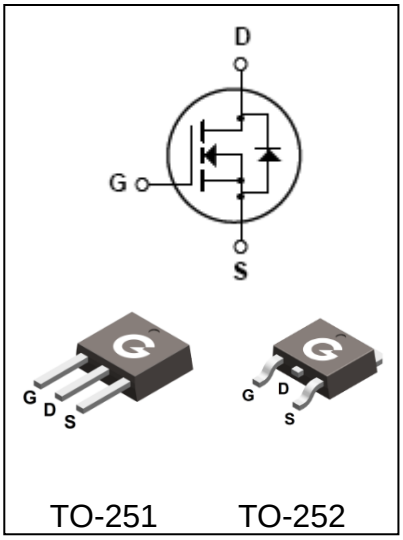
N-Channel Enhancement Mode MOSFET BL3N60I/BL3N60D

FEATURES

HF

- V_{DS} = 600V, I_D = 3A
- $R_{DS(ON)}$ = 3.6Ω@V_{GS} = 10V
- Ultra low gate charge (typical 10nC)
- Low reverse transfer capacitance (C_{RSS} = typical 5.5 pF)
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness



Ordering Information

Part Number	Package	Shipping	Marking Code
BL3N60I	TO-251	80pcs / Tube	3N60I
BL3N60D	TO-252	80pcs / Tube or 2500pcs / Tape & Reel	3N60D

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℃	3.0	A
E_{AS}	Single Pulse Avalanche Energy(Note3)	200	mJ
E_{AR}	Avalanche Energy,Repetitive(Note2)	7.5	mJ
I_{AR}	Avalanche Current(Note2)	3.0	A
I_{SD}	Continuous Drain-Source Current	3.0	A
I_{SM}	Pulsed Drain-Source Current	12	A
dv/dt	Peak Diode Recovery dv/dt(Note4)	4.5	V/ns
P_D	Power Dissipation	50	W
$R_{\theta JC}$	Junction-to-Case	2.5	℃/W
$R_{\theta JA}$	Junction-to-Ambient	110	℃/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

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3. L=64mH, IAS=2.4A, VDD=50V, RG=25Ω, Starting TJ =25°C
4. ISD≤3.0A, di/dt ≤ 200A/μs, VDD ≤ BVDSS, Starting TJ =25°C

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	$\Delta BV_{DSS}/\Delta T_J$	I_D=250uA,	-	0.6	-	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	uA
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=1.5A	-	2.8	3.6	Ω
Gate-body Leakage Forward Reverse	I_{GSS}	V_{GS}=±30V			±100	nA
Input Capacitance	C_{iss}	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	-	350	450	pF
Output Capacitance	C_{oss}		-	50	65	
Reverse Transfer Capacitance	C_{rss}		-	5.5	7.5	
Turn-on Delay Time	$td_{(ON)}$	I_D =3.0A V_{DD} = 300V R_G =25Ω	-	10	30	ns
Rise Time	tr		-	30	70	
Turn-Off Delay Time	$td_{(OFF)}$		-	20	50	
Fall Time	tf		-	30	70	
Total Gate Charge	Q_g	I_D =3.0A V_{DD} =480V V_{GS} = 10V	-	10	13	nC
Gate to Source Charge	Q_{gs}		-	2.7		
Gate to Drain (“Miller”)Charge	Q_{gd}		-	4.9		
Reverse Recovery Time	trr	I_S=3.0A,dIF/dt=100A/us VGS=0V	-	210	-	ns
Reverse Recovery Charge	Qrr		-	1.2	-	uC

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

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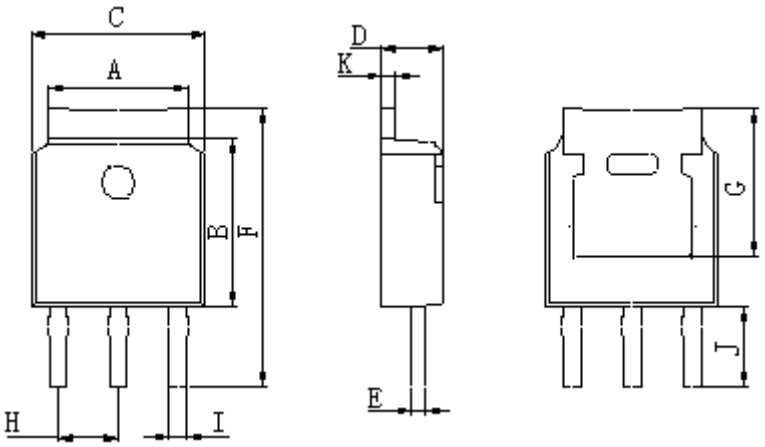
PACKAGE OUTLINE

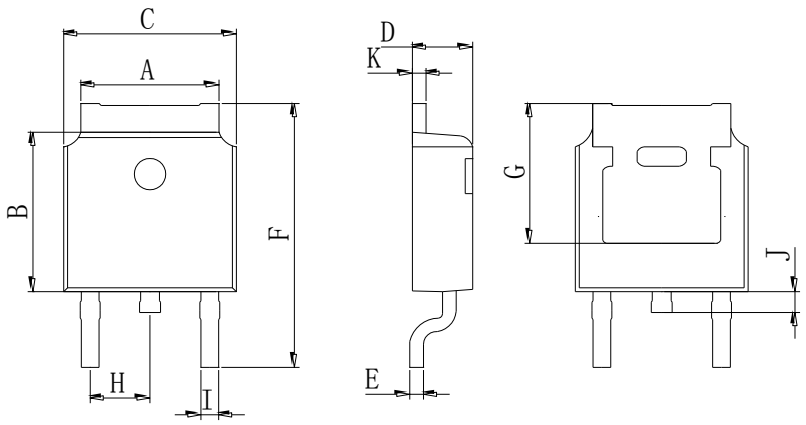
Plastic surface mounted package TO-251



TO-251		
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	11.00	11.60
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	4.00	4.40
K	0.40	0.60
All Dimensions in mm		

PACKAGE OUTLINE

Plastic surface mounted package TO-252



TO-252		
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.7
K	0.40	0.60
All Dimensions in mm		

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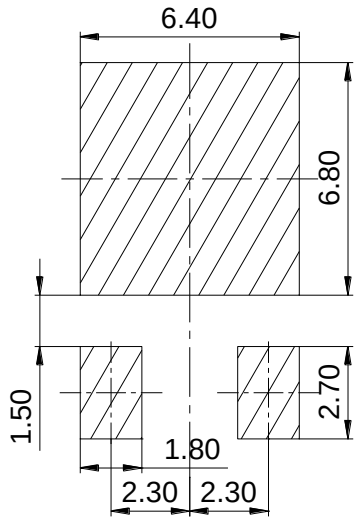
SOLDERING FOOTPRINT



Unit: mm