Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	1.8mΩ@10V	120A
	2.5mΩ@4.5V	

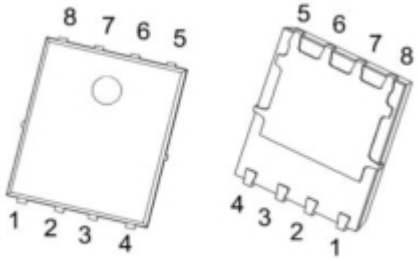
Feature

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

Application

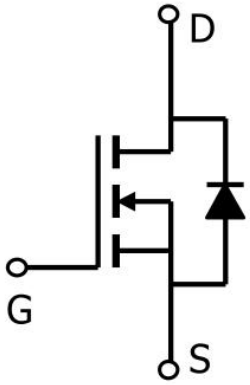
- DC-DC Converter
- Power Management

Package

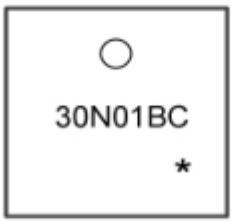


PDFNWB5X6-8L

Circuit diagram



Marking



30N01BC **=Device 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[2]	I_{DM}	480	A
Single pulsed avalanche energy[3]	E_{AS}	462	mJ
Total Power Dissipation (Tc=25℃)	P_D	80	W
Thermal resistance, junction-case[1]	$R_{\theta JC}$	1.56	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operation and storage temperature	T_J	-55 to 150	℃

Electrical characteristics

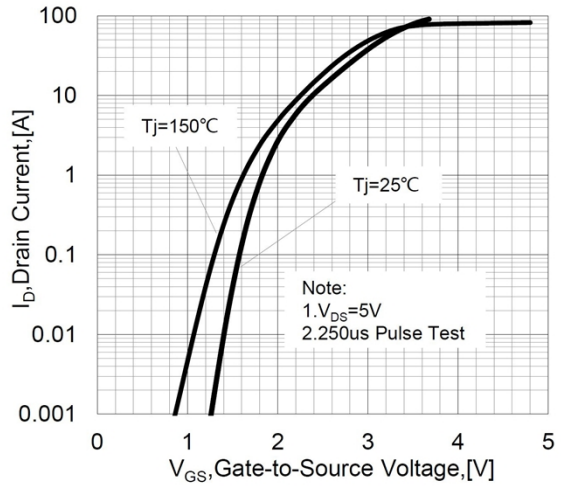
(T_A=25℃, unless otherwise noted)

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-Source Leakage Current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V , T_J=25℃			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		1.8	2.3	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		3515		pF
Output Capacitance	C_{oss}			580		
Reverse Transfer Capacitance	C_{rss}			406		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=15V, V_{DS}=10V, I_D =60A		62		pF
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			9.5		
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=1.6Ω, I_D =60A		10		nS
Rise Time	T_r			4		
Turn-Off Delay Time	$T_{d(off)}$			45		
Fall Time	T_f			8		
Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=1A, T_J=25℃			1.2	V

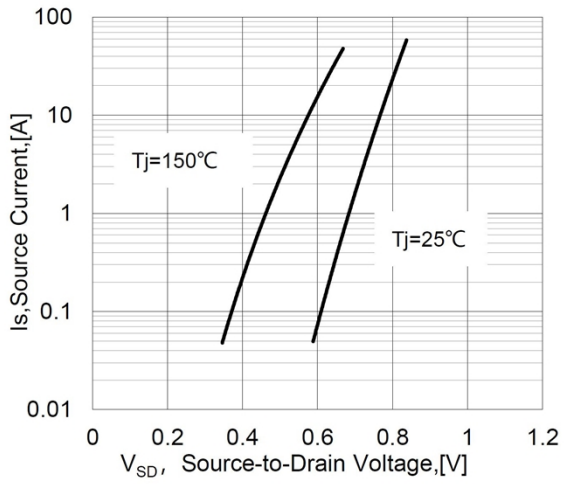
Note:

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 ≦ 300us , duty cycle ≦ 2%
3. The EAS data shows Max. rating . The test condition is V_{DD}=15V,V_{GS}=10V,L=0.5mH,R_G=25Ω

