

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	15mΩ@10V	8A
	21mΩ@4.5V	
-30V	18mΩ@-10V	-7A
	25mΩ@-4.5V	

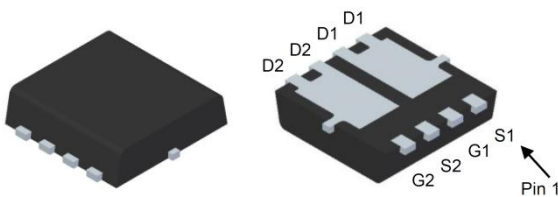
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge
- Fast Switching Speed

Application

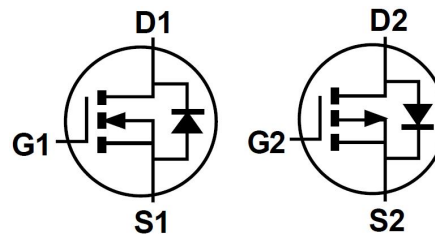
- Motor Control
- Inverters

Package

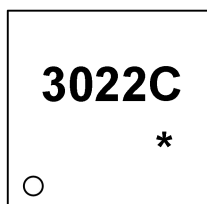


PDFNWB3.3×3.3-8L-B

Circuit diagram



Marking



3022C = Device code
* = Month Code

Absolute maximum ratings (Ta=25°C 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 \leq 10s)	I_D	8	-7	A
Power Dissipation(t \leq 10s)	P_D	20	16	W
Thermal Resistance from Junction to Ambient(t \leq 10s)	$R_{\theta JA}$	5.68	6.94	$^{\circ}C/W$
Junction Temperature	T_J	150		$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150		$^{\circ}C$

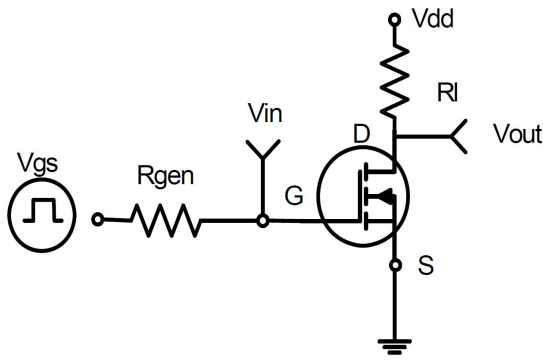
N-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$	-	-	1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8A$	-	15	19	m Ω
		$V_{GS} = 4.5V, I_D = 6A$	-	21	28	
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$	-	416	-	pF
Output Capacitance	C_{oss}		-	62	-	
Reverse Transfer Capacitance	C_{rss}		-	51	-	
Switching Characteristics						
Total gate charge	Q_g	$V_{DS} = 15V, V_{GS} = 4.5V, I_D = 8A$	-	5	-	nC
Gate-source charge	Q_{gs}		-	1.1	-	
Gate-drain charge	Q_{gd}		-	2.6	-	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, RG = 1.5, I_D = 8A$	-	7.7	-	ns
Turn-on rise time	t_r		-	46	-	
Turn-off delay time	$t_{d(off)}$		-	11	-	
Turn-off fall time	t_f		-	3.6	-	
Source-Drain Diode Characteristics						
Body Diode Voltage	V_{SD}	$I_S = 1A, V_{GS} = 0V$	-	-	1.2	V

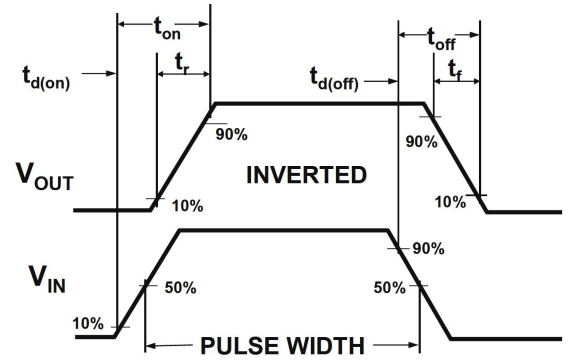
P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

