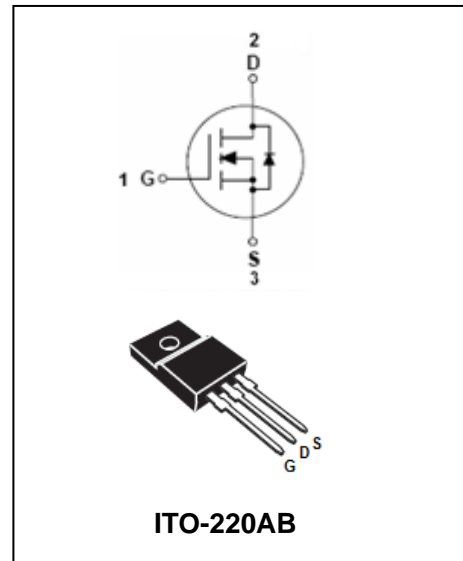


## 4A,500V N-Channel Power Mosfet

BL4N50F

### FEATURES

- $R_{DS(ON)} = 2.0\Omega @ V_{GS} = 10V$
- High Switching Speed
- 100% Avalanche Tested



### Ordering Information

Part Number	Package	Shipping	Marking Code
BL4N50F□	ITO-220AB	50/Tube	4N50F

- : none is for Lead Free package;  
“G” is for Halogen Free package.

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

Symbol	Parameter	Value	Units
$V_{DSS}$	Drain-Source voltage	500	V
$V_{GSS}$	Gate -Source voltage	$\pm 30$	V
$I_D$	Continuous Drain Current	4	A
$I_{DM}$	Pulsed Drain Current	16	A
$E_{AS}$	Avalanche Energy Single Pulsed	216	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns
$P_D$	Power Dissipation	28	W
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	62.5	$^\circ\text{C}/\text{W}$
$\theta_{JA}$	Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$
$\theta_{JC}$	Junction to Case	4.5	$^\circ\text{C}/\text{W}$
$T_J$	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
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	500	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=500V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 30V$	-	-	$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
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	$R_{DS(ON)}$	$V_{GS}=10V, I_D=2A$	-	1.65	2.0	$\Omega$
<b>DYNAMIC CHARACTERISTICS</b>						
Input capacitance	$C_{ISS}$	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	485	650	pF
Output capacitance	$C_{OSS}$		-	65	90	
Reverse transfer capacitance	$C_{RSS}$		-	5	8	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 250V,$ $I_D = 4A,$ $R_G = 25\Omega$	-	14	38	ns
Rise Time	$t_r$		-	21	52	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	27	64	ns
Fall Time	$t_f$		-	20	50	ns
Total Gate Charge	$Q_g$	$V_{DS} = 400V$	-	11	15	nC
Gate-Source Charge	$Q_{gs}$	$I_D = 4A$	-	3	-	nC
Gate-Drain Charge	$Q_{gd}$	$V_{GS} = 10V,$	-	5	-	nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source diode forward voltage	$V_{SD}$	$V_{GS}=0V, I_s=4A$	-	-	1.6	V
Maximum Continuous Drain-Source Diode Forward Current	$I_s$		-	-	4	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$		-	-	16	A
Body Diode Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V, I_s=4A,$ $dI/dt=100A/\mu s$	-	36	-	nS
Body Diode Reverse Recovery Charge	$Q_{rr}$		-	33	-	$\mu C$

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PACKAGE OUTLINE

Plastic surface mounted package

ITO-220AB