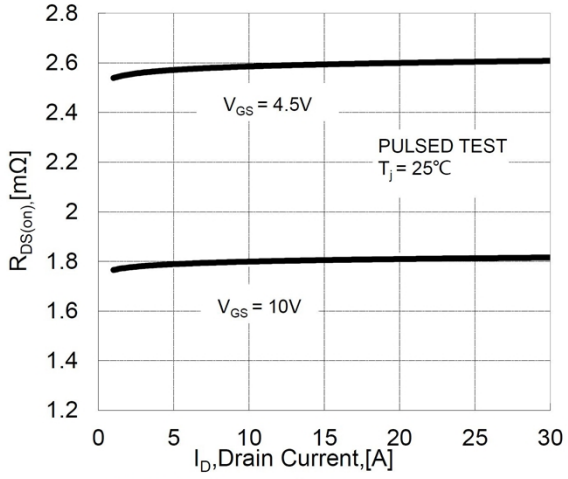
Typical Characteristics



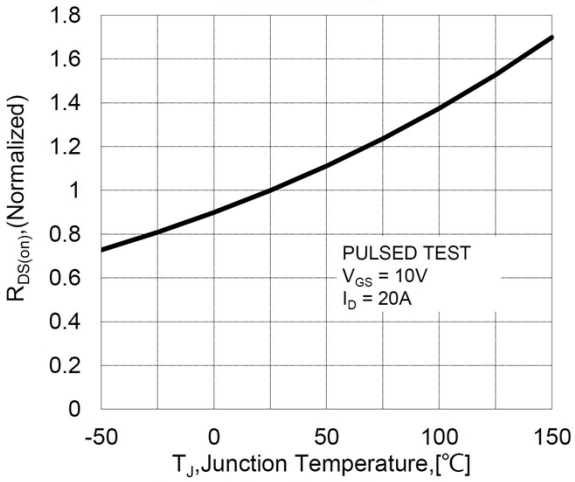
Typical Transfer Characteristics



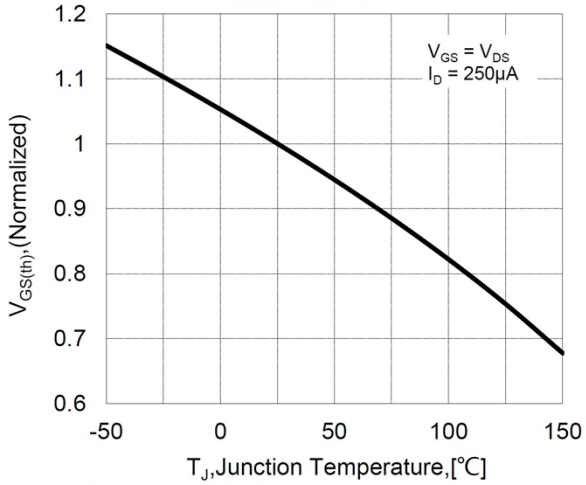
Typical Body Diode Transfer Characteristics



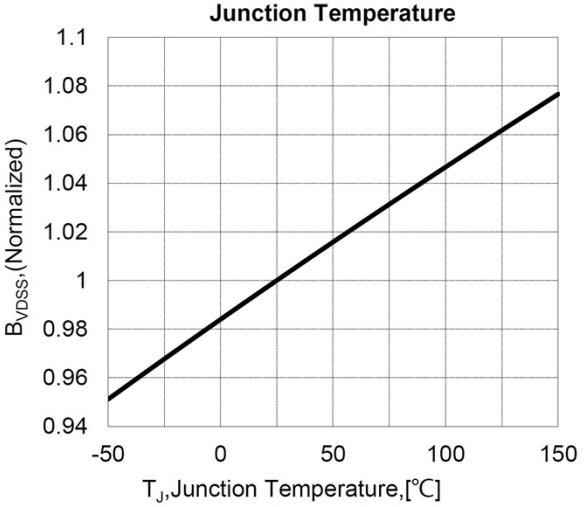
Drain-to-Source On Resistance vs Drain Current



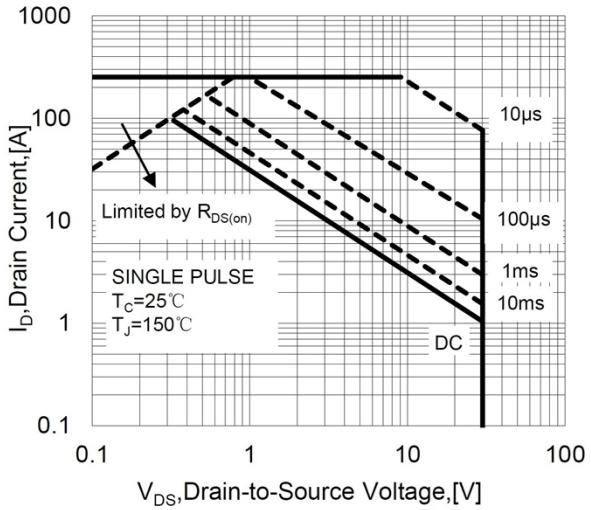
Normalized On Resistance vs Junction Temperature