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	-	18	23	mΩ
		V _{GS} = -4.5V, I _D = -6A	-	25	34	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz	-	1345	-	pF
Output Capacitance	C _{oss}		-	194	-	
Reverse Transfer Capacitance	C _{rss}		-	158	-	
Switching Characteristics						
Total gate charge	Q _g	V _{DS} = -15V, V _{GS} = -4.5V, I _D = -8A	-	12.6	-	nC
Gate-source charge	Q _{gs}		-	4.8	-	
Gate-drain charge	Q _{gd}		-	4.8	-	
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, I _D = -1A, V _{GS} = -10V, R _{GEN} = 6Ω	-	4.6	-	ns
Turn-on rise time	t _r		-	14.8	-	
Turn-off delay time	t _{d(off)}		-	41	-	
Turn-off fall time	t _f		-	19.6	-	
Source-Drain Diode Characteristics						
Body Diode Voltage	V _{SD}	I _S = -1A, V _{GS} = 0V	-	-	-1.2	V

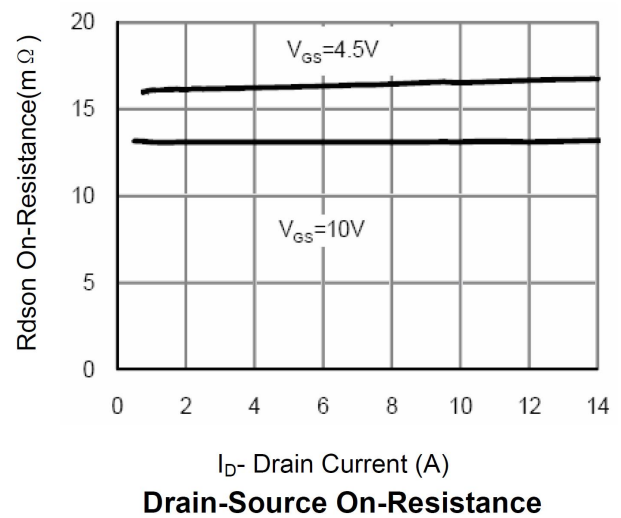
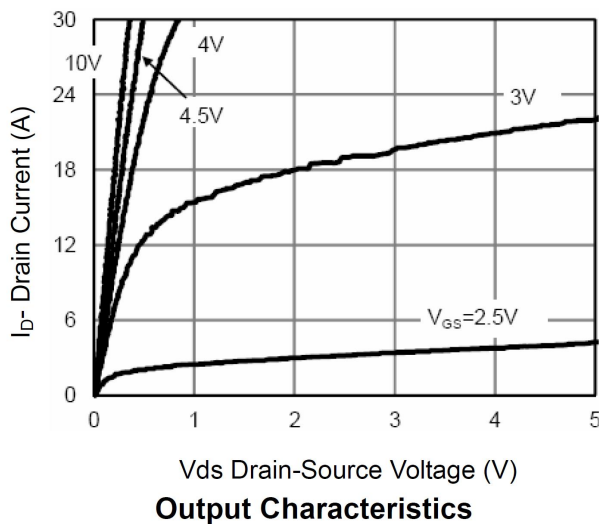
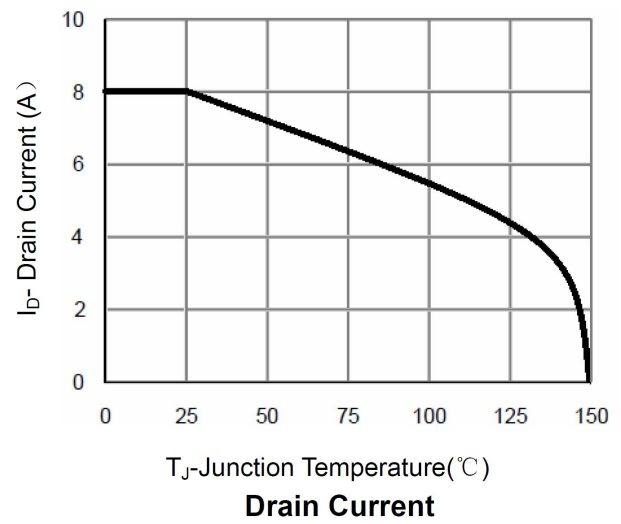
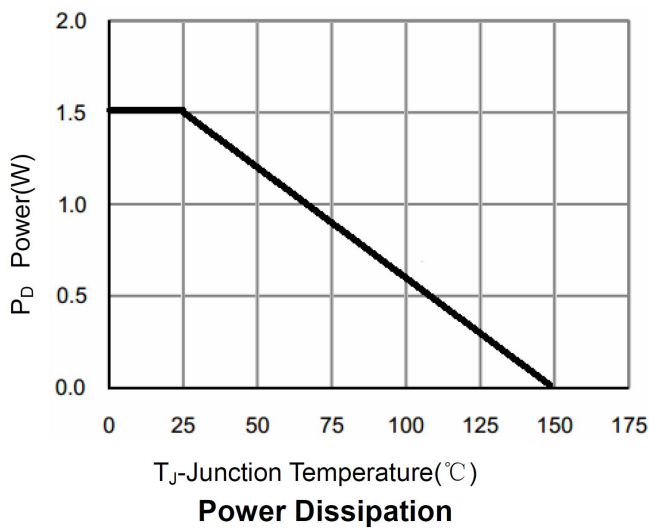
N-Channel Typical Characteristics

