

5A,650V N-Channel Power Mosfet

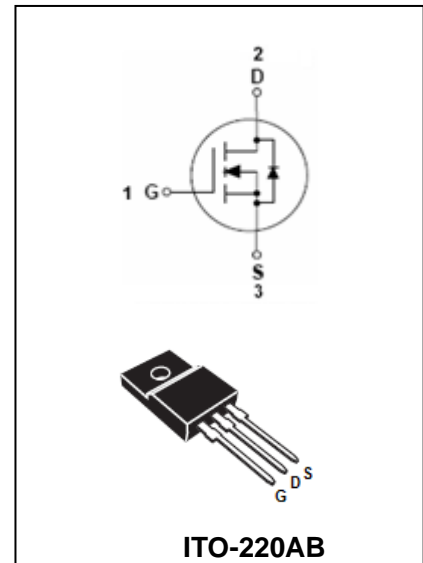
BL5N65F

FEATURES

- $R_{DS(ON)} = 2.4\Omega @ V_{GS} = 10V$
- Ultra low gate charge ( typical 15 nC )
- Low reverse transfer Capacitance (  $CRSS = \text{typical } 6.5 \text{ pF}$  )
- 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	$\pm 30$	V
$I_D$	Continuous Drain Current	5	A
$I_{DM}$	Pulsed Drain Current	20	A
$E_{AS}$ $E_{AR}$	Avalanche Energy Single Pulsed Repetitive	210 10	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns
$P_D$	Power Dissipation	36	W
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	62.5	$^\circ\text{C/W}$
$\theta_{JA}$	Junction to Ambient	62.5	$^\circ\text{C/W}$
$\theta_{JC}$	Junction to Case	3.47	$^\circ\text{C/W}$
$T_J$	Junction Temperature	+150	$^\circ\text{C}$
$T_{OPR}, T_{stg}$	Operating and Storage Temperature	-55 to +150	$^\circ\text{C}$

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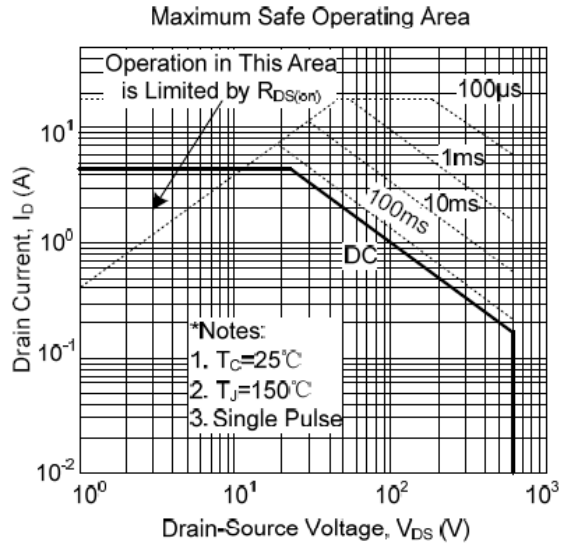
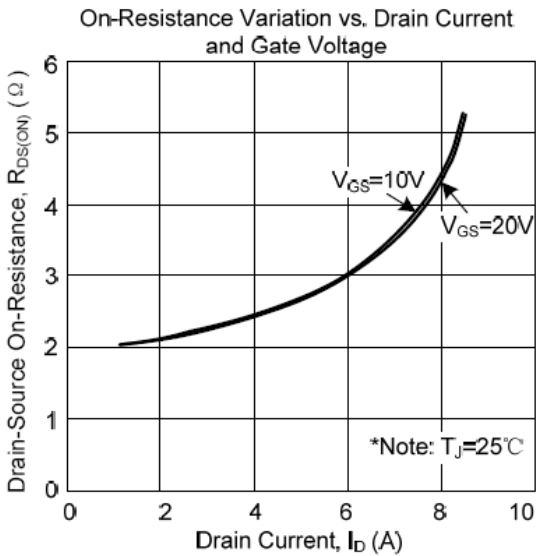
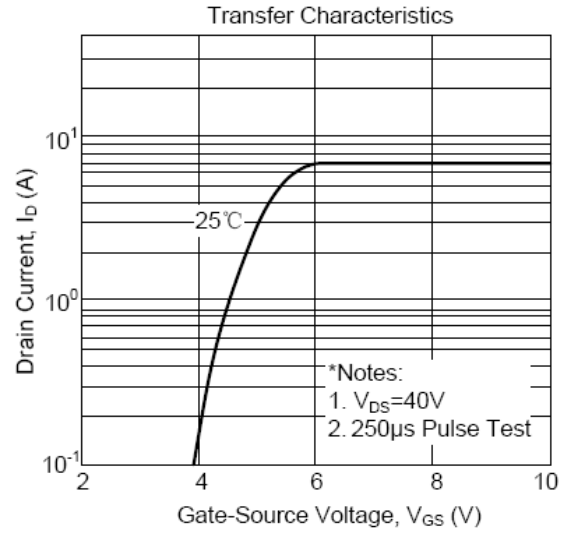
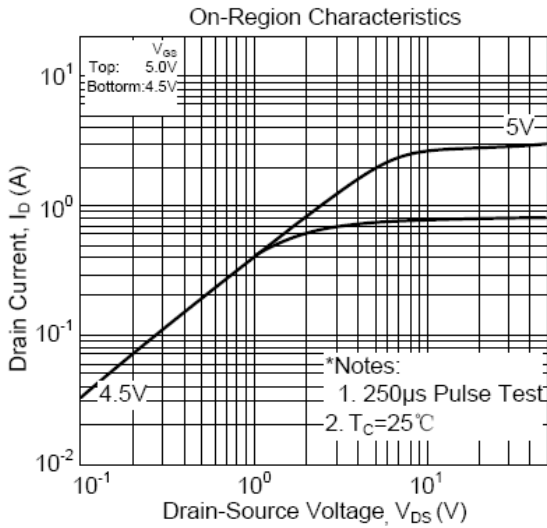
ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	650	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=650V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 30V$	-	-	$\pm 100$	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_J$	$I_D=250\mu A$ , Referenced to 25°C		0.6		V/°C
<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	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$	-	2.0	2.4	$\Omega$
<b>DYNAMIC CHARACTERISTICS</b>						
Input capacitance	$C_{ISS}$	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	510	670	pF
Output capacitance	$C_{OSS}$		-	55	72	
Reverse transfer capacitance	$C_{RSS}$		-	6.5	8.5	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 325V,$ $I_D = 5A,$ $R_G = 25\Omega$	-	10	30	ns
Rise Time	$t_r$		-	42	90	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	38	85	ns
Fall Time	$t_f$		-	46	100	ns
Total Gate Charge	$Q_g$	$V_{DS} = 520V$ $I_D = 6.2A$ $V_{GS} = 10V,$	-	15	19	nC
Gate-Source Charge	$Q_{gs}$		-	2.5	-	nC
Gate-Drain Charge	$Q_{gd}$		-	6.6	-	nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source diode forward voltage	$V_{SD}$	$V_{GS}=0V, I_s=5A$	-	-	1.4	V
Maximum Continuous Drain-Source Diode Forward Current	$I_s$		-	-	5	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$		-	-	20	A
Body Diode Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V, I_s=5A,$ $di/dt=100A/\mu s$	-	300	-	nS
Body Diode Reverse Recovery Charge	$Q_{rr}$		-	2.2	-	$\mu C$

