

3A,650V N-Channel Power Mosfet

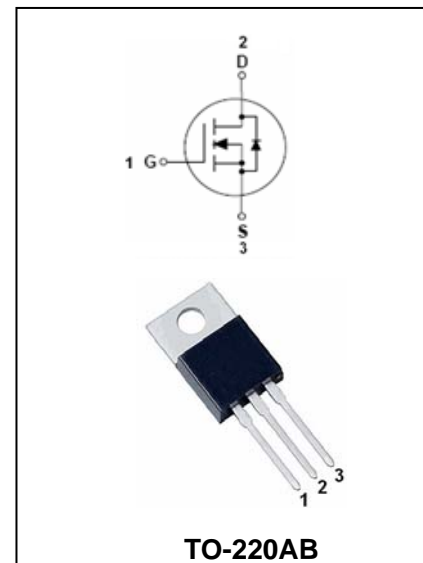
BL3N65

FEATURES

- $R_{DS(ON)} = 3.8\Omega @ V_{GS} = 10V$
- Ultra low gate charge (typical 10 nC)
- Low reverse transfer Capacitance ($CRSS = \text{typical } 5.5 \text{ pF}$)
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness



Lead-free



MAXIMUM RATING @ $T_a = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	650	V
V_{GSS}	Gate -Source voltage	± 30	V
I_D	Continuous Drain Current	3.0	A
I_{DM}	Pulsed Drain Current	12	A
E_{AS} E_{AR}	Avalanche Energy Single Pulsed Repetitive	200 7.5	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns
P_D	Power Dissipation	75	W
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	62.5	$^\circ\text{C}/\text{W}$
T_J	Junction Temperature	+150	$^\circ\text{C}$
T_{OPR}, T_{stg}	Operating and Storage Temperature	-55 to +150	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

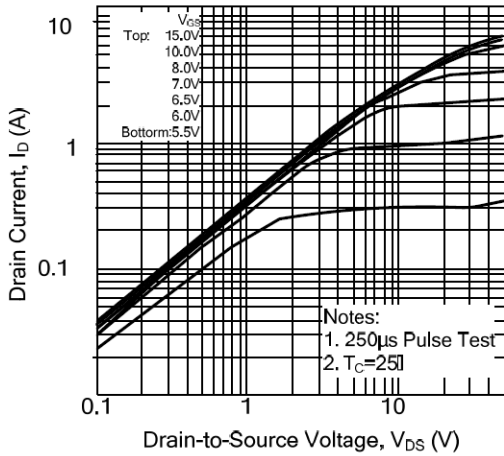
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	650	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V$	-	-	10	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$	-	-	± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1.5A$	-	2.9	3.8	Ω
DYNAMIC CHARACTERISTICS						
Input capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	350	450	pF
Output capacitance	C_{OSS}		-	50	65	
Reverse transfer capacitance	C_{RSS}		-	5.5	7.5	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 325V,$ $I_D = 3.0A,$ $R_G = 25\Omega$	-	10	30	ns
Rise Time	t_r		-	30	70	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	20	50	ns
Fall Time	t_f		-	30	70	ns
Total Gate Charge	Q_g	$V_{DS} = 520V$ $I_D = 3.0A$ $V_{GS} = 10V,$	-	10	13	nC
Gate-Source Charge	Q_{gs}		-	2.7	-	nC
Gate-Drain Charge	Q_{gd}		-	4.9	-	nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_s=3.0A$	-	-	1.4	V
Maximum Continuous Drain-Source Diode Forward Current	I_s		-	-	3.0	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	12	A
Body Diode Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_s=3.0A,$ $di/dt=100A/\mu s$	-	210	-	nS
Body Diode Reverse Recovery Charge	Q_{rr}		-	1.2	-	μC

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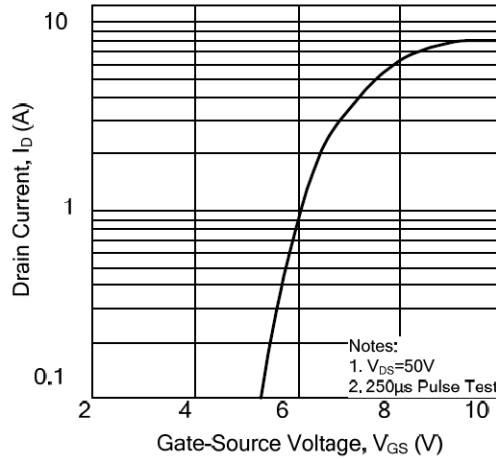
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TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

