Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	11mΩ@10V	18A
	17mΩ@4.5V	
-30V	20mΩ@-10V	-16A
	29mΩ@-4.5V	

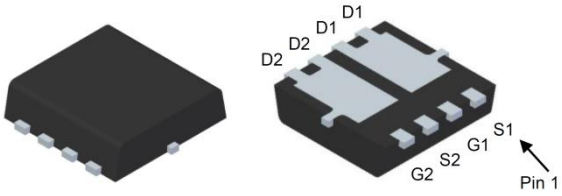
Feature

- TrenchFET Power MOSFET
- Excellent RDS(on) and Low Gate Charge
- Fast Switching Speed

Application

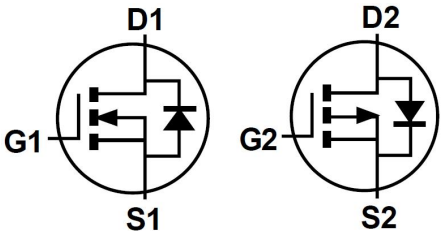
- Motor Control
- Inverters

Package

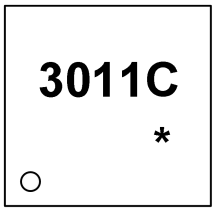


PDFNWB3.3×3.3-8L-B

Circuit diagram



Marking



3011C = Device code

*** = Month Code**

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	±20	±20	V
Continuous Drain Current(t≤10s)	I_D	18	-16	A
Power Dissipation(t≤10s)	P_D	22	18	W
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	5.68	6.94	℃/W
Junction Temperature	T_J	150		℃
Storage Temperature	T_{STG}	-55~ +150		℃

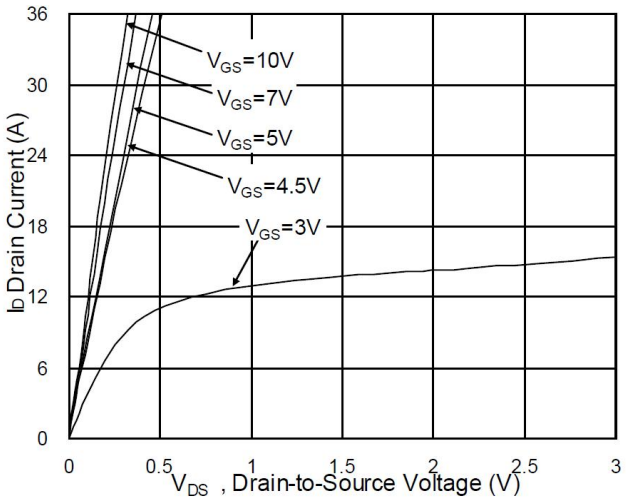
N-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = 24V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =8A		11	15	mΩ
		V_{GS} =4.5V, I_D =6A		17	23	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V,f=1MHz		940		pF
Output Capacitance	C_{oss}			131		
Reverse Transfer Capacitance	C_{rss}			109		
Switching Characteristics						
Total gate charge	Q_g	V_{DS} =15V,V_{GS} =4.5V, I_D =8A		9.63		nC
Gate-source charge	Q_{gs}			3.88		
Gate-drain charge	Q_{gd}			3.44		
Turn-on delay time	$t_{d(on)}$	VDD=15V , VGS=10V , RG=1.5, ID=8A		4.2		ns
Turn-on rise time	t_r			8.2		
Turn-off delay time	$t_{d(off)}$			31		
Turn-off fall time	t_f			4		
Source-Drain Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S=1A, V_{GS} = 0V			1.2	V

