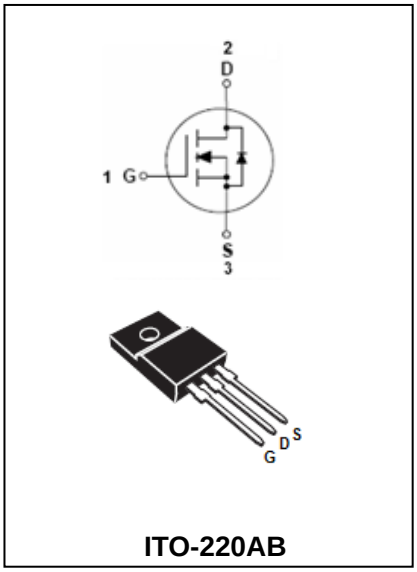
4A,600V N-Channel Power Mosfet BL4N60F

FEATURES

- $R_{DS(ON)}$ =2.5Ω@ V_{GS} = 10V
- Ultra low gate charge (typical 15 nC)
- Low reverse transfer Capacitance (CRSS = typical 8.0 pF)
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

Pb Lead-free



ITO-220AB

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	600	V
V_{GSS}	Gate -Source voltage	±30	V
I_D	Continuous Drain Current	4.0	A
I_{DM}	Pulsed Drain Current	16	A
E_{AS} E_{AR}	Avalanche Energy Single Pulsed Repetitive	260 10.6	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns
P_D	Power Dissipation	106	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	70	℃/W
T_J	Junction Temperature	+150	℃
T_{OPR}, Tstg	Operating and Storage Temperature	-55 to +150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	600	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=600V, V_{GS}=0V	-	-	10	μA
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±1	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	-	4.0	V
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=2.2A	-	-	2.5	Ω
Forward Transconductance	gFS	V_{DS}=50V, I_D=2.2A	-	4.0	-	S
DYNAMIC CHARACTERISTICS						
Input capacitance	C_{ISS}	V_{DS}=25V,V_{GS}=0V,f=1.0MHz	-	520	670	pF
Output capacitance	C_{OSS}		-	70	90	
Reverse transfer capacitance	C_{RSS}		-	8	11	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = 300V, I_D = 4.0A, R_G= 25Ω	-	13	35	ns
Rise Time	tr		-	45	100	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	25	60	ns
Fall Time	tf		-	35	80	ns
Total Gate Charge	Qg	V_{DS} = 480V I_D= 4.0A V_{GS}= 10V,	-	15	20	nC
Gate-Source Charge	Qgs		-	3.4	-	nC
Gate-Drain Charge	Qgd		-	7.1	-	nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source diode forward voltage	V_{SD}	V_{GS}=0V,I_s=4.4A	-	-	1.4	V
Maximum Continuous Drain-Source Diode Forward Current	I_S		-	-	4.4	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	17.6	A
Body Diode Reverse Recovery Time	trr	V_{GS}=0V ,Is=4.4A, dI/dt=100A/μs	-	250	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	1.5	-	uC

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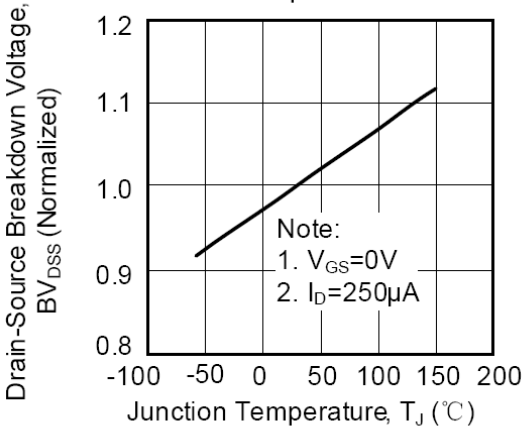
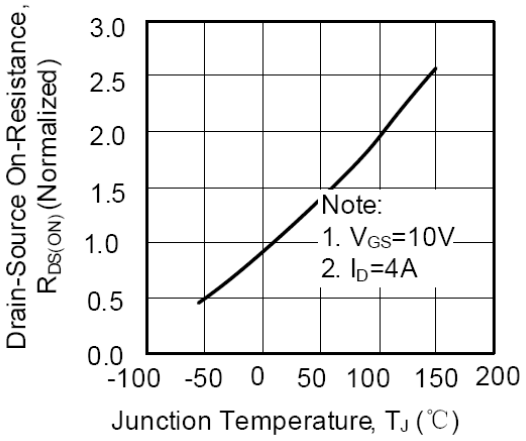
TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

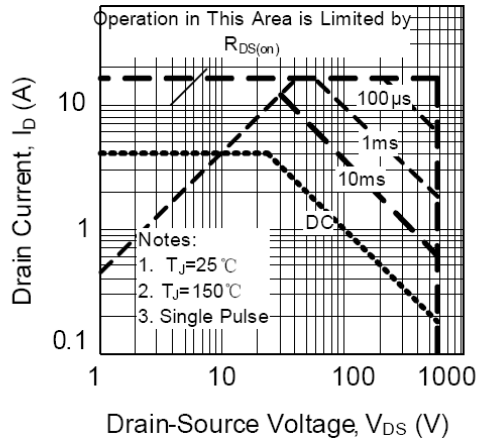
Breakdown Voltage Variation vs Temperature



