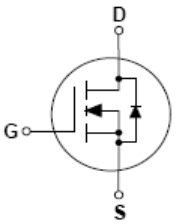
N-Channel Enhancement Mode Field Effect Transistor BL1N60

FEATURES

- RDS(ON) =9.3Ω@VGS = 10V.
- Ultra Low gate charge (typical 5.0nC)
- Low reverse transfer capacitance (CRSS = typical 3.0 pF)
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

Pb Lead-free



TO-220AB

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	600	V
V_{GS}	Gate -Source voltage	±30	V
I_D	Continuous Drain current T_C=25	1.2	A
	Continuous Drain current T_C=100	0.76	A
E_{AS}	Single Pulse Avalanche Energy(Note3)	50	mJ
E_{AR}	Avalanche Energy,Repetitive(Note2)	4.0	mJ
I_{AR}	Avalanche Current(Note2)	1.2	A
ISD	Continuous Drain-Source Current	1.2	A
ISM	Pulsed Drain-Source Current	4.8	A
dv/dt	Peak Diode Recovery dv/dt(Note4)	4.5	V/ns
P_D	Power Dissipation	40	W
	Derating Fcator above 25	0.32	W/
$R_{\theta JC}$	Junction-to-Case	4	/W
$R_{\theta JA}$	Junction-to-Ambient	54	/W
T_J, T_{stg}	Junction and Storage Temperature	-55 to +150	
T_L	Maximum Temperature for Soldering	+150	

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

3. L=64mH, IAS=1.2A, VDD=50V, RG=25Ω, Starting TJ =25°C

4. ISD≤1.2A, di/dt ≤ 200A/μs, VDD ≤ BVDSS, Starting TJ =25°C

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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	600	-	-	V
Bvdss Temperature Coefficient	BV_{DSS}/ T_J	I_D=250mA,	-	0.4	-	V/
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}= V_{GS}, I_D =250uA	2		4	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=600V, V_{GS}=0V	-	-	10	mA
		V_{DS}=480V, Ta=125			100	
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=0.6A	-	9.3	11.5	Ω
Gate-body Leakage Forward Reverse	I_{GSS}	V_{GS}=±30V			±100	nA
Forward Transconductance	gfs	V_{DS}=50V, I_D =0.6A	-	0.9	-	S
Input Capacitance	C_{iss}	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	-	120	150-	pF
Output Capacitance	C_{oss}		-	20	25	
Reverse Transfer Capacitance	C_{rss}		-	3.0	4.0	
Turn-on Delay Time	$td_{(ON)}$	I_D =1.2A V_{DD} = 300V V_{GS} = 10V	-	5	20	ns
Rise Time	tr		-	25	60	
Turn-Off Delay Time	$td_{(OFF)}$		-	7	25	
Fall Time	tf		-	25	60	
Total Gate Charge	Q_g	I_D =1.2A V_{DD} =480V V_{GS} = 10V	-	5.0	6.0	nC
Gate to Source Charge	Q_{gs}		-	1.0		
Gate to Drain (“Miller”)Charge	Q_{gd}		-	2.6		
Reverse Recovery Time	trr	I_S=1.2A,Tj = 25 dIF/dt=100A/us, VGS=0V	-	160	-	ns
Reverse Recovery Charge	Qrr		-	0.3	-	nC

Note: 1. Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%
2. Essentially Independent of Operating Temperature

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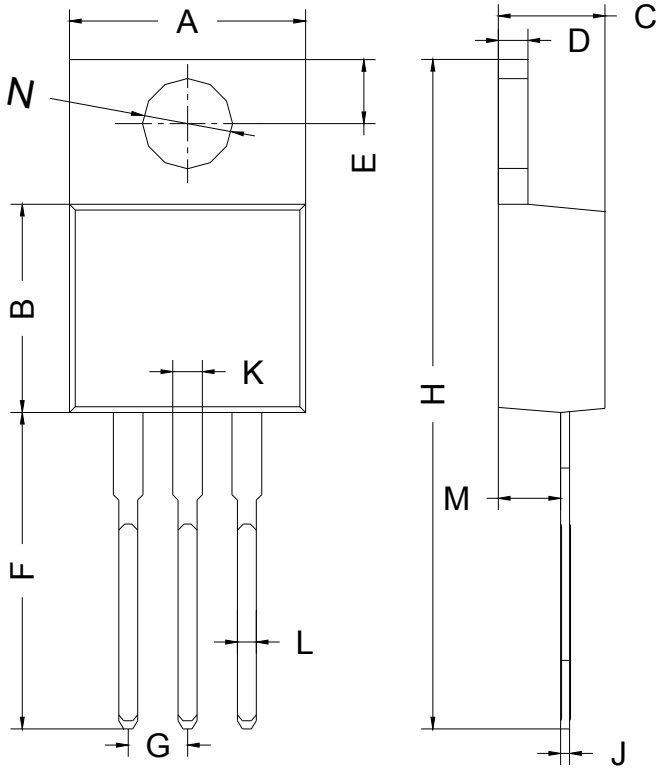
PACKAGE OUTLINE

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		