Silicon N-Channel Power MOSFET BL6N60

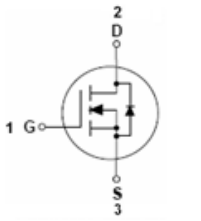
FEATURES

- Fast Switching.
- Low ON Resistance(Rdson≤1.7Ω).
- Low Gate Charge (Typical Data:19nC).
- Low Reverse transfer capacitances(Typical:8pF).
- 100% Single Pulse avalanche energy Test.

Lead-free

Applications:

- Power switch circuit of adaptor and charger.



TO-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	6.0	A
I_{DM}	Pulsed Drain Current [a1]	24	A
E_{AS}	Single Pulse Avalanche Energy [a2]	250	mJ
P_D	Power Dissipation Derating Factor above 25° C	83 0.67	W W/℃
$R_{\theta JA}$	Junction-to-Ambient	62	℃/W
$R_{\theta JC}$	Junction-to-Case	1.5	℃/W
T_L	Maximum Temperature for Soldering	300	℃
T_J	Junction Temperature	+150	℃
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 Ta=25℃	-	-	1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=480V, V_{GS}=0V Ta=125℃	-	-	100	μA
Gate to Source Forward Leakage	$I_{GSS\,(F)}$	V_{DS}=0V, V_{GS}=+30V	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS\,(R)}$	V_{DS}=0V, V_{GS}=-30V	-	-	-100	nA
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=3A	-	1.4	1.7	Ω
Forward Transconductance	g_{fs}	V_{DS}=30V, I_D=3A	-	10	-	S
Pulse width<380 μ s; duty cycle<2%.						
DYNAMIC CHARACTERISTICS						
Input capacitance	C_{ISS}	V_{DS}=25V,V_{GS}=0V,f=1.0MHz	-	700	-	pF
Output capacitance	C_{OSS}		-	75	-	
Reverse transfer capacitance	C_{RSS}		-	8	-	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD}=200V, I_D = 6.0A, R_G= 9.1Ω V_{GS}= 10V	-	10	-	ns
Rise Time	tr		-	13	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	32	-	ns
Fall Time	tf		-	16	-	ns
Total Gate Charge	Qg	V_{DD} = 300V I_D=6.0A V_{GS}= 10V	-	19	-	nC
Gate-Source Charge	Qgs		-	3.5	-	nC
Gate-Drain Charge	Qgd		-	7.5	-	nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source diode forward voltage	V_{SD}	V_{GS}=0V,I_s=6A	-	-	1.5	V
Continuous Source Current (Body Diode)	I_{SD}		-	-	6	A
Maximum Pulsed Current (Body Diode)	I_{SM}		-	-	24	A
Body Diode Reverse Recovery Time	trr	V_{GS}=0V ,Is=6A, dI$_F$/dt=100A/μ s	-	212	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	962	-	uC

Notes：

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a1：Repetitive rating; pulse width limited by maximum junction temperature.

a2：L=10mH, ID=6A, Start TJ=25℃.

a3：ISD=6A,di/dt ≤100A/us,VDD≤BVDS, Start TJ=25℃4、Pulse test: pulse width ≤300us，duty cycle ≤2%.

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Figure 1. Maximum Effective Thermal Impedance, Junction-to-Case