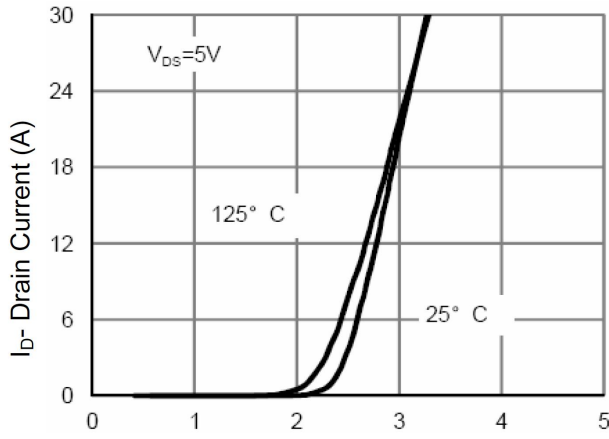


Switching Test Circuit

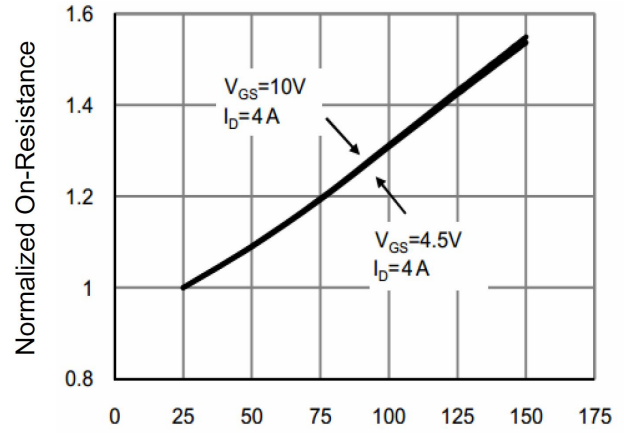


Switching Waveforms

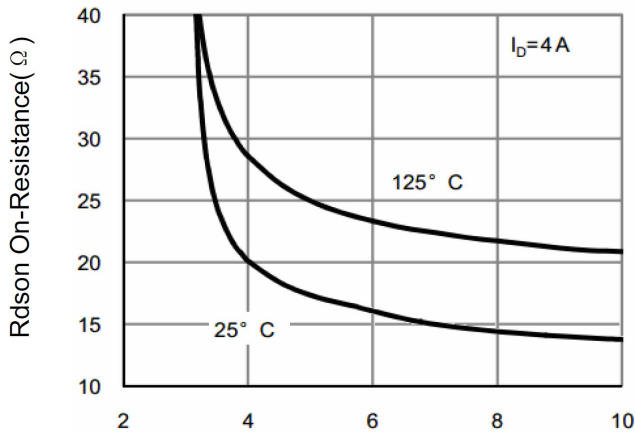




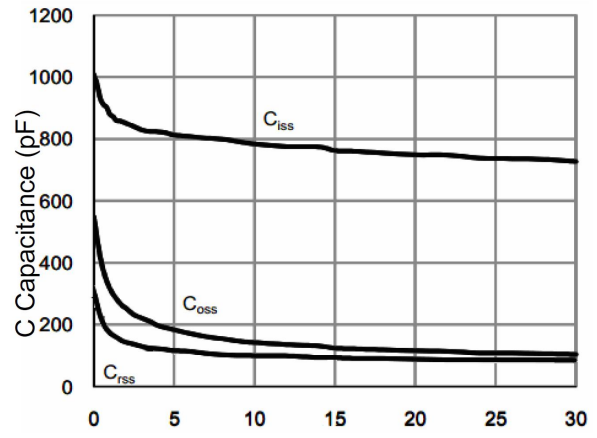
Transfer Characteristics