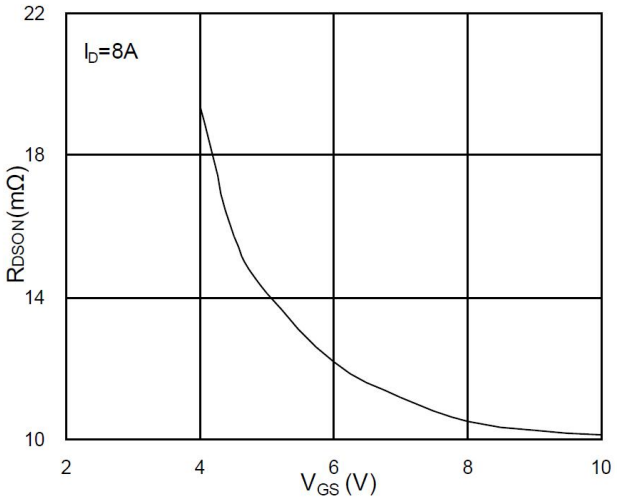
P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =- 24V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.5	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-8A		20	24	mΩ
		V_{GS} =-4.5V, I_D =-6A		29	38	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-15V, V_{GS} =0V,f=1MHz		1600		pF
Output Capacitance	C_{oss}			350		
Reverse Transfer Capacitance	C_{rss}			300		
Switching Characteristics						
Total gate charge	Q_g	V_{DS} =-15V,V_{GS} =-4.5V, I_D =-8A		30		nC
Gate-source charge	Q_{gs}			5.5		
Gate-drain charge	Q_{gd}			8		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V,ID=-1A, VGS=-10V,R_{GEN}=6Ω		10		ns
Turn-on rise time	t_r			15		
Turn-off delay time	$t_{d(off)}$			110		
Turn-off fall time	t_f			70		
Source-Drain Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S=-1A, V_{GS} = 0V			-1.2	V