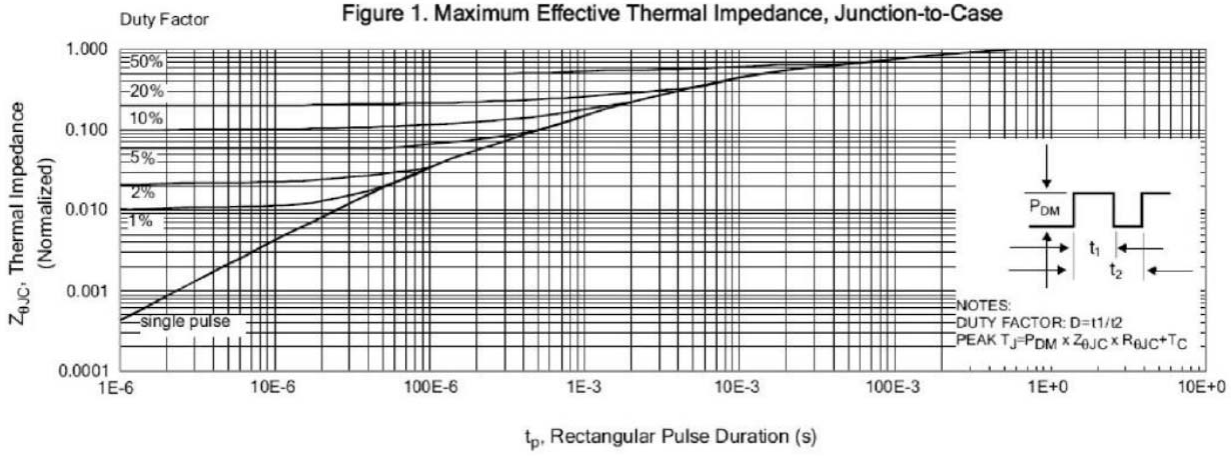

Figure 2. Maximum Power Dissipation vs Case Temperature

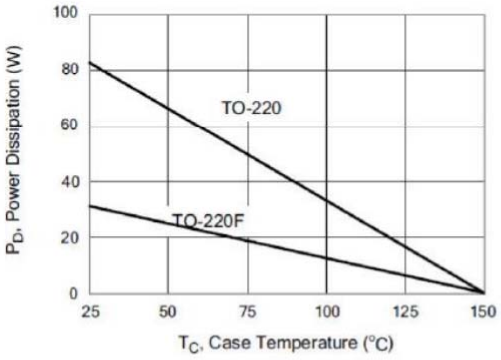

Figure 3. Maximum Continuous Drain Current vs Case Temperature

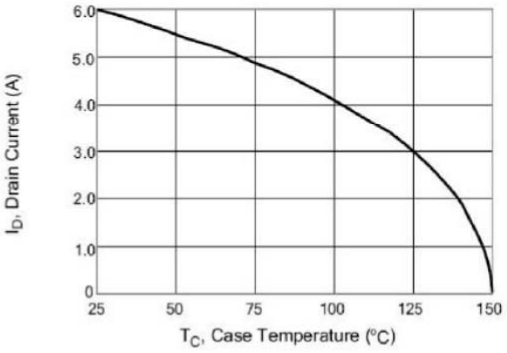

Figure 4. Typical Output Characteristics

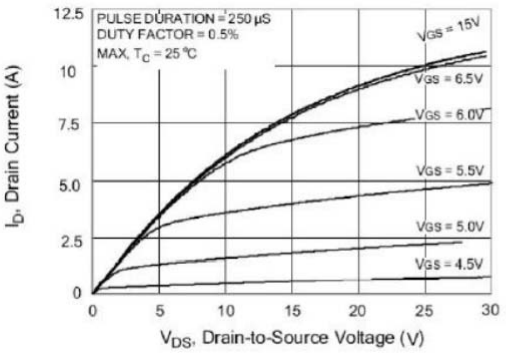

Figure 5. Typical Drain-to-Source ON Resistance vs Gate Voltage and Drain Current

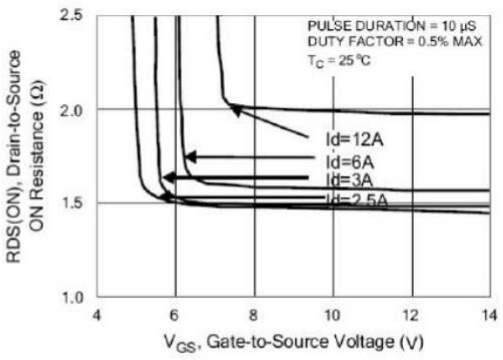

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Figure 6. Maximum Peak Current Capability