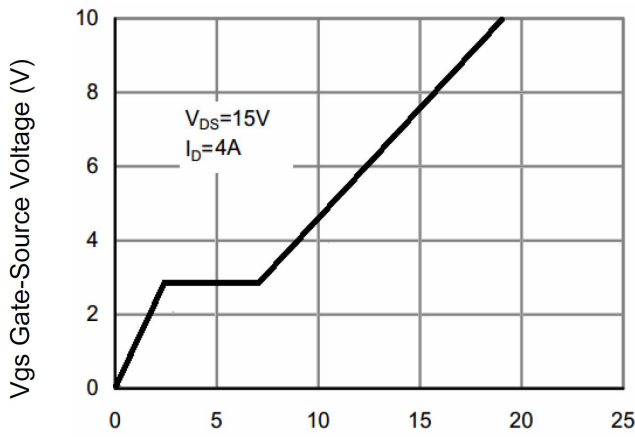
Drain-Source On-Resistance



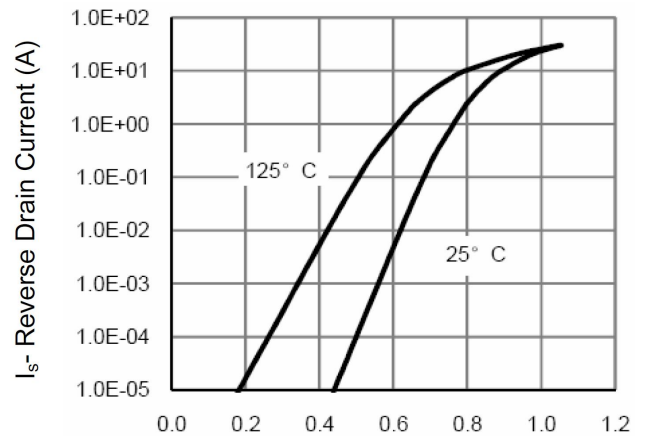
Rdson vs Vgs



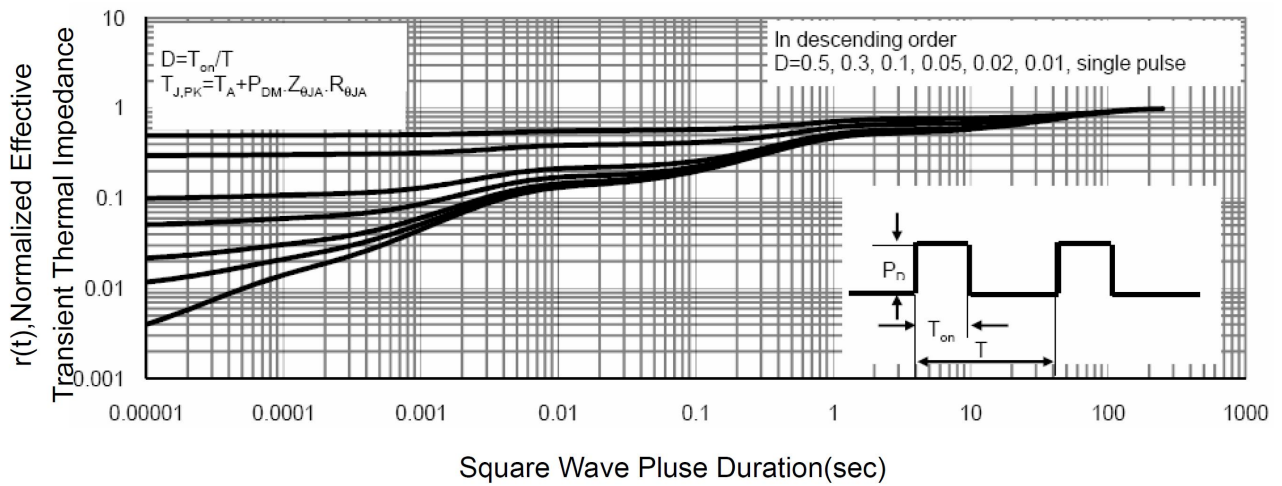
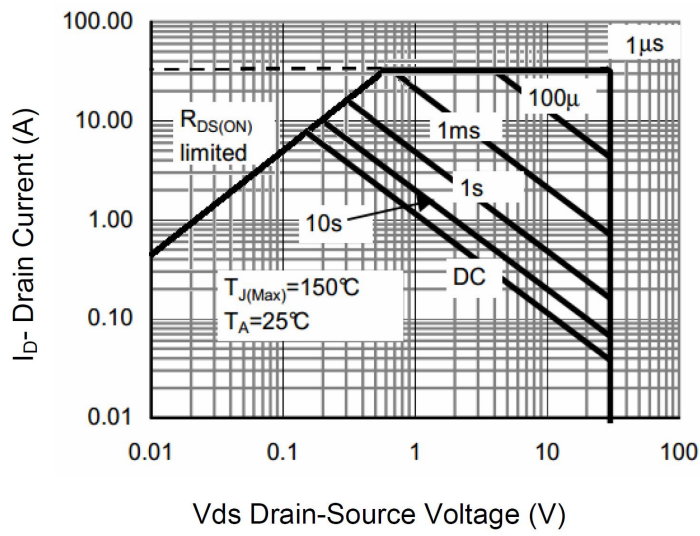
Capacitance vs Vds