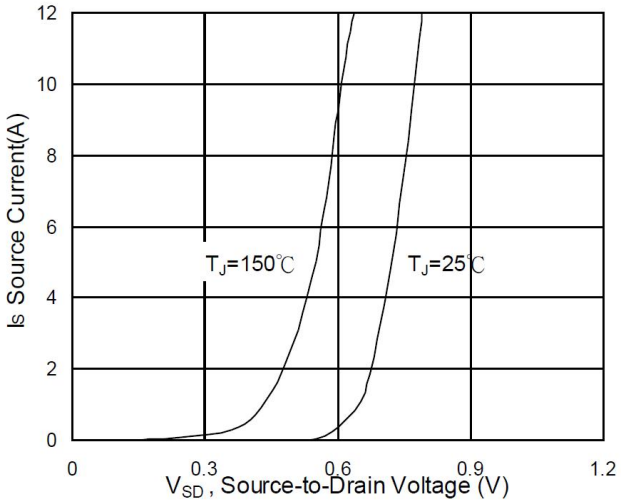
N-Channel Typical Characteristics



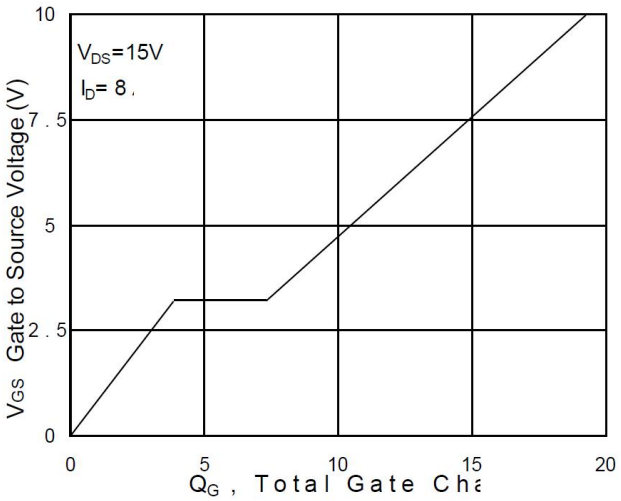
Typical Output Characteristics



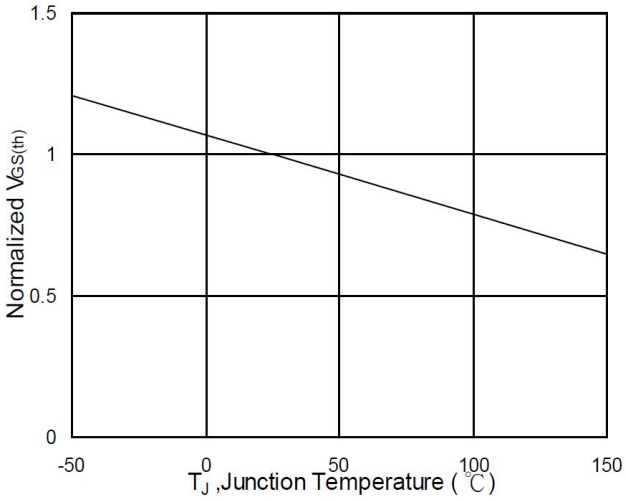
On-Resistance vs.Gate-Source



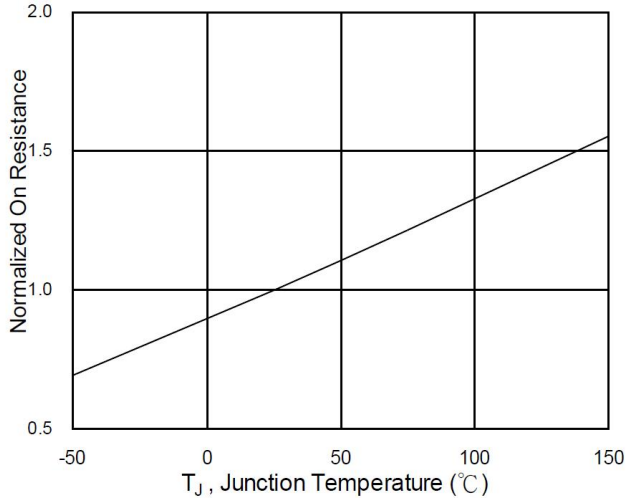
Forward Characteristics Of Reverse



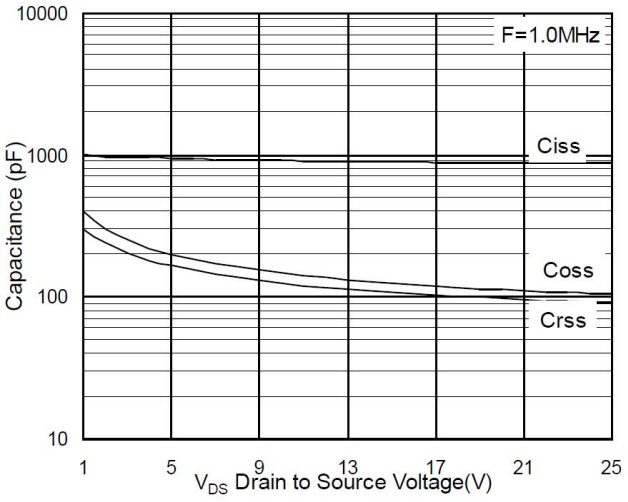
Gate-Charge Characteristics



