



30V N-Channel Mosfet

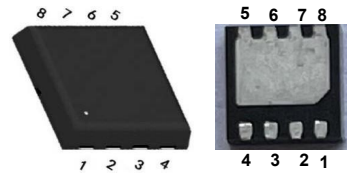
FEATURES

- $R_{DS(ON)} \leq 9.5m\Omega$ (7m Ω Typ.)
@ $V_{GS}=10V$
- $R_{DS(ON)} \leq 13.5m\Omega$ (9m Ω Typ.)
@ $V_{GS}=4.5V$

APPLICATIONS

- Consumer electronic power supply
- Motor control
- Isolated DC/DC convertor

DFNWB3×3-8L



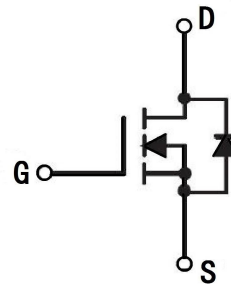
1: S 3: S 5: D 7: D
2: S 4: G 6: D 8: D

MARKING



YYMM:Date Code(year&month)

N-C HANNEL MOSFET

MAXIMUM RATINGS ($T_c=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current ^{note1}	54	A
I_{DM}	Pulsed Drain Current ^{note1 note2 note3}	200	A
P_{tot}	Total Power Dissipation ^{note1}	41	W
E_{AS}	Single Pulsed Avalanche Energy	35	mJ
$R_{\theta JC}$	Thermal Resistance, Junction to Case ^{note1}	3.13	$^\circ C/W$
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ C$



MOSFET ELECTRICAL CHARACTERISTICS Tc=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 30V,$ $V_{GS} = 0V, T_J = 25^\circ C$	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.7	3.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance ^{note4}	$V_{GS} = 10V, I_D = 12A$	-	7	9.5	m Ω
		$V_{GS} = 4.5V, I_D = 10A$	-	9	13.5	
Dynamic Characteristics ^{note5}						
C_{iss}	Input Capacitance	$V_{DS} = 15V, V_{GS} = 0V,$ $f = 1.0MHz$	-	1070	-	pF
C_{oss}	Output Capacitance		-	165	-	pF
C_{rss}	Reverse Transfer Capacitance		-	118	-	pF
Q_g	Total Gate Charge	$V_{DS} = 15V, I_D = 30A,$ $V_{GS} = 10V$	-	30.1	-	nC
Q_{gs}	Gate-Source Charge		-	4.5	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	1.8	-	nC
Switching Characteristics ^{note5}						
$t_{d(on)}$	Turn-On Delay Time	$V_{GS} = 10V, V_{DS} = 30V,$ $R_G = 3\Omega, R_L = 1.5\Omega$	-	15	-	ns
t_r	Turn-On Rise Time		-	3.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	31	-	ns
t_f	Turn-Off Fall Time		-	5	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_{SD} = 1A,$ $T_J = 25^\circ C$	-	0.71	1.0	V
t_{rr}	Reverse Recovery Time	$V_{GS} = 0V, I_S = 30A,$	-	12	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt = 100A/\mu s$	-	10.5	-	nC

- Notes: 1. Surface Mounted on 1 in² pad area, t_s≤10 sec
2. Pulse width ≤10μs, Duty Cycle ≤ 1%.
3. limited by bonding wire
4. Pulse test: pulse width ≤300μs, Duty Cycle ≤ 2%.
5. Guaranteed by design, not subject to production testing