Gate Charge

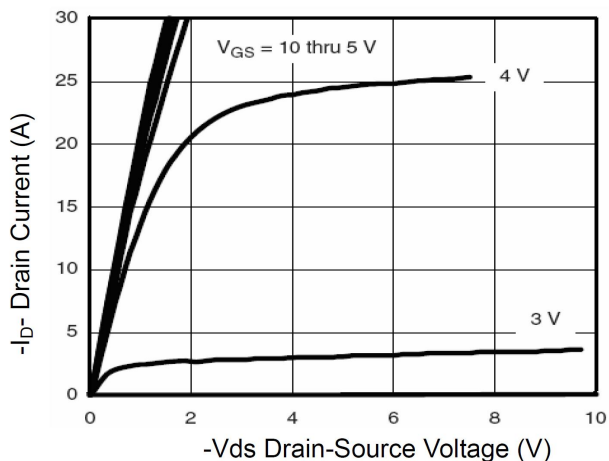


Source- Drain Diode Forward

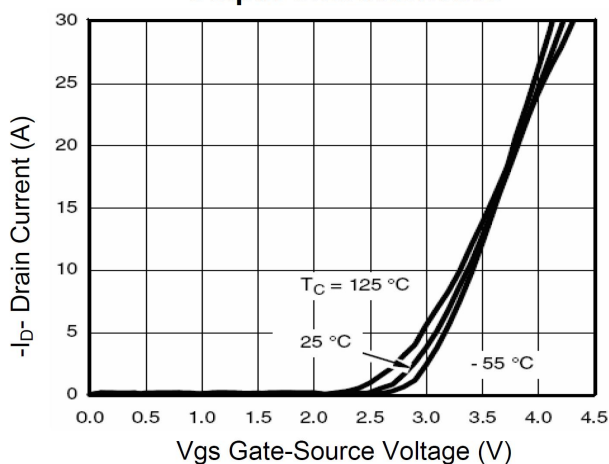




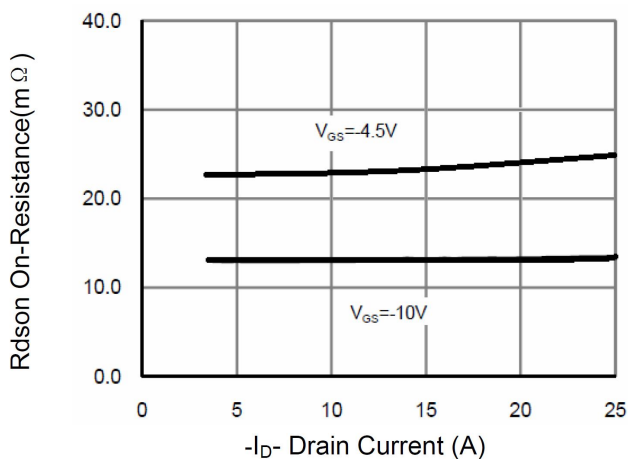
P-Channel Typical Characteristics



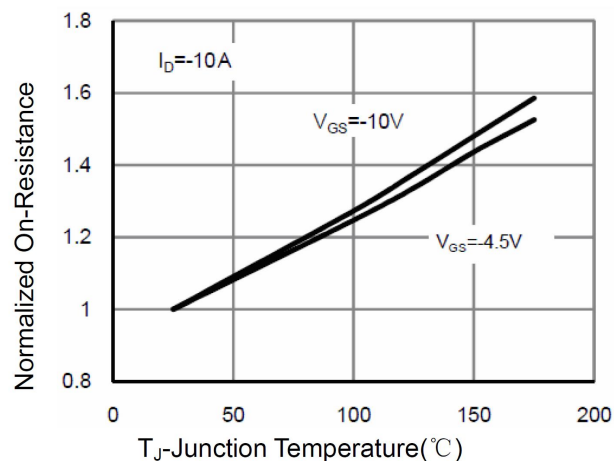
Output Characteristics