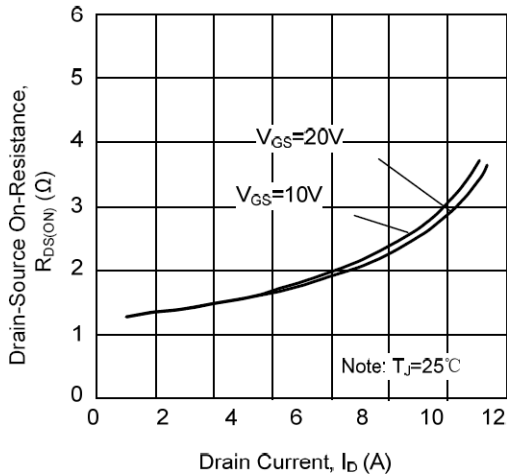
On-State Characteristics



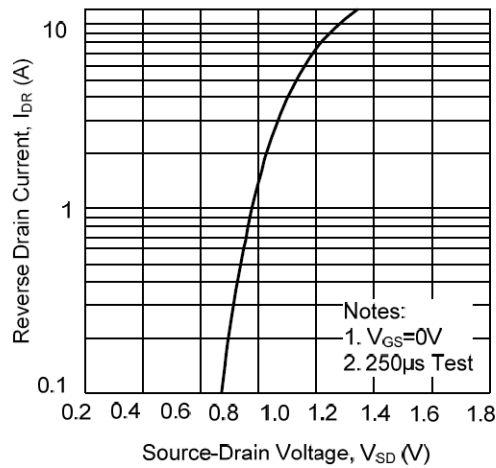
Transfer Characteristics



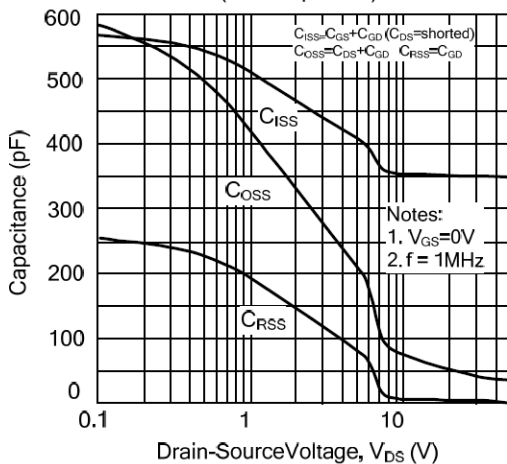
On-Resistance Variation vs. Drain Current and Gate Voltage



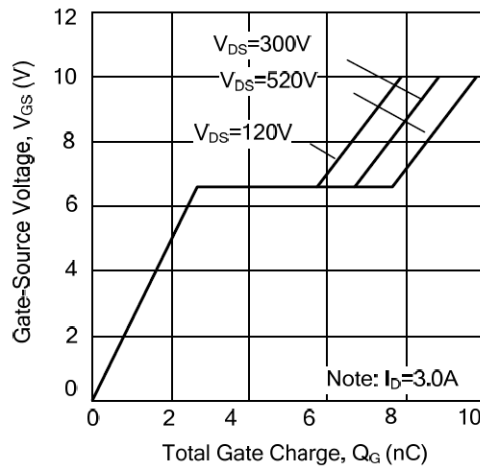
On State Current vs. Allowable Case Temperature



Capacitance Characteristics (Non-Repetitive)