TYPICAL PERFORMANCE CHARACTERISTICS

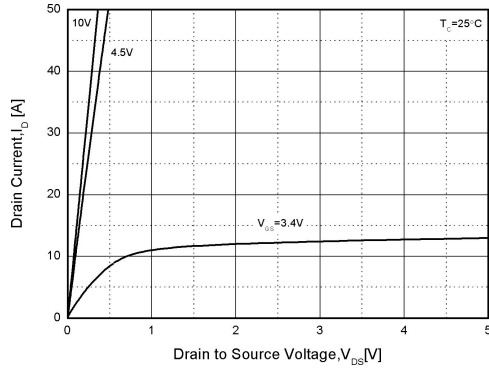


Figure1. Output Characteristics

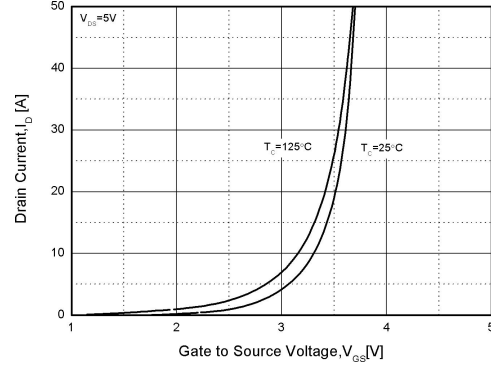


Figure2. Transfer Characteristics

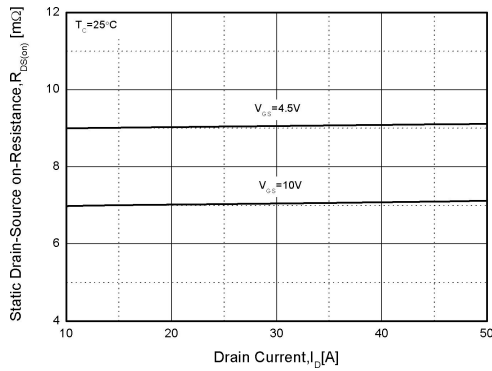


Figure3. Rdson-Drain Current

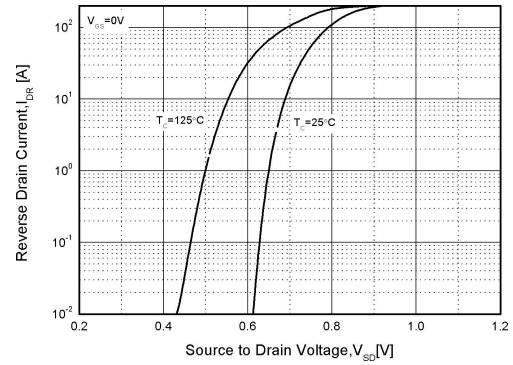


Figure4. Typical Source-Drain Diode Forward Voltage

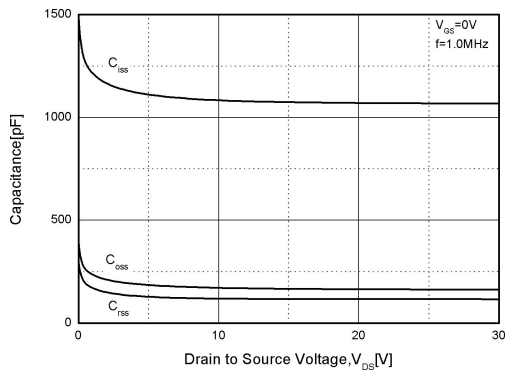


Figure5. Capacitance Characteristics

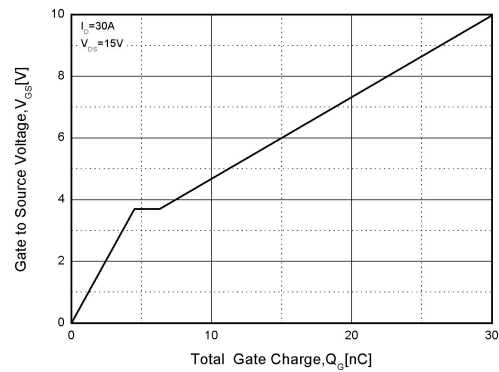


Figure6. Gate Charge



TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

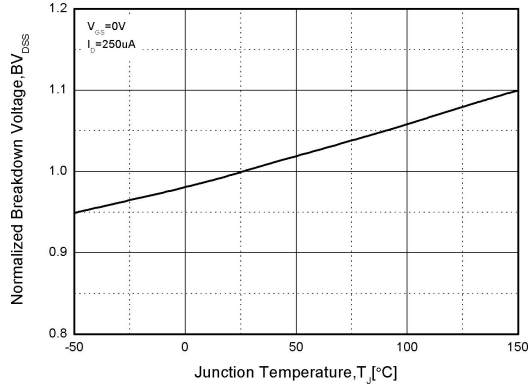


Figure7. Normalized Breakdown Voltage vs. Temperature