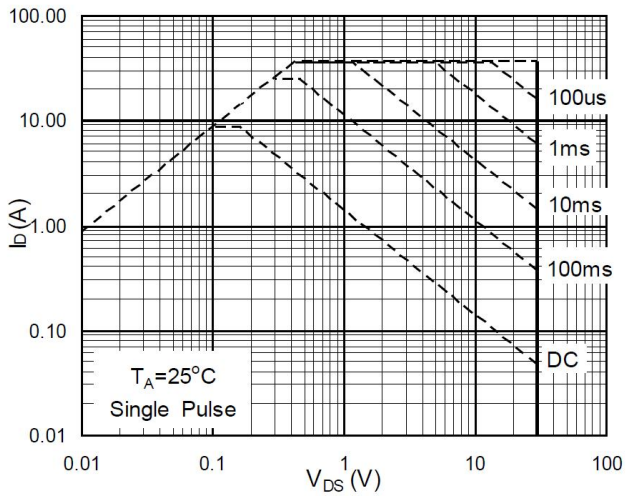
Normalized $V_{GS(th)}$ vs.T_J



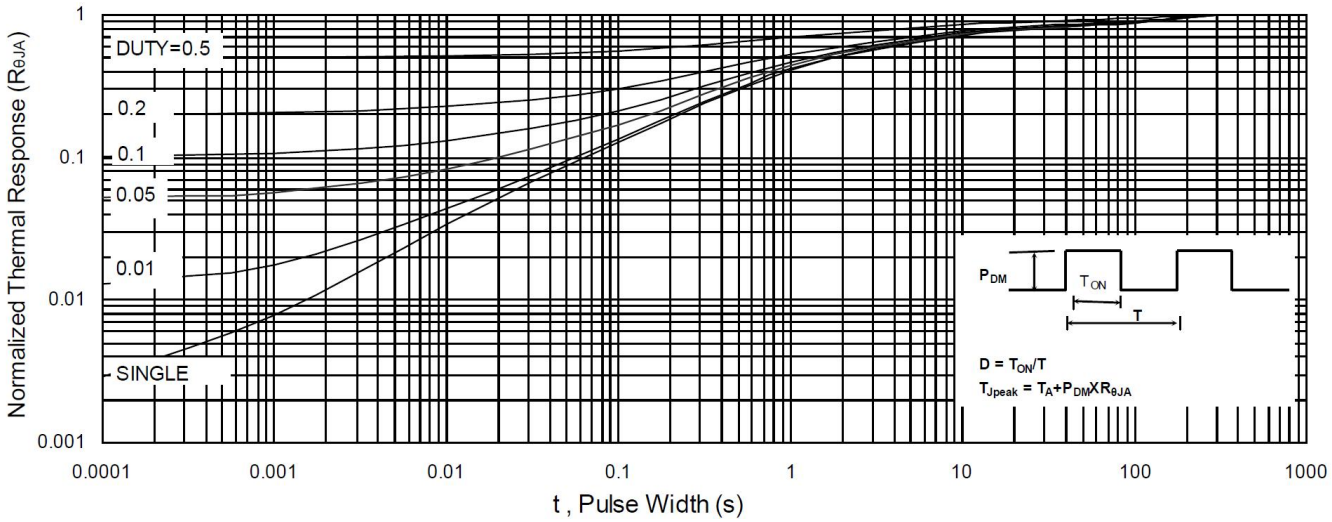
Normalized R_{DSON} vs.T_J



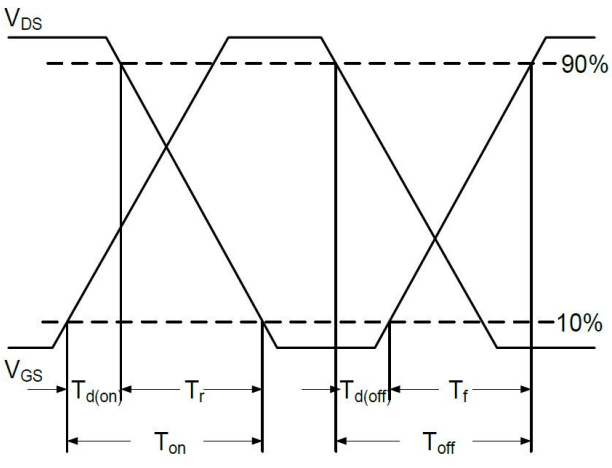
Capacitance



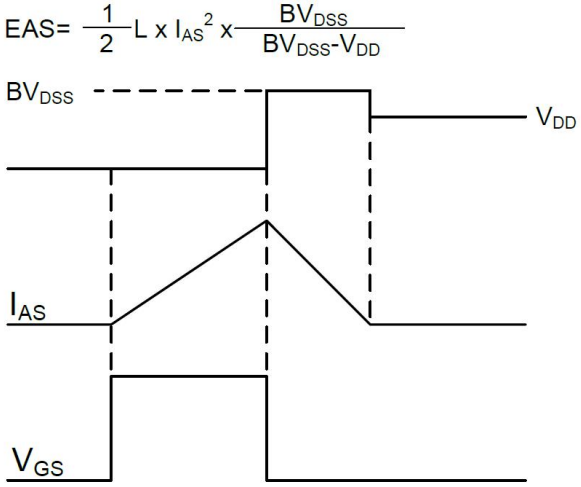
Safe Operating Area



Normalized Maximum Transient Thermal Impedance

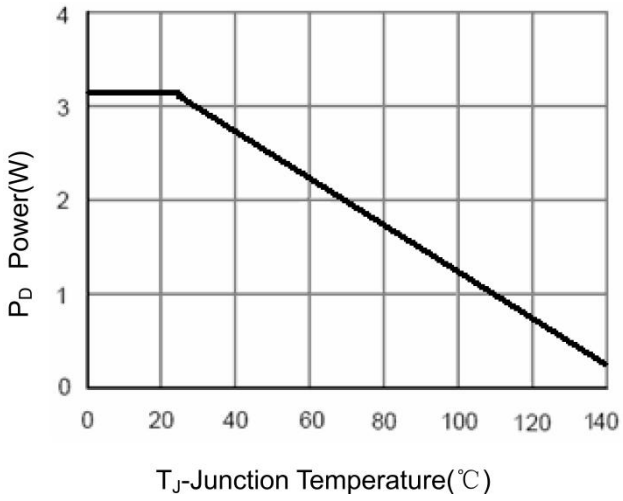


Switching Time Waveform