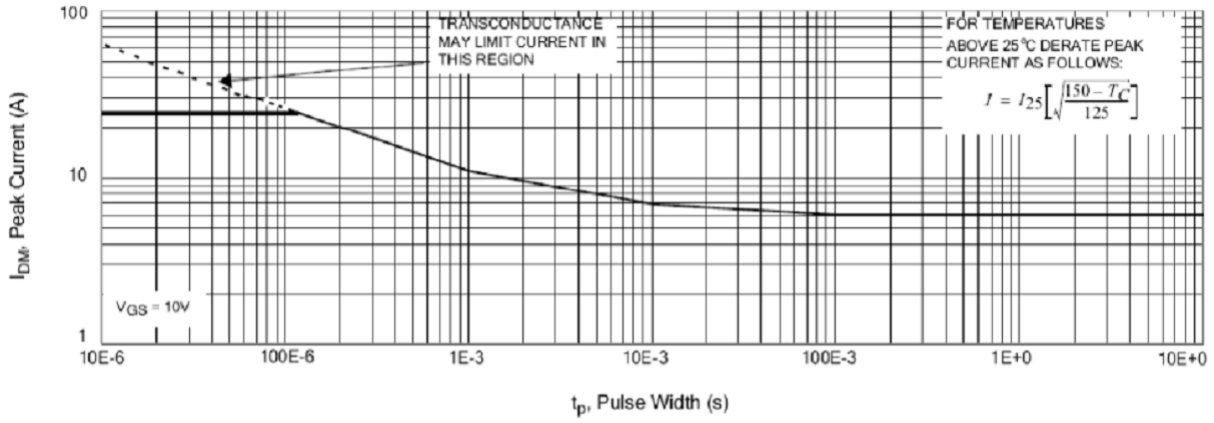

Figure 7. Typical Transfer Characteristics

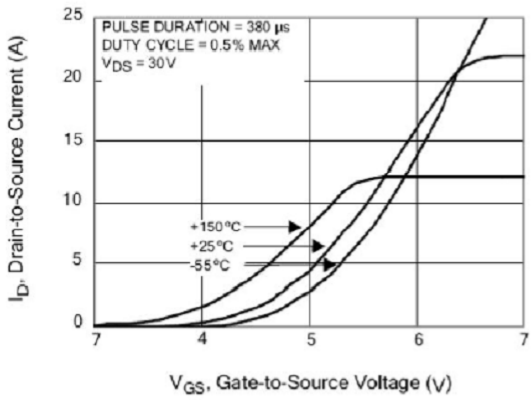

Figure 8. Unclamped Inductive Switching Capability

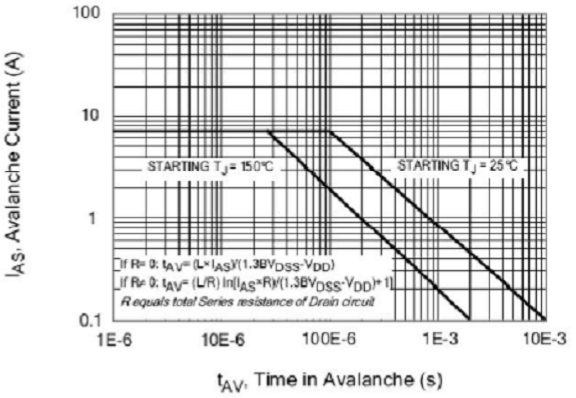

Figure 9. Typical Drain-to-Source ON Resistance vs Drain Current

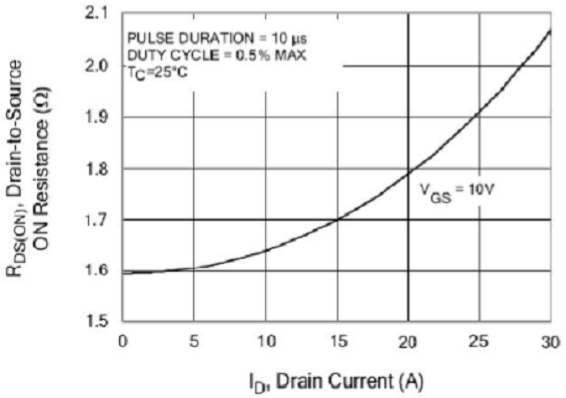

Figure 10. Typical Drain-to-Source ON Resistance vs Junction Temperature

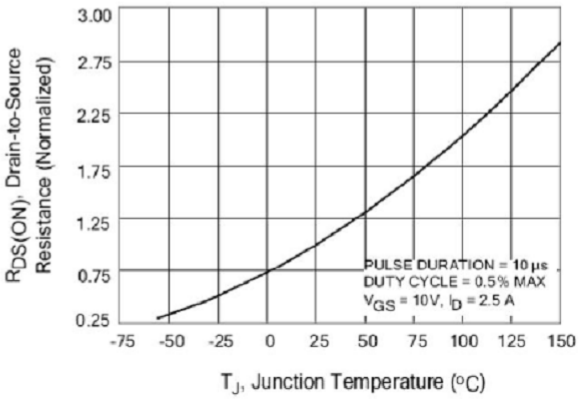

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Figure 11. Typical Breakdown Voltage vs Junction Temperature