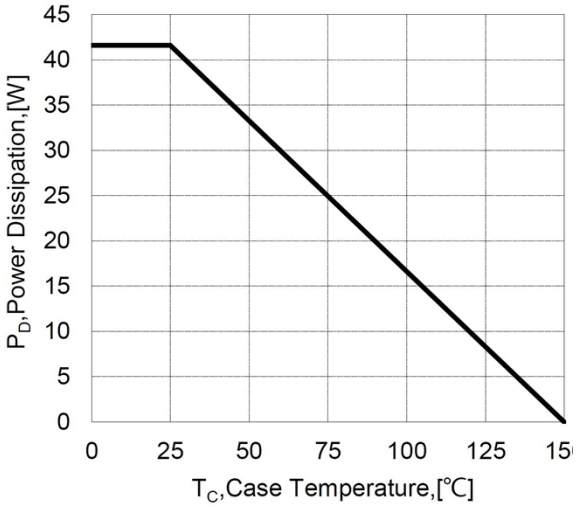
Normalized Threshold Voltage vs Junction Temperature



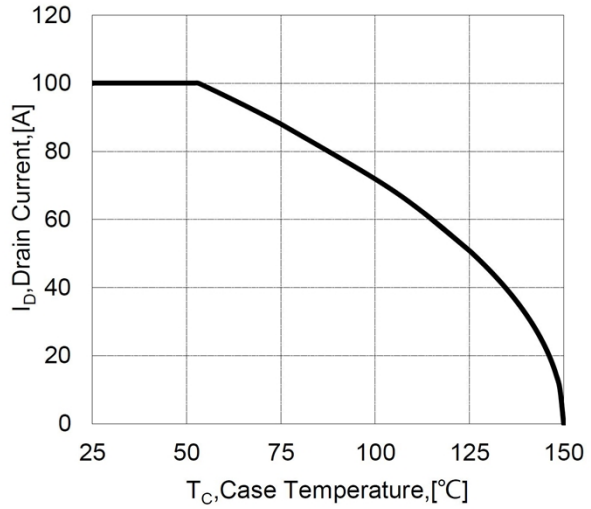
Normalized Breakdown Voltage vs Junction Temperature



