

2.5A,800V N-Channel Power Mosfet

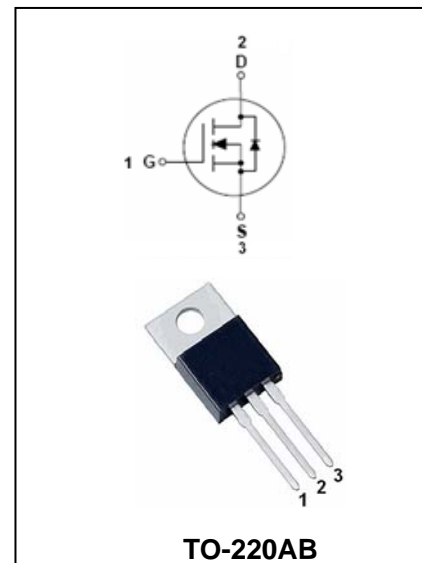
BL3N80

FEATURES

- $R_{DS(ON)} = 3.8\Omega @ V_{GS} = 10V$
- Ultra low gate charge (typical 19 nC)
- Low reverse transfer Capacitance ($CRSS = \text{typical } 11 \text{ pF}$)
- 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	800	V
V_{GSS}	Gate -Source voltage	± 30	V
I_D	Continuous Drain Current	2.5	A
I_{DM}	Pulsed Drain Current	10	A
E_{AS}	Avalanche Energy Single Pulsed	170	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns
P_D	Power Dissipation	70	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}	$V_{GS}=0V, I_D=250\mu A$	800	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=800V, V_{GS}=0V$	-	-	1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$	-	-	± 10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3	3.75	4.5	V
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1.25A$	-	3.8	4.5	Ω
Forward Transconductance	g_{Fs}	$V_{DS}=15V, I_D=1.25A$	-	2.1	-	S
DYNAMIC CHARACTERISTICS						
Input capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	485	-	pF
Output capacitance	C_{OSS}		-	57	-	
Reverse transfer capacitance	C_{RSS}		-	11	-	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 400V,$ $I_D = 1.25A,$ $R_G = 4.7\Omega,$ $V_{GS} = 10V$	-	17	-	ns
Rise Time	t_r		-	27	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	36	-	ns
Fall Time	t_f		-	40	-	ns
Total Gate Charge	Q_g	$V_{DS} = 640V$ $I_D = 2.5A$ $V_{GS} = 10V,$	-	19	-	nC
Gate-Source Charge	Q_{gs}		-	3.2	-	nC
Gate-Drain Charge	Q_{gd}		-	10.8	-	nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_s=2.5A$	-	-	1.6	V
Maximum Continuous Drain-Source Diode Forward Current	I_s		-	-	2.5	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	10	A
Body Diode Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_s=2.5A,$ $di/dt=100A/\mu s$	-	384	-	nS
Body Diode Reverse Recovery Charge	Q_{rr}		-	1600	-	nC

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PACKAGE OUTLINE

Plastic surface mounted package

TO-220AB