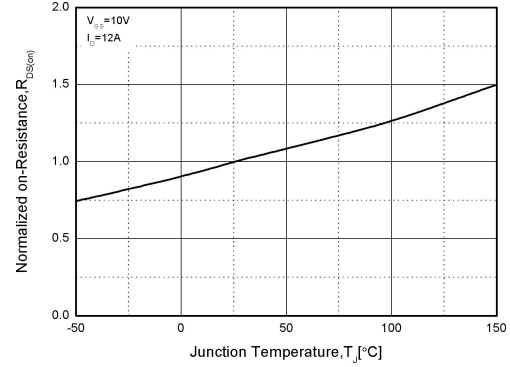


Figure8. Normalized on Resistance vs. Temperature

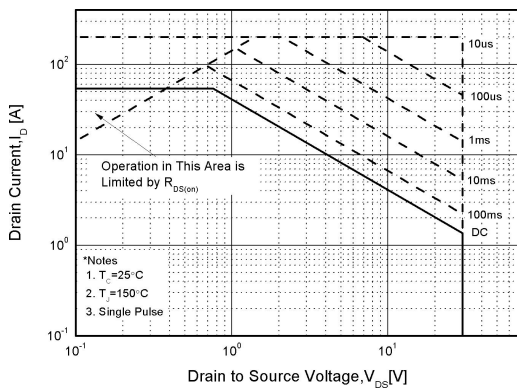


Figure9. Safe Operation Area

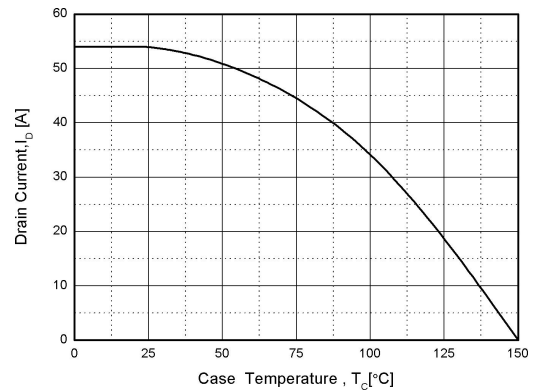


Figure10. Drain Current vs. Case Temperature

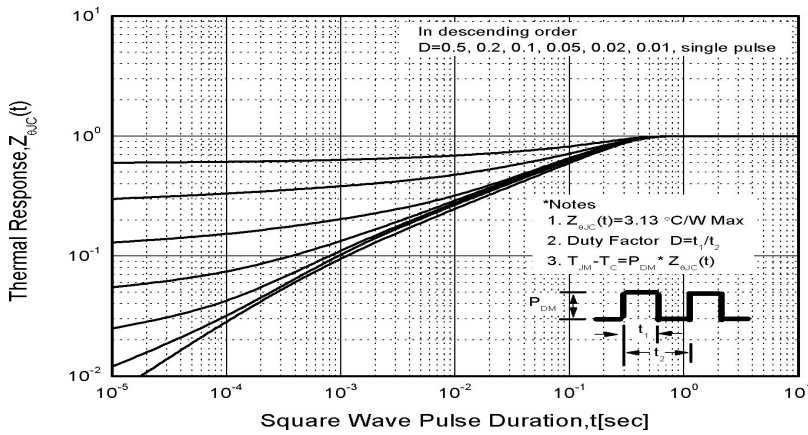
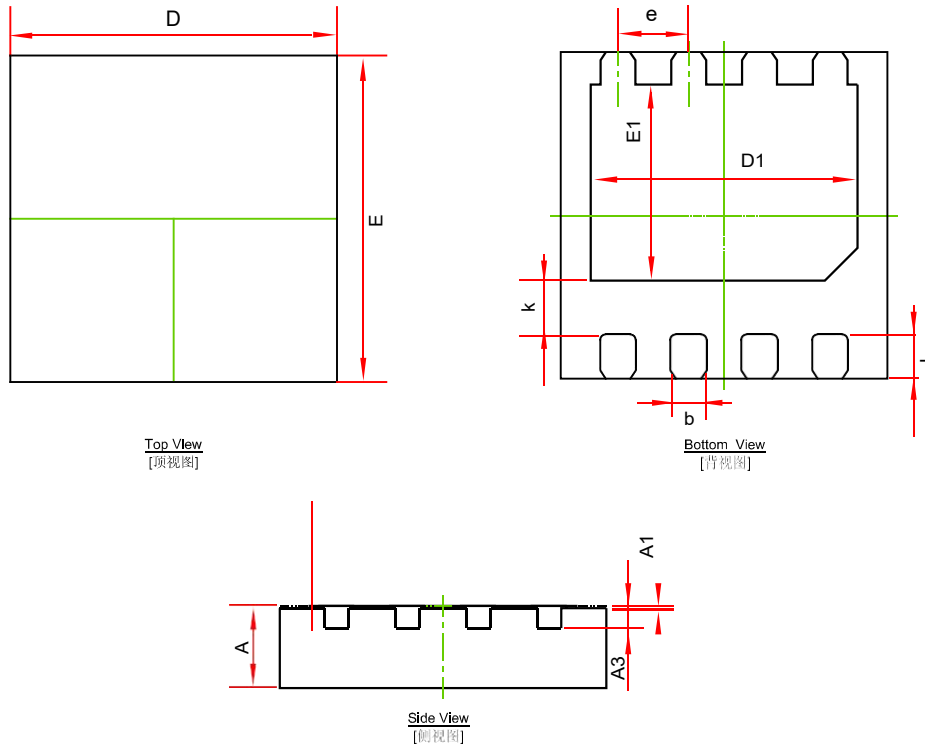


Figure11. Transient Thermal Response Curve



DFNWB3X3-8L PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203 REF.		0.008 REF.	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.350	2.550	0.093	0.100
E1	1.700	1.900	0.067	0.075
k	0.200 MIN.		0.008 MIN.	
b	0.270	0.370	0.011	0.015
e	0.650 TYP.		0.026 TYP.	
L	0.300	0.500	0.012	0.020