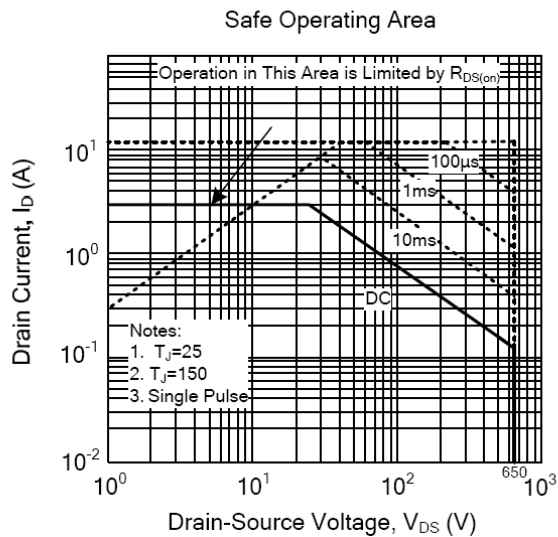
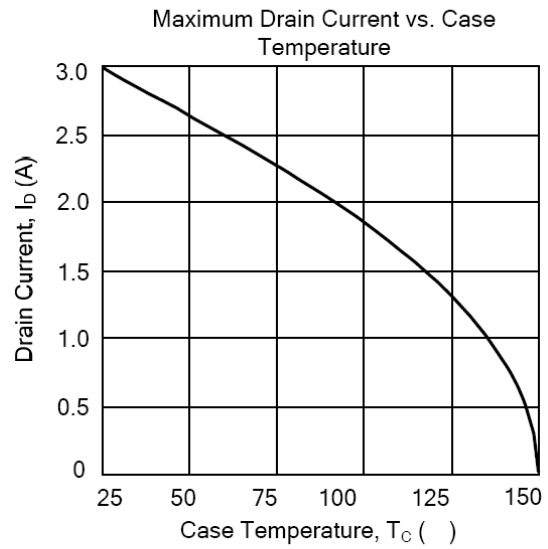
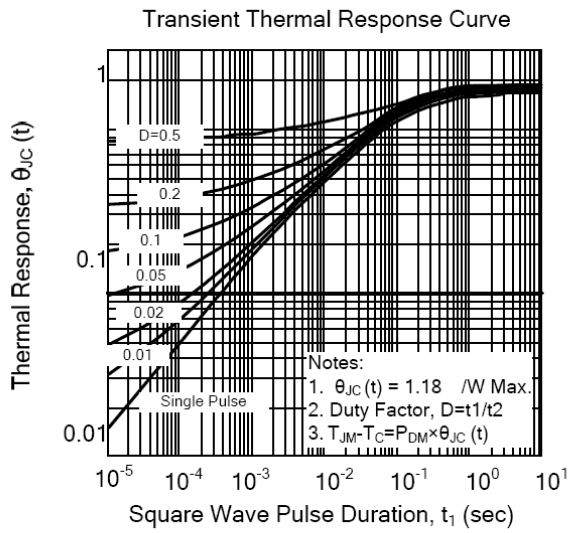
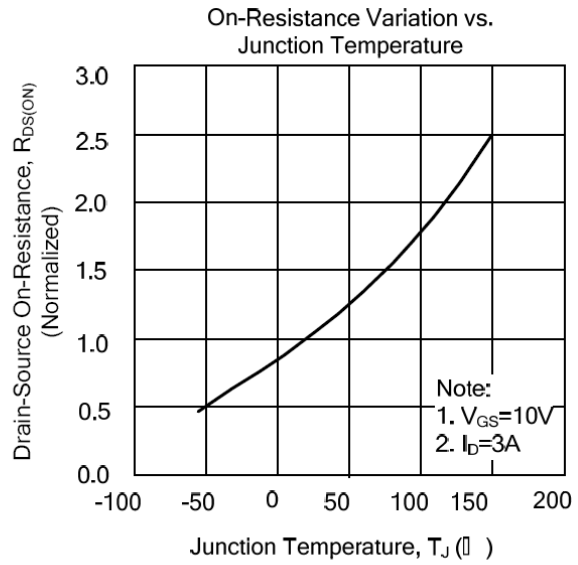
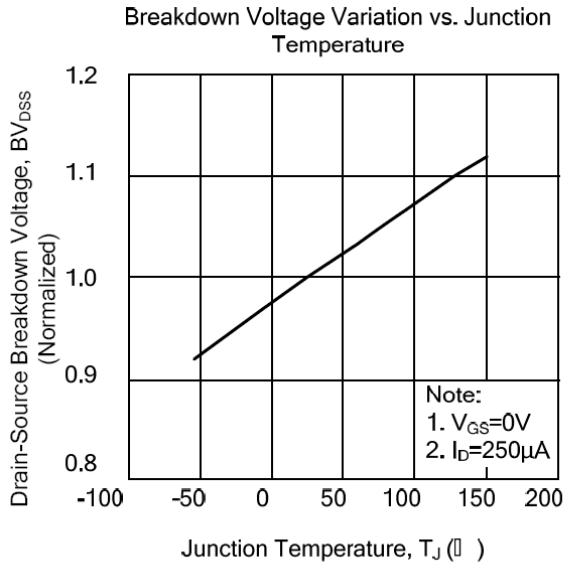


Gate Charge Characteristics



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PACKAGE OUTLINE

Plastic surface mounted package

TO-220AB