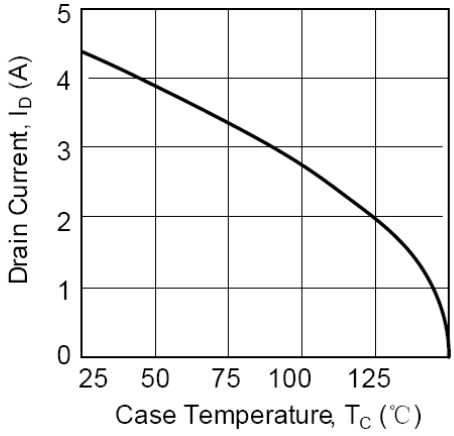
On-Resistance Junction Temperature



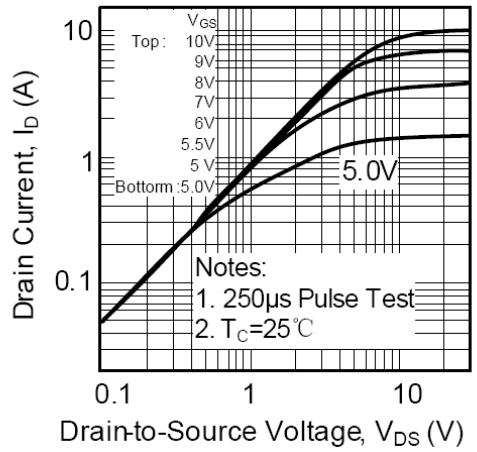
Maximum Safe Operating Area



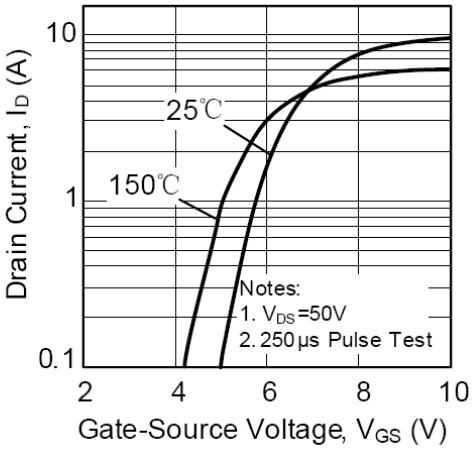
Maximum Drain Current vs. Case Temperature



On-State Characteristics



Transfer Characteristics



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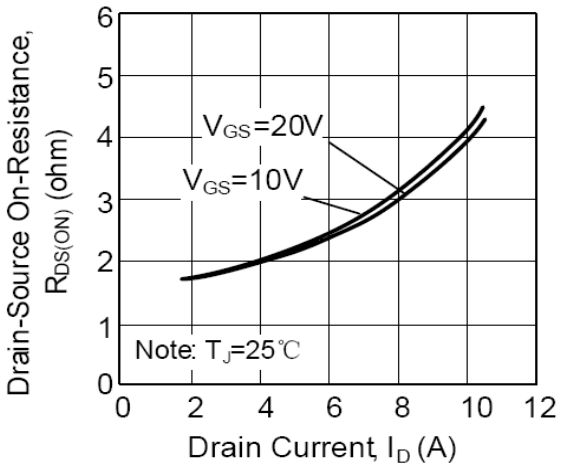
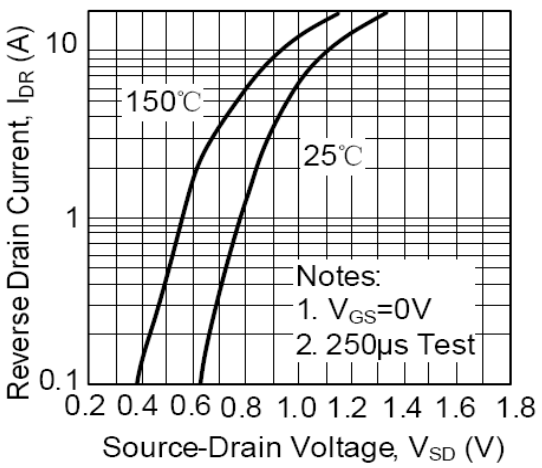
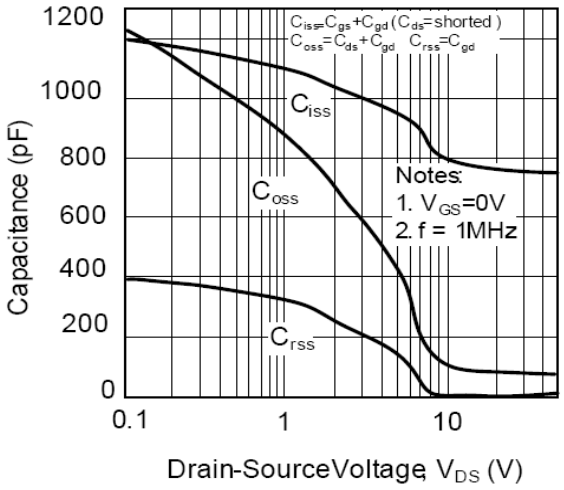
On-Resistance Variation vs Drain Current and Gate Voltage