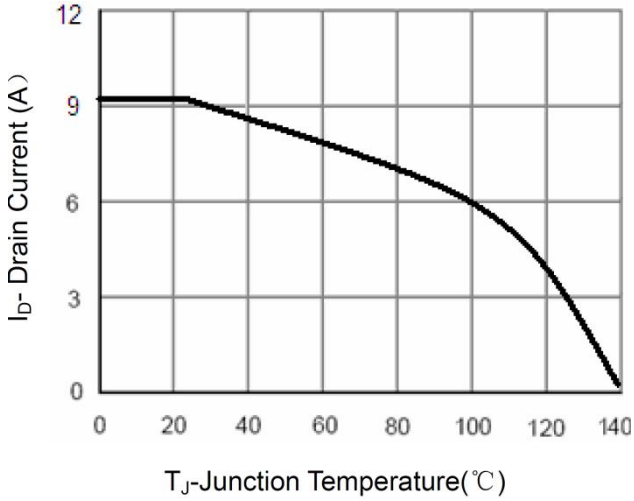


Unclamped Inductive Switching Waveform

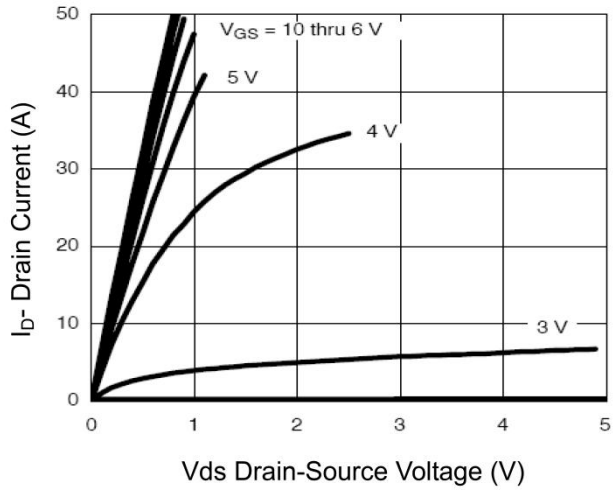
P-Channel Typical Characteristics



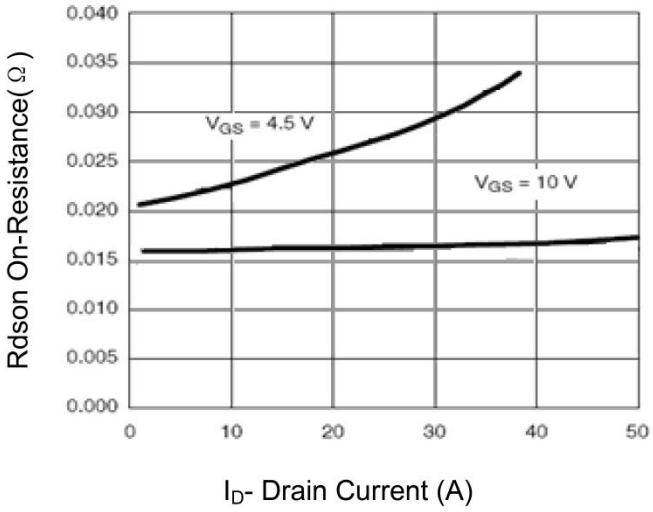
Power Dissipation



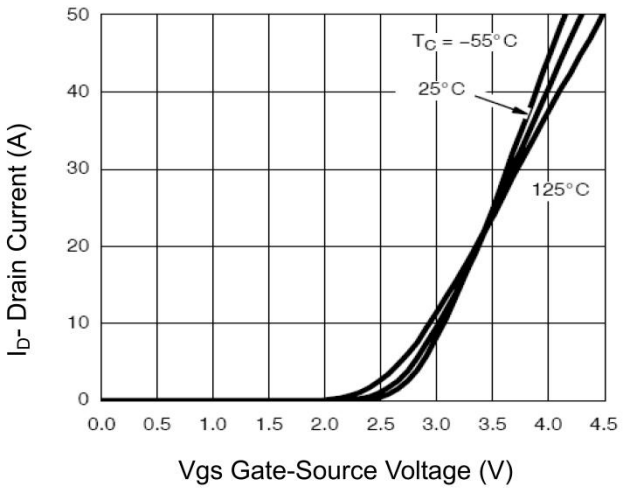
Drain Current



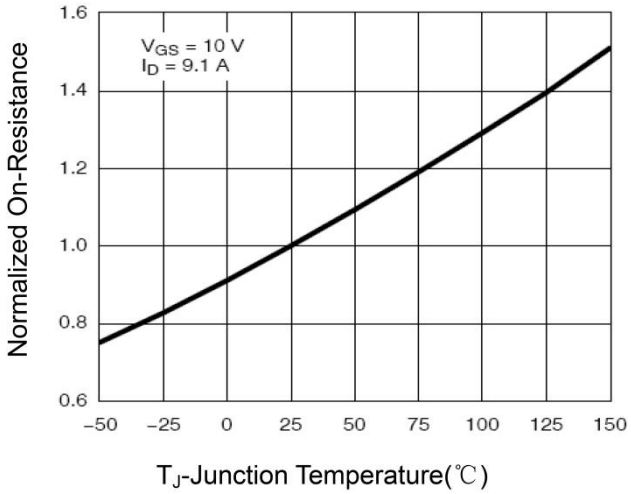
Output Characteristics



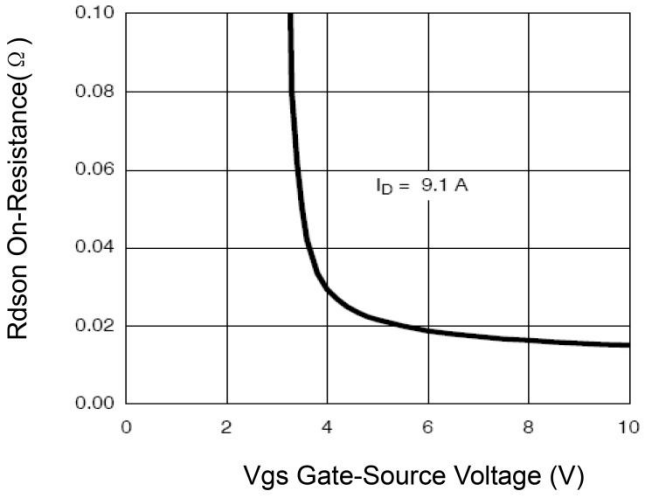