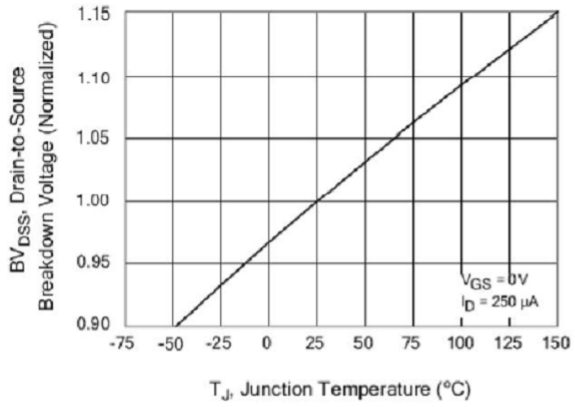


Figure 12. Typical Threshold Voltage vs Junction Temperature

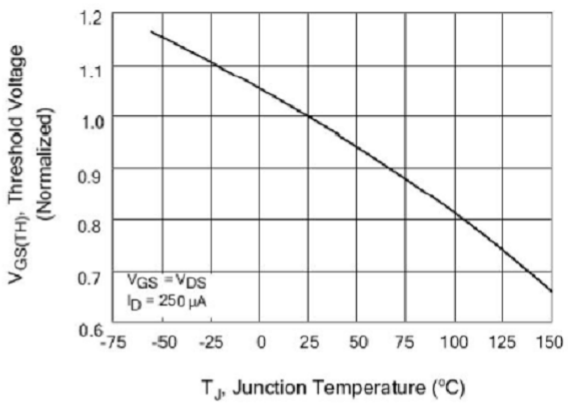


Figure 13. Maximum Forward Bias Safe Operating Area

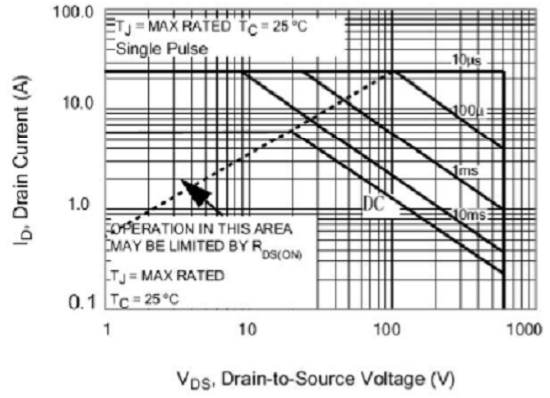


Figure 14. Typical Capacitance vs Drain-to-Source Voltage

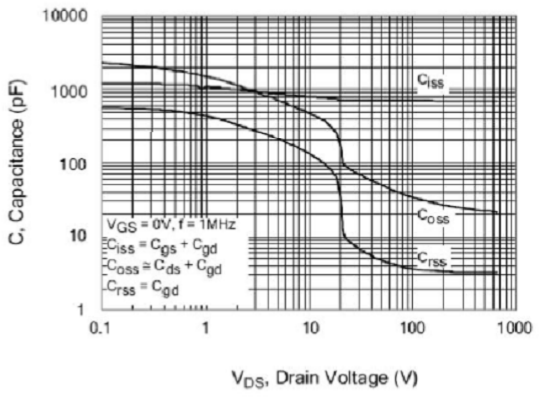


Figure 15. Typical Gate Charge vs Gate-to-Source Voltage

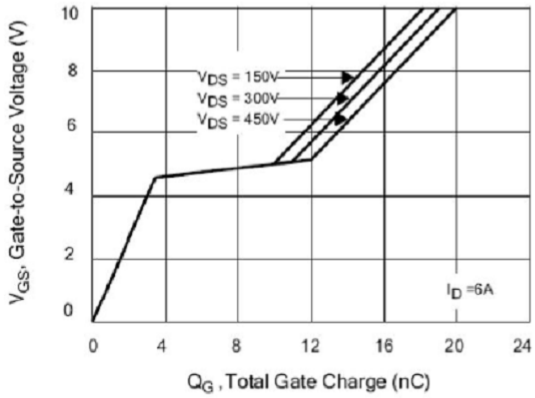