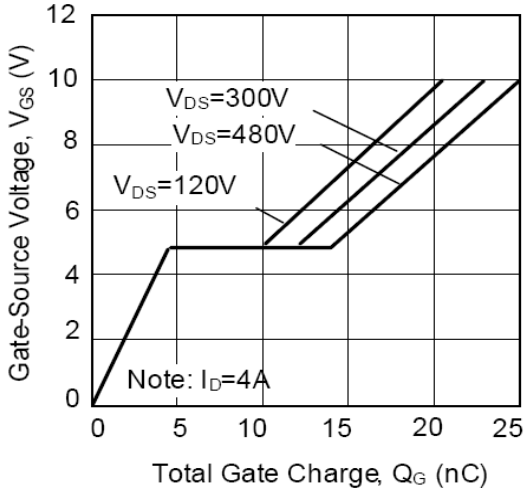
On State Current vs. Allowable Case Temperature



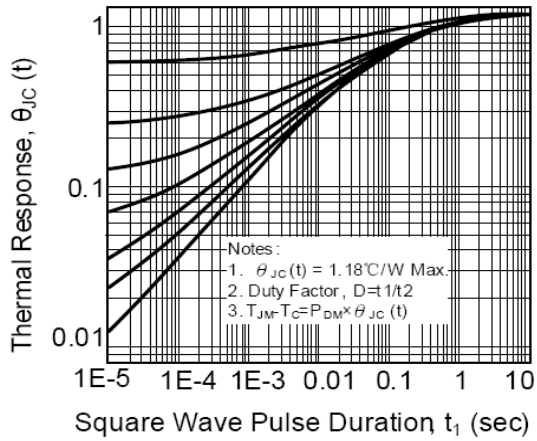
Capacitance Characteristics (Non-Repetitive)



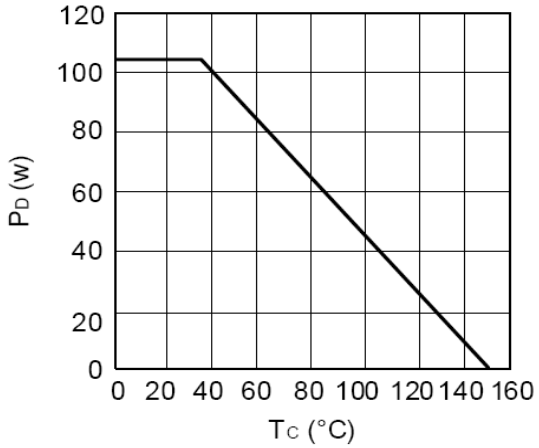
Gate Charge Characteristics



Transient Thermal Response Curve



Power Dissipation



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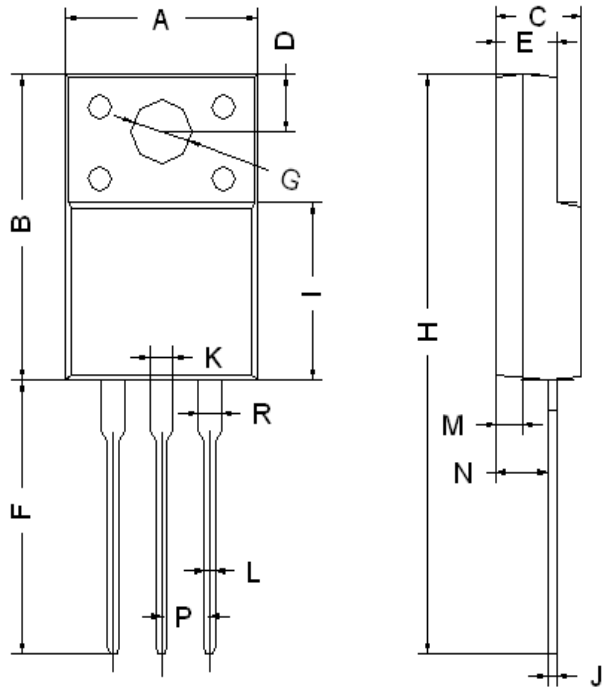
PACKAGE OUTLINE

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	13.60
G	3.2 Typical	
H	28.00	28.60
I	7.90	8.90
J	0.50 Typical	
L	0.70	0.90
M	1.40 Typical	
N	2.60	2.80
P	2.45	2.65
K/R	1.20 Typical	
All Dimensions in mm		