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TYPICAL CHARACTERISTICS



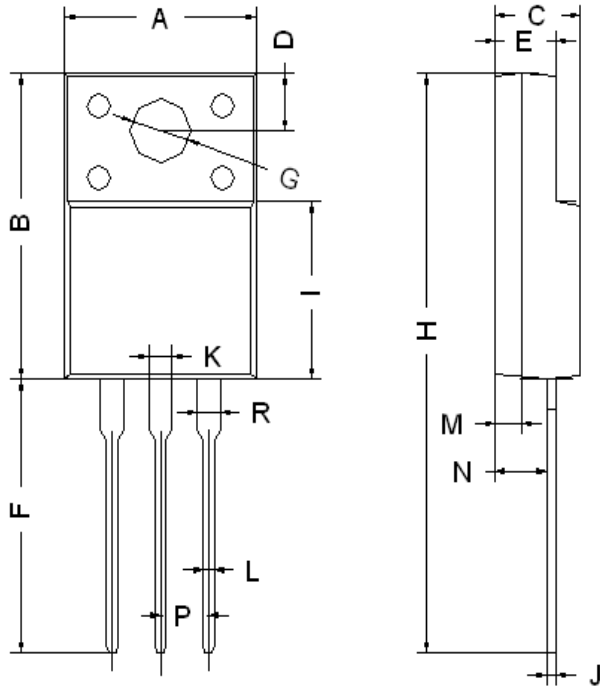
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PACKAGE OUTLINE

Plastic surface mounted package

ITO-220AB



ITO-220AB		
Dim	Min	Max
A	9.90	10.30
B	14.80	15.20
C	4.50 Typical	
D	2.70 Typical	
E	2.80	3.30
F	13.00	13.40
G	3.2 Typical	
H	28.00	28.40
J	0.60 Typical	
K	1.40	1.80
L	0.50	0.70
M	1.40 Typical	
N	2.60	2.80
P	2.45	2.65
R	1.20 Typical	
All Dimensions in mm		