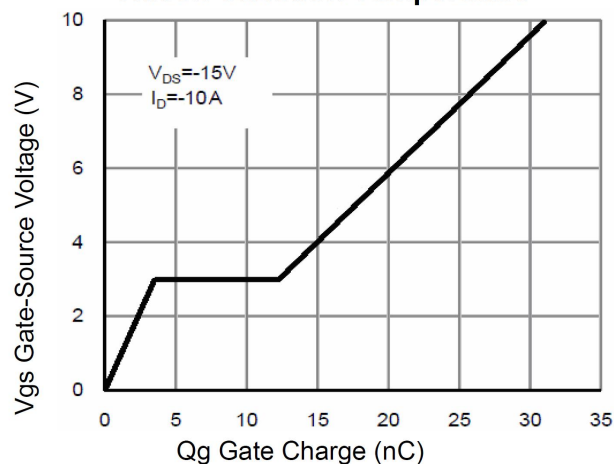
Transfer Characteristics



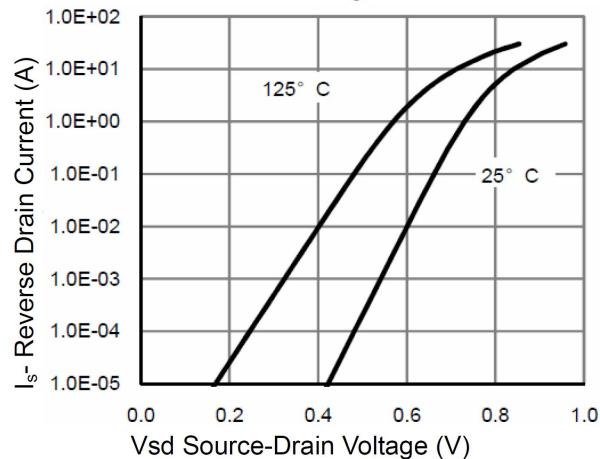
R_{dson} - Drain Current



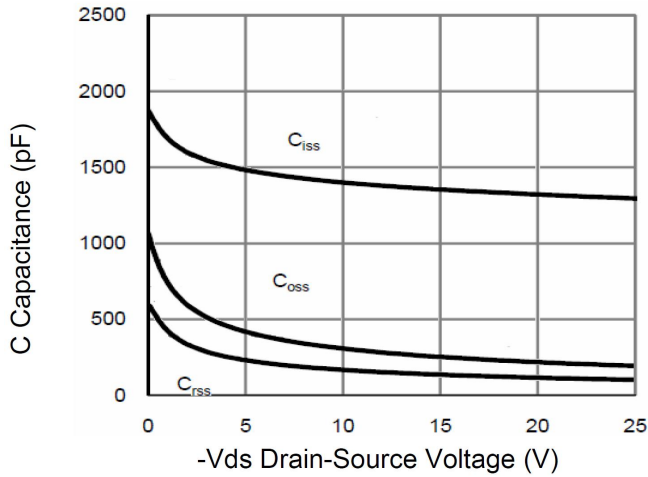
R_{dson} -Junction Temperature



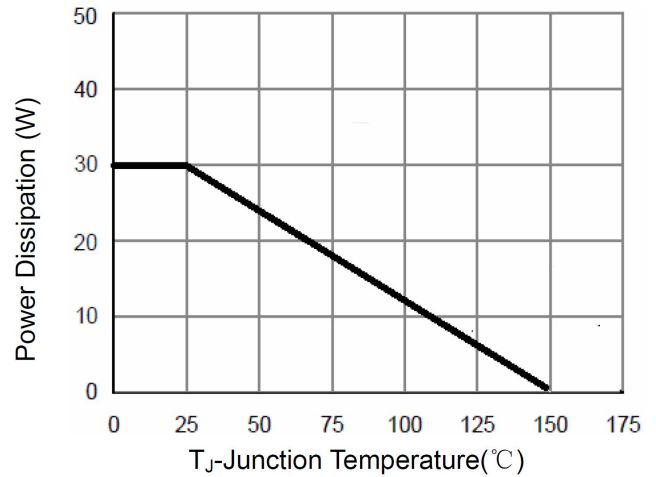
Gate Charge



