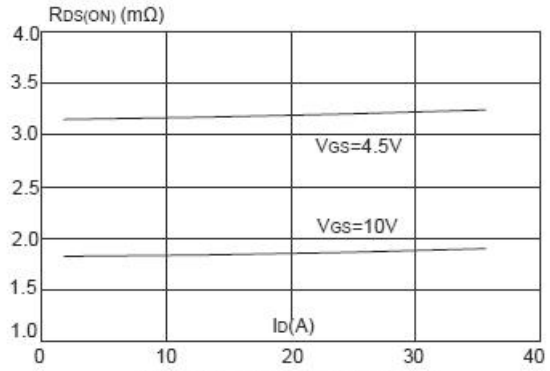
Output Characteristics



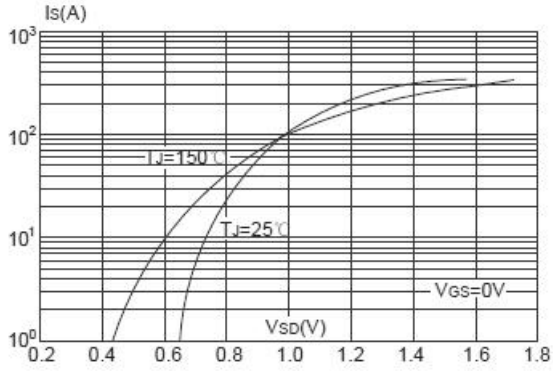
Typical Transfer Characteristics



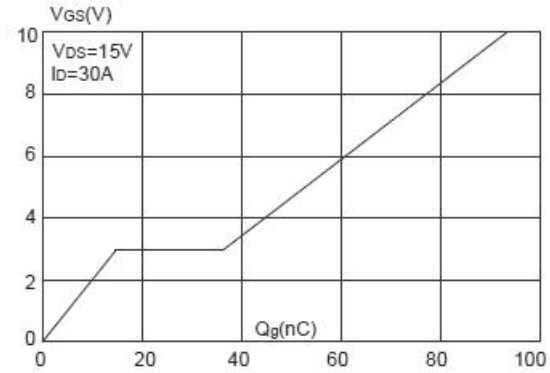
On-resistance vs. Drain Current



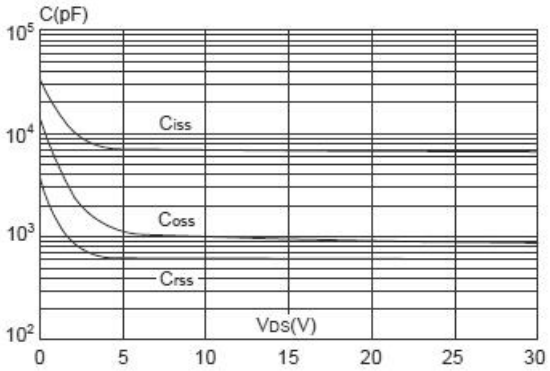
Body Diode Characteristics



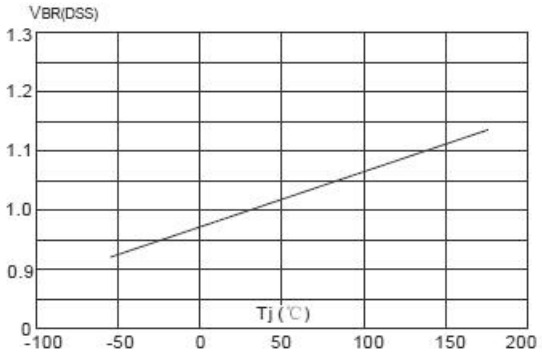
Gate Charge Characteristics



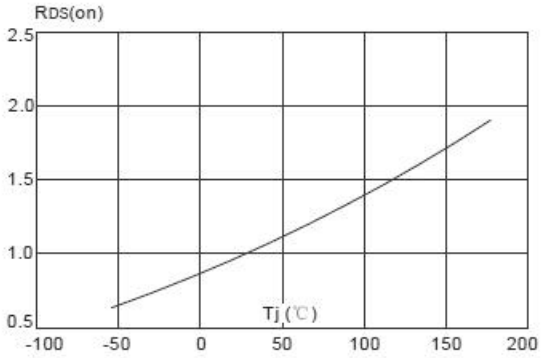
Capacitance Characteristics



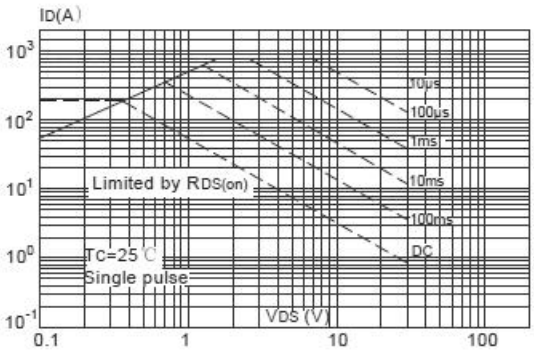
Normalized Breakdown Voltage vs. Junction Temperature



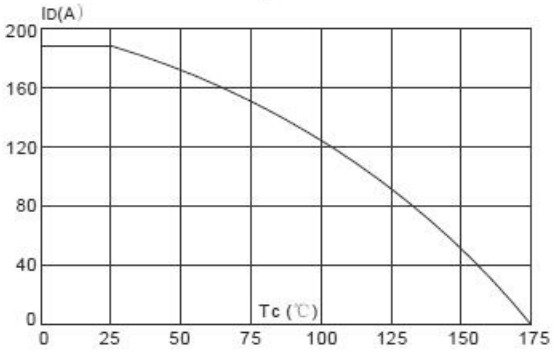
Normalized on Resistance vs. Junction Temperature



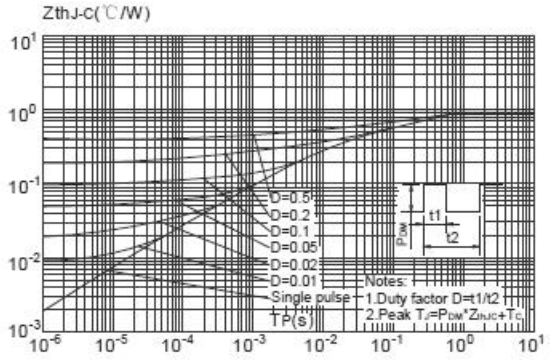
Maximum Safe Operating Area



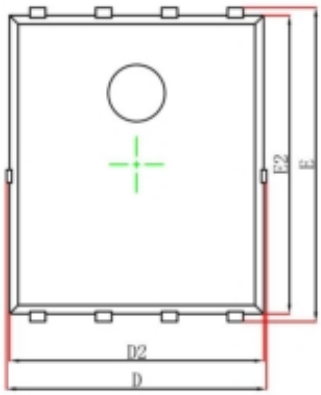
Maximum Continuous Drain Current vs. Case Temperature



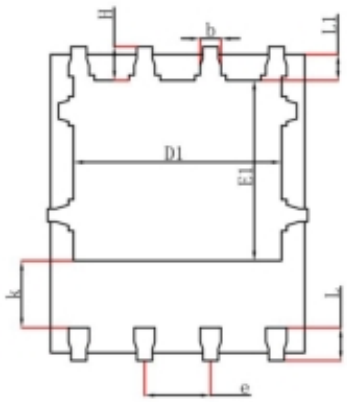
Maximum Effective Transient Thermal Impedance, Junction-to-Case



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°