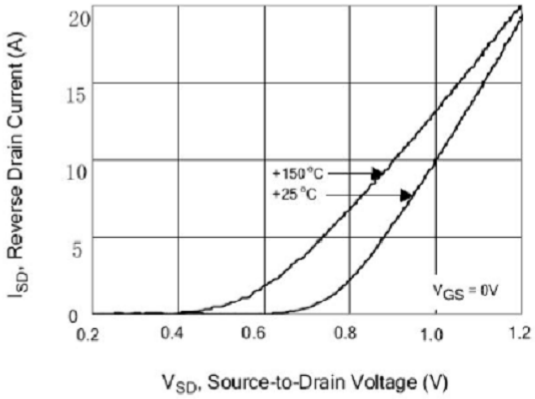


Figure 16. Typical Body Diode Transfer Characteristics



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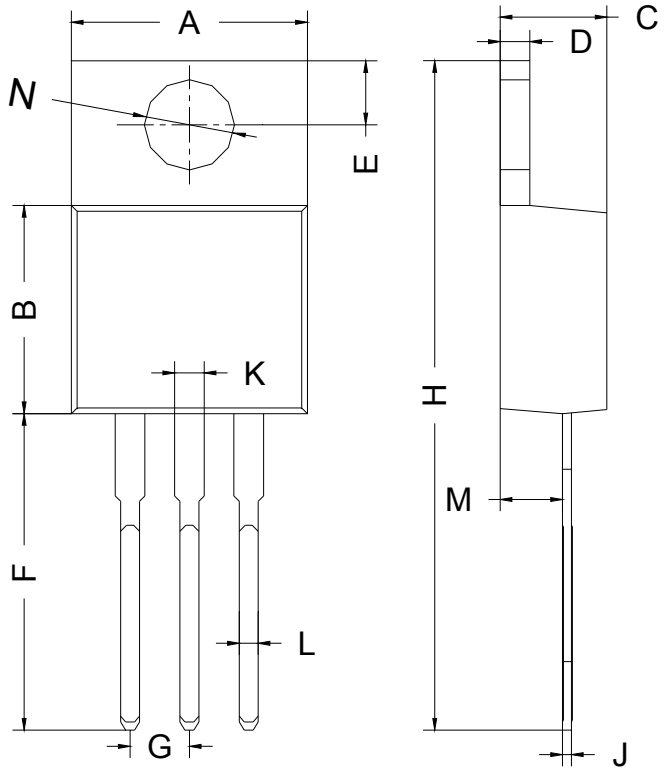
PACKAGE OUTLINE

Plastic surface mounted package TO-220AB



TO-220AB		
Dim	Min	Max
A	9.80	10.30
B	8.70	9.10
C	4.57 Typical	
D	1.27 Typical	
E	2.64	2.84
F	13.14	13.74
G	2.44	2.64
H	28.03	28.83
J	0.38 Typical	
K	1.22	1.32
L	0.71	0.91
M	2.50 Typical	
N	3.86 Typical	
All Dimensions in mm		