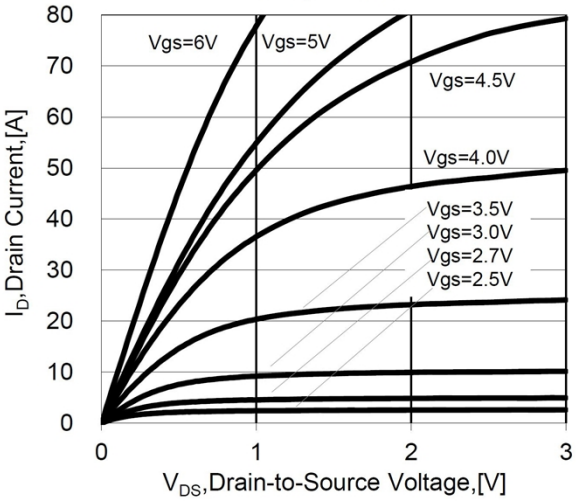
Maximum Safe Operating Area



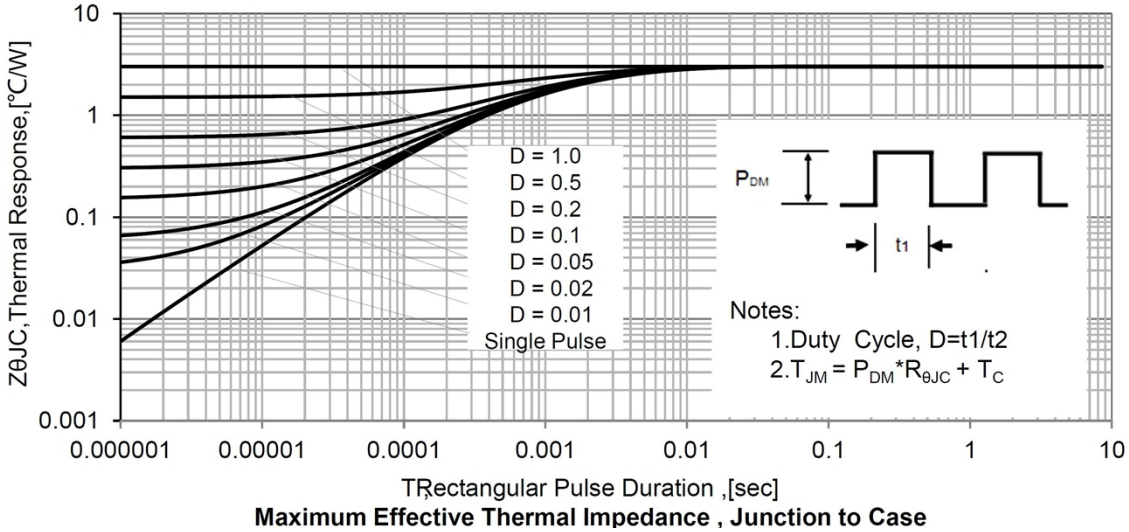
Maximum Power Dissipation vs Case Temperature



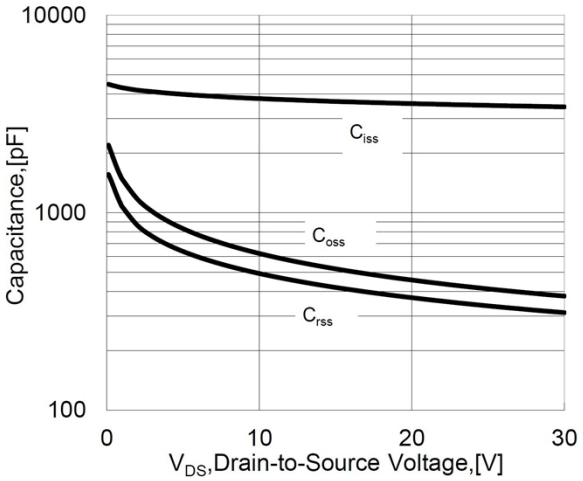
Maximum Continuous Drain Current vs Case Temperature



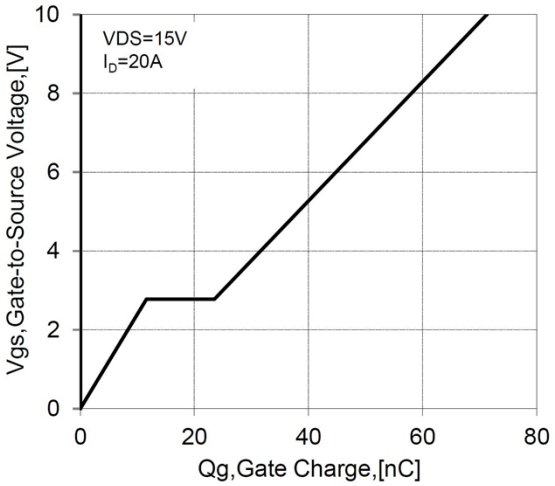
Typical output Characteristics



Maximum Effective Thermal Impedance , Junction to Case

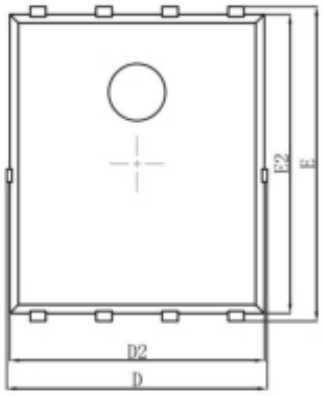


Capacitance Characteristics

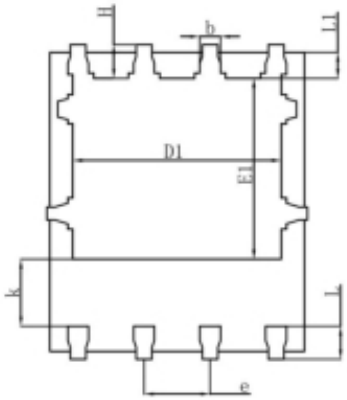


Typical Gate Charge vs Gate to Source Voltage

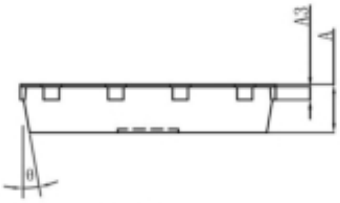
PDFNWB5X6-8L Package Information



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°