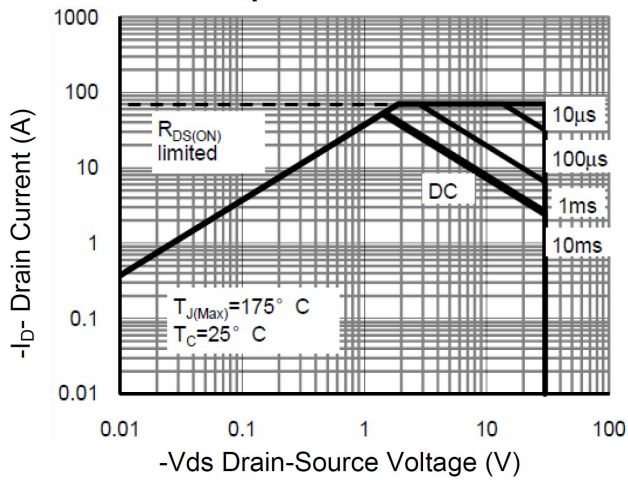
Source- Drain Diode Forward



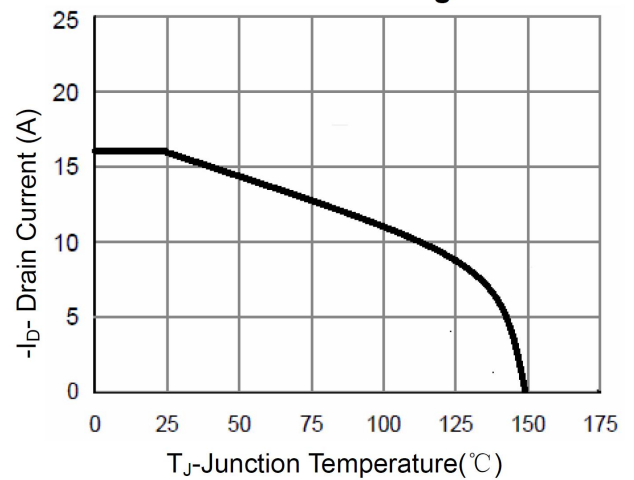
Capacitance vs Vds



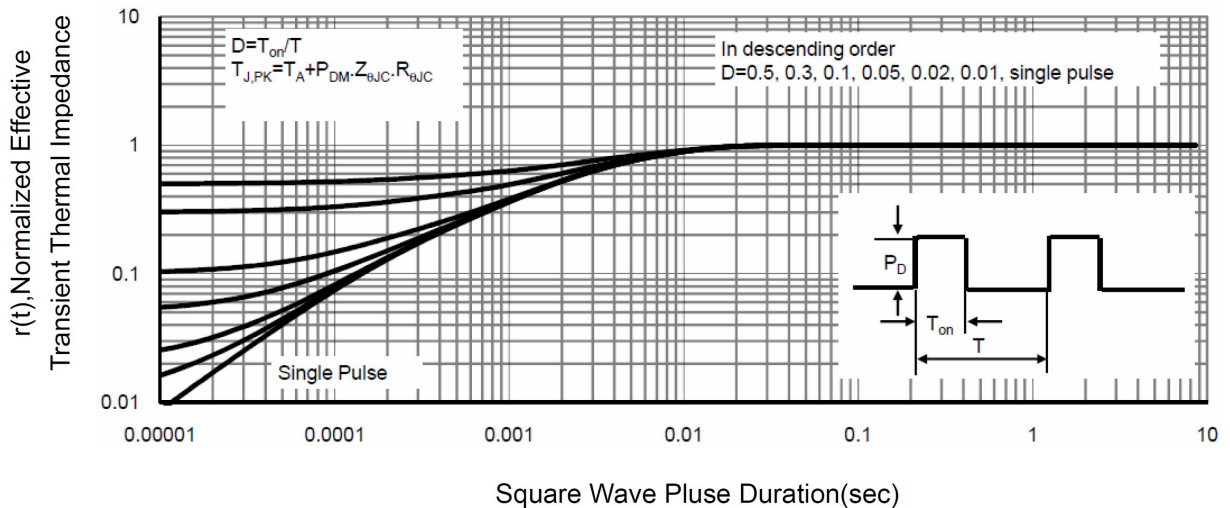
Power De-rating



Safe Operation Area



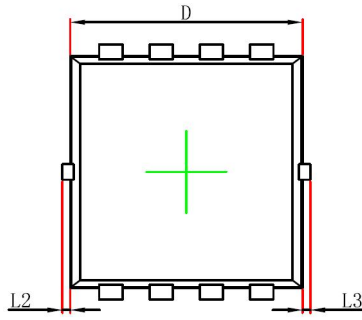
ID Current Derating



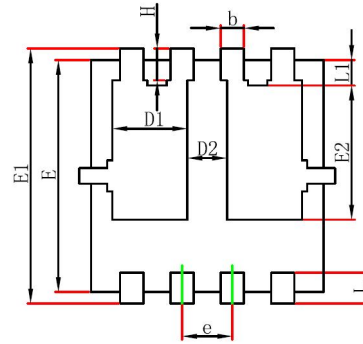
Normalized Maximum Transient Thermal Impedance



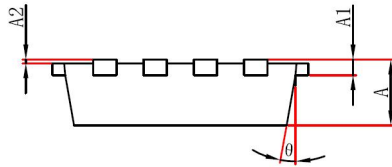
PDFNWB3.3×3.3-8L-B Package Information



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°

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