Drain-Source On-Resistance



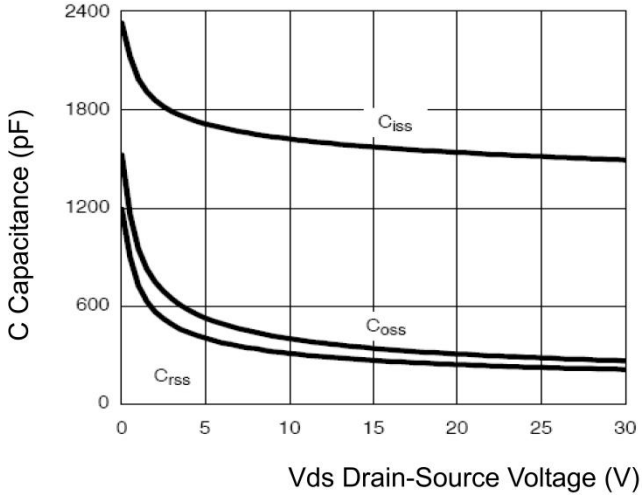
Transfer Characteristics



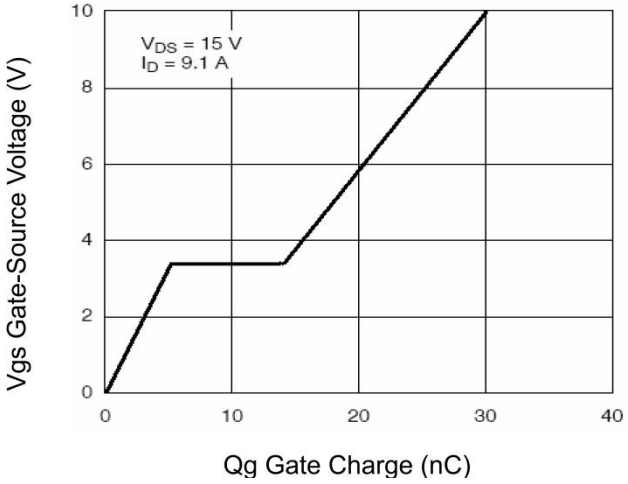
Drain-Source On-Resistance



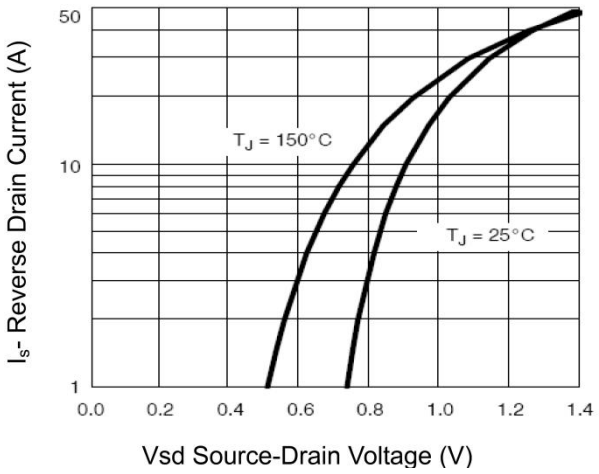
Rdson vs Vgs



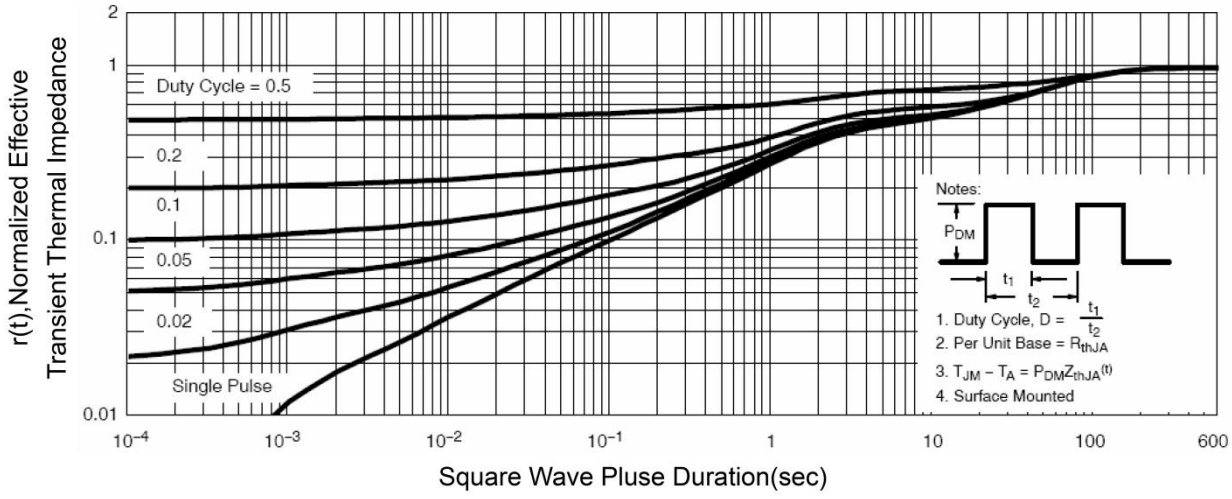
Capacitance vs Vds



Gate Charge

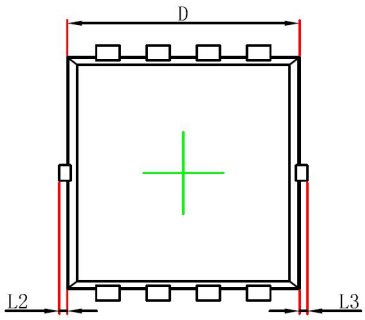


Source- Drain Diode Forward

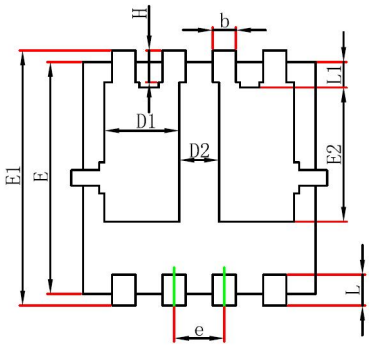


Normalized Maximum Transient Thermal Impedance

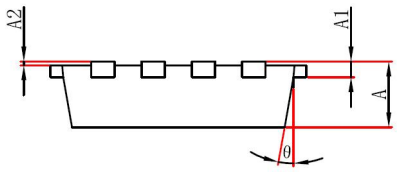
PDFNWB3.3×3.3-8L-B Package Information



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	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	0.935	1.135	0.037	0.045
D2	0.280	0.480	0.011